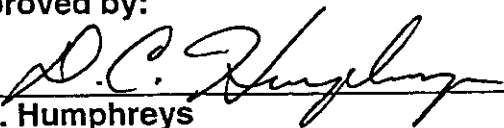


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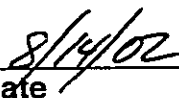
324 Building B-Cell Pressurized Water Reactor Spent Fuel Packaging and Shipment RL Readiness Assessment Final Report

Approved by:



D.C. Humphreys

U.S. Department of Energy,
Richland Operations Office
Readiness Assessment Review Team Lead


Date



**United States
Department of Energy**
P.O. Box 550,
Richland, Washington 99352

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324 Building B-Cell Pressurized Water Reactor Spent Fuel Packaging and Shipment RL Readiness Assessment Final Report

D.C. Humphreys
U.S. Department of Energy, Richland Operations Office

Date Published
August 2002



**United States
Department of Energy**
P.O. Box 550,
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Chris Willingham 9/4/02

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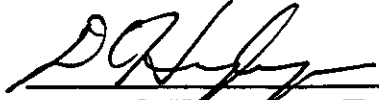
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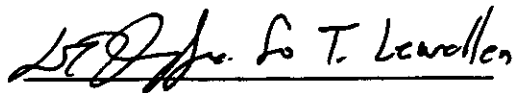
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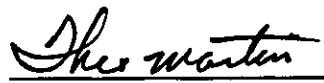
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Dennis C. Humphreys, Team Lead

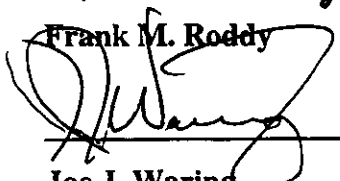

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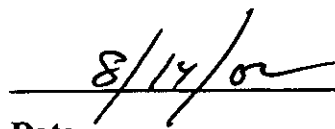

Jim Cook


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EXECUTIVE SUMMARY

A parallel readiness assessment (RA) was conducted by independent Fluor Hanford (FH) and U. S. Department of Energy, Richland Operations Office (RL) team to verify that an adequate state of readiness had been achieved for activities associated with the packaging and shipping of pressurized water reactor fuel assemblies from B-Cell in the 324 Building to the interim storage area at the Canister Storage Building in the 200 Area.

The RL review was conducted in parallel with the FH review in accordance with the Joint RL/FH Implementation Plan (Appendix B). The RL RA Team members were assigned a FH RA Team counterpart for the review. With this one-on-one approach, the RL RA Team was able to assess the FH Team's performance, competence, and adherence to the implementation plan and evaluate the level of facility readiness.

The RL RA Team agrees with the FH determination that startup of the 324 Building B-Cell pressurized water reactor spent nuclear fuel packaging and shipping operations can safely proceed, pending completion of the identified pre-start items in the FH final report (see Appendix A), completion of the manageable list of open items included in the facility's declaration of readiness, and execution of the startup plan to operations.

The RL RA Team has reviewed the FH RA final report and agrees with the evaluations, appraisals, and findings/observations presented in the report with the following additional findings (post start) and observations:

- The Unreviewed Safety Question review of the mobile-critical lift revision to 31-SOP-SNF-002, *SNF Cask Sealing and ISO Loading (OCRWM)* (Rev. 2, Change 0, dated July 9, 2002) was not performed. (CR-10-OP-F-01)

- The FH RA Team final report does not have a functional area for radiological controls.
(CR-13-RC-O-01)
- Areas for improvement noted in the *324 Readiness Self-Assessment Affidavit B1-2ISMS* were not completed prior to declaration of readiness. (CR-15-MG-O-01)
- Improvements could be made to HNF-10996, *324 Building SNF Transfer Project Startup Plan to Operations*, Appendix 1. (CR-15-MG-O-02)
- The assigned Senior Supervisory Watch performed person-in-charge functions while assigned as Senior Supervisory Watch. (CR-15-MG-O-03)
- The FH RA final report provided an appraisal Form 1 for each of the core requirements addressed in the implementation plan, but did not specifically discuss each functional area tied to a given core requirement nor provide objective evidence that this was accomplished making it difficult to determine the completeness of the review based on the final report.
(CR-17-MG-O-01)

RL agrees with the FH RA Team assessment of the management self-assessment process as described in the FH RA Team final report executive summary. Even though recent improvements have been made in the area of readiness preparation, the numbers and types of findings generated by this RA indicate that the readiness preparation processes still have room for improvement.

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1.0 INTRODUCTION

This report documents the U.S. Department of Energy (DOE) Richland Operations Office (RL) Review Team results of the parallel Readiness Assessment (RA) that was conducted for the startup of activities associated with the removal of the pressurized water reactor spent fuel assemblies from the B-Cell in the 324 Building. The RL Manager authorized conduct of this RA as described in the *324 Building B-Cell Spent Fuel Removal Plan of Action* (Klein 2002) and in accordance with the requirements of DOE Order 425.1B, *Startup and Restart of Nuclear Facilities* and the RL Integrated Management System *Parallel Readiness Assessment* process procedure (RIMS 2002).

2.0 READINESS REVIEW EVALUATION

The RL RA Team agrees with the Fluor Hanford (FH) RA Team final report (see Appendix A), Section 2.0, "Evaluations" with the following additional discussions.

Note: For additional details, Appendix C provides the RL RA Team appraisal forms, including the review and approach used for this parallel review. Appendix D contains the RL RA Team findings and observations.

2.1 OPERATIONS

Section 2.2 of the FH RA Team final report (Appendix A) alludes to a rerun of one of the scenes involved with cask preparation facility dry run. Although procedural compliance issues were identified during the loading of the empty International Standards Organization (ISO) container onto the transport trailer, this did not lead to a rerun of this activity. The compliance issues related to mobile crane and rigging equipment capacity requirements are specified in procedure 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*. At no time was the crane or equipment overloaded and the resulting corrective action was an administrative change to apply general lifting criteria instead of imposing the loaded ISO container critical lift requirements.

2.2 MANAGEMENT

No additional information or discussion is necessary than that provided by the FH RA Team final report (Appendix A).

2.2.1 Senior Supervisory Watch

This area is not one of the criteria reviewed, but is one in which management plays a key role in facility oversight. The facility Standing Instruction (SI-324-Bldg-030, Revision 1, April 2002) describes the program and the responsibilities of the Senior Supervisory Watch (SSW). There was only one time when the SSW was actually called out at the pre-job for the mockup work.

When the SSW was on the scene, the SSW also directed work that is contrary to the Standing Instruction. The position was established in April 2002 following an incident in January 2002.

2.3 MAINTENANCE

The facility maintenance program is satisfactory to support the spent fuel transfer project. The maintenance program at the 324 Building was better than those at other facilities onsite. Interviews, document reviews and especially mockup observations were used to determine facility readiness for spent fuel transfer operations. There were complete and detailed maintenance records for calibration and maintenance/surveillance of equipment. Equipment breakdowns and associated maintenance were crosschecked between the owning organization records and the maintenance records and could easily be compared. The maintenance/surveillance program was up to date. There were records of maintenance and calibration procedural changes based on personnel feedback. There were records flagging equipment, which was approaching the maintenance/calibration due dates and the disposition of those required actions.

2.4 SAFETY DOCUMENTS

The assessment in the Safety Documentation functional area was performed against requirements described in the *FH RA Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-202-RA-003* (FH 2002). Activities associated with 324 Building B-Cell pressurized water reactor spent nuclear fuel (SNF) packaging and shipment operations were assessed to determine if they met the core requirements (CR).

The Safety Documentation Program has been developed and revised, as required by 10 *Code of Federal Regulations* 830 and the 324 Building B-Cell pressurized water reactor SNF packaging and shipment operations. During the functional area review of the Safety Documentation area, 33 documents were reviewed, 10 staff members (Nuclear Chemical Operators, supervisors, and managers) were interviewed, and 5 activities were observed.

Staff interviews, observation of evolutions, and training record reviews indicated personnel were well trained and qualified to the safety documentation activities as required. Structure and communication weaknesses exist between 324 Building and support organizations roles and responsibilities to service and support personnel organizations that have a role in the safe conduct of work during 324 SNF transfer work.

During the document reviews, interviews, and observations it was noted that a concern associated with the safety analysis report for packaging existed. The concern was the difference in the required analyses between the 324 Building documentation and that of the external facility. An Unreviewed Safety Question (USQ) was needed to resolve this issue. Lacking the prodding of the RA Team, this documentation would not have been discovered.

2.5 ENGINEERING/STARTUP TESTING

The assessment in the Engineering and Startup Testing functional area was performed against requirements described in the FH RA IP (FH 2002). Activities associated with operations were assessed to determine if they met the core requirements.

Documentation associated with the Engineering Startup and Testing functional area was provided in various forms. The Engineering Change Notices, essential drawings and modifications followed the requirements of HNF-PRO-2000-1, *Project Management for Construction - Execution Phase* and HNF-PRO-1819, *PHMC Engineering Requirements*. The operational test procedure, operational test report, and the acceptance test procedure were written as general service equipment. This documentation does not require the rigor or the depth of review that safety class and safety significant equipment requires. The deviation is permitted per the FH procedures since the accidents associated with this project provide bounding criteria for the general service equipment that is being used in the area of concern. Once this concern was noted, the review was much different than anticipated. There were some areas of opportunity for the facility to consider for the future operations and needed equipment changes.

The Engineering Startup and Testing program has been developed and revised, as required, by the 324 Building B-Cell pressurized water reactor SNF packaging and shipment operations. During the functional area review of the Safety Documentation area, 6 documents were reviewed, 10 staff members (Nuclear Chemical Operators, supervisors, and managers) were interviewed, and 5 activities were observed.

2.6 RADIOLOGICAL CONTROL

The facility radiological controls program is satisfactory to support the spent fuel transfer program even though the FH RA Team final report (Appendix A) did not treat radiological controls as a separate functional area. Interviews, document reviews, and especially mockup observations were used to determine facility readiness for spent fuel transfer operations.

The radiological controls as low as reasonably achievable (ALARA) preparations were reviewed by going over the shielding calculations for the cask, particularly the canister vent hole and canister to cask annulus neutron streaming, the shield plug on the canister, and the temporary shielding for the welding ring. Personnel had incorporated lessons learned from the solid waste disposal box movements that were of higher radiation levels and of comparable contamination levels. The mockup training showed that personnel were sufficiently knowledgeable in radiological controls, especially in controlling the high contamination levels expected. The special double-bag system for contamination control for the cask as it is being removed from the airlock minimized the spread of contamination into the cask handling area. Airborne radioactivity in the cask handling area is minimized by the high-ventilation flow rate going through the airlock door into the airlock and then through high efficiency particulate air (HEPA) filters. Personnel inside the airlock are in bubble hoods and have a personal lapel sampler inside the hood. Personnel helping them undress have air-purifying respirators. There are continuous airborne radioactivity monitors and a fixed-head airborne radioactivity sampler in the cask handling area in the immediate vicinity of the airlock doors. This combination of engineering and administrative controls has been able to prevent anyone from getting an inhalation dose in

the past operations involving removal of highly contaminated materials from the hot cells. Personnel did not always record the simulated readings during the mockup operations.

2.7 QUALITY ASSURANCE (OCRWM)

No additional information or discussion is necessary than that provided by the FH RA Team final report (Appendix A).

2.8 EMERGENCY PREPAREDNESS

The Emergency Preparedness program is developed following the guidelines of the FH Emergency Preparedness Program. The Emergency Preparedness Coordinator is a matrixed individual who also handles several other facilities. The management control in this area is minimized by the matrix operation, but has not created undue concerns to date.

The operational drill performed by the facility did not function as expected in the area of accountability and had to be rerun to ensure the reviewers that the facility was ready in this area.

During the functional area review of the Emergency Preparedness area, 8 documents were reviewed and 10 staff members (Nuclear Chemical Operators, supervisors, and managers) were interviewed.

2.9 TRAINING

The personnel training and emergency preparedness is satisfactory to support spent fuel transfer operations. Interviews, document reviews, and particularly mockup observations were used to determine facility readiness for spent fuel transfer operations.

The mockup training was the principal means for training personnel for the fuel transfer operations. The facility has performed similar operations when the solid waste disposal boxes were moved previously. The solid waste disposal boxes had higher radiation levels than the spent fuel casks and had similar contamination levels. The lessons learned from that experience was factored into the current project. The training records of personnel were reviewed and found to be in good order. Personnel are required to take courses in facility systems even if they are not directly responsible for those systems. The course curricula for this training were also reviewed. The status of overdue training records was reviewed and personnel were found to be current on training needed for spent fuel transfer operations.

The first emergency drill was satisfactory except for accountability. This problem was corrected before the second drill. Personnel performance during three actual abnormal conditions during an airlock entry was exemplary: an alarming electronic dosimeter, a radio failure on the person in the airlock, and a torn outer personal protective equipment (PPE) suit on the person in the airlock.

Personnel were looking out for one another. When they noticed a problem, they helped correct it immediately.

2.10 STANDARDS/REQUIREMENTS IDENTIFICATION DOCUMENT

No additional information or discussion is necessary than that provided by the FH RA Team final report (Appendix A).

2.11 TRANSPORTATION AND SHIPPING

No additional information or discussion is necessary than that provided by the FH RA Team final report (Appendix A).

2.12 ENVIRONMENTAL

There was a clear management structure in place to support environmental evaluation, assessment, and exercise of controls. The environmental group was effective. The 324 Building SNF transfer project environmental subject matter experts have sufficient education and experience to enable them to oversee the environmental protection aspects of the project activities. The Environmental, Safety and Health organization is familiar with the packaging process and reviewed the hazards associated with the packaging process including critical lifts. Environmental requirements have been reviewed, and applicable permits and requirements have been determined to be in place and approved with respect to the 324 Building SNF packaging and shipment activities

2.13 FIRE PROTECTION

No additional information or discussion is necessary than that provided by the FH RA Team final report (Appendix A).

2.14 WELDING

No additional information or discussion is necessary than that provided by the FH RA Team final report (Appendix A).

2.15 INDUSTRIAL SAFETY

The Industrial Safety Program area is developed following the guidelines of the FH Industrial Safety Program. The Industrial Safety Professional is a matrixed individual who also handles several other facilities. The management control in this area is minimized by the matrix operation, but has not created undue concerns to date.

Observations throughout the facility and during the mockup observation provided the opportunity to review the level of Industrial Safety at the facility level. Several lapses were observed and brought to the attention of the facility for correction. These are all noted in the FH RA final report.

2.15.1 Fire Retardant Clothing

This issue arose as part of the oversight observation of the mockup for the welding. The welder and the boilermaker were observed to be wearing brown-colored coveralls that were later found to have a level of fire-retardant protection. The area was a simulated contamination/radiation area. The normal requirement is for those personnel in the area of the welding process to be clothed in red (fire retardant) coveralls. The reviewer was not familiar with the brown-colored coveralls and their ability to provide fire retardancy. A question was raised with the Technical Authority (TA) for arc flash clothing about the brown-colored coveralls. The TA informed the reviewer that only one manufacturer was approved to provide fire-retardant clothing to the facilities onsite. The manufacturer of record is Indura™, Westex, Inc¹. There are two other brands that are available, but are not to be used due to the limited number of industrial washings these garments can undergo. A check of the stock of brown coveralls at the 324 Building, the 306E Building, and the Fast Flux Test Facility revealed several pairs of the unusable brands. An alert was provided to all RL Facility Representatives to check their facilities for fire-retardant welder coveralls and to determine if other facilities had similar concerns. These concerns were to be relayed to the TA so additional actions could be taken. The reviewer also held a discussion, with the Fire Protection TA. The Fire Protection TA has the overall responsibility for protection of the welders from fires. The TA concurred with the current path forward. Several other site facilities noted a stock of the unusable coveralls. The direction from the Arc Flash TA for clothing was to remove these coveralls from service and to contact the FH store for replacement coveralls of the Indura™ brand.

2.16 HOISTING AND RIGGING

The assessment in the Hoisting and Rigging functional areas were performed against requirements described in the FH RA IP (FH 2002). Activities associated with operations were assessed to determine if they met the core requirements.

The Hoisting and Rigging program has been developed and revised, as required, to implement the 324 Building B-Cell pressurized water reactor SNF packaging and shipment operations. During the Hoisting and Rigging functional area review, 30 documents were reviewed, 15 staff members (Nuclear Chemical Operators, Radiological Control Technicians [RCT], supervisors, and managers) were interviewed, and 6 activities were observed.

Staff interviews, observations of evolutions, and training record reviews indicated personnel were well trained and qualified to perform hoisting and rigging activities as required. Structure communication weaknesses exist between 324 Building and support organizations roles and

¹ Indura™ is a registered trademark of Westex, Inc., Chicago, Illinois.

responsibilities to service and support personnel organizations that have a role in the safe conduct of work during 324 SNF transfer work.

A review of the facility cranes and hoisting and rigging hardware revealed a tagging discrepancy found with the ISO lid lifting sling assembly. No further discrepancies were discovered during reviews of cranes and lifting devices, including maintenance history, design documents, crane procedures, performance of work activities, and interviews with equipment custodians.

Document reviews, personnel interviews, and equipment evolutions associated with 31-SOP-SNF-001 (Revision 2, Change C) resulted in several findings related to procedure deficiencies and Integrated Safety Management System (ISMS). Additionally, equipment discrepancies pertaining to hoisting and rigging evolutions with mobile crane operations were observed. Similar deficiencies were discovered during the review of 31-SOP-SNF-002 (Revision 2, Change C).

The Airlock A-Cell Bridge Hoist Structure crane failed during the RA due to unexpected master controller electronic issues. The crane was restored to service and its operation demonstrated by the end of the review. The B-Cell 3-ton crane was out of commission at the start of the review but was back in service by the end of the review. There were discrepancies in implementing HNF-8705, *SARP Onsite NFS -4/NAC-1 Shipping Cask* (Revision 0), procedures, transportation equipment compliance, and hoist and rigging analysis.

2.17 DOE (CORE REQUIREMENT-16)

Both the RL 324 Building mission element staff members and the RL 324 Facility Representative have the necessary knowledge, experience, and qualifications to support the spent fuel removal activity.

2.18 DOE (CORE REQUIREMENT-17)

RL RA Team members have reviewed the FH RA final report (Appendix A) and evaluated the report to the criteria set forth in core requirement-17. The RL RA Team agrees with the FH evaluation regarding the 324 Building personnel's ability to safely remove, package, and ship the pressurized water reactor spent fuel from B-Cell and has concluded that the report satisfies the core requirement-17 criteria.

The RL RA team had a concern regarding the report format, specifically the Form 1 appraisals. The FH final report (Appendix A) provides the following statement in its appraisals:

"All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation."

Had not this been a parallel review it would have been difficult to determine if the evaluations had taken place (see CR-17-MG-O-01 for details).

3.0 LESSONS LEARNED

To be added as an addendum to this report.

4.0 REFERENCES

- DOE Order 425.1B, *Startup and Restart of Nuclear Facilities*, U.S. Department of Energy, Washington, D.C.
- FH, 2002, *FH RA Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-202-RA-003*, (internal letter from N.C. Boyter to W. Harding, F-OIA-02-085, dated June 25), Fluor Hanford, Richland, Washington.
- HNF-8705, *SARP Onsite NFS -4/NAC-1 Shipping Cask*, Fluor Hanford, Richland, Washington.
- HNF-PRO-2000, *Project Management for Construction - Execution Phase*, Fluor Hanford, Richland, Washington.
- Klein, K.A., 2002, *324 B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging Readiness Assessment Plan of Action* (letter to E.K. Thomson, Fluor Hanford, Inc., 02-FTD-0023, dated May 6), U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- RIMS, 2002, *Parallel Readiness Assessment* (in "Facility Startup and Restart" crosscutting process in the Safety and Health Management System), U.S. Department of Energy, Richland Operations Office, Richland, Washington.

APPENDIX A
FLUOR HANFORD AND RICHLAND OPERATIONS OFFICE
TEAM FINAL REPORT
(WITHOUT APPENDIX A)

Fluor Hanford

READINESS ASSESSMENT REPORT FOR

**324 Building B-Cell Pressurized Water
Reactor Spent Nuclear Fuel Packaging
And Shipment Operations**

OIA-2002-RA-003-FR

AUGUST 2002

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324 Building B-Cell Pressurized Water
Reactor Spent Nuclear Fuel Packaging
And Shipment Operations
OIA-2002-RA-003-FR

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EXECUTIVE SUMMARY

Fluor Hanford's 324 Building Deactivation Project prepared for the 324 Building B-Cell Pressurized Water Reactor (PWR) Spent Nuclear Fuel (SNF) Packaging and Shipment Operations, as directed by Central Plateau (CP) to reduce risk in the 300 Area, consolidate SNF at the 200 Area Interim Storage Area (ISA), and move the 324 Building towards deactivation.

The Department Of Energy Manager, Richland Operations Office (DOE-RL), is the designated restart authority.

The Readiness Assessment (RA) was conducted as a joint RA with DOE-RL counterparts. The DOE RA report will be provided separately.

Two significant issues arose during the RA that indicated that the facility was not completely ready for the RA at its start. The two issues involved: 1) A large number of hoisting and rigging issues associated with the use of lifting equipment (mobile cranes, slings, and procedures) outside the 324 Building; and 2) A portion of the RA run as a mockup to display the capability to weld and test the SNF cask after fuel insertion was poorly executed.

As a result of the hoisting and rigging deficiencies, the facility correctly elected to conduct a formal critique to evaluate the causal factors for the events observed and to formulate appropriate corrective actions. The RA Team was satisfied with the critique and the corrective actions identified.

The RA Team identified four additional (larger picture) areas as causal factors for the hoisting and rigging deficiencies noted:

- Pre-RA training on the movement of the SNF cask onto and off of the transport vehicle was deficient in that it was not performed and evaluated to the level of detail necessary to identify the problem areas;
- Crane and rigging expertise outside the 324 Building was not employed to help identify and resolve problem areas prior to the RA;
- The degree of difficulty and complexity of managing the interfaces involved in passing an SNF cask prepared in the 324 Building to outside rigging and transportation services and ultimately to another activity (the 200 Area ISA) was not appreciated; and
- The Management Self-Assessment (MSA) conducted prior to the RA did not review the loading and transportation loading area and consequently did not identify the rigging and handling issues.

The use of a mockup for training on and demonstration of the welding and testing of the loaded SNF cask was a noteworthy concept; however, the implementation of the concept was flawed to a degree that caused the project to perform poorly in the initial demonstration of the welding and testing activities. Subsequent performance of this evolution was satisfactory. The RA Team identified several factors that contributed to the initial poor performance:

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- Training conducted using the mockup was not totally effective due to the degree and types of simulation used. As an example, the training did not use the Personnel Protective Equipment (PPE) required for the actual work. Additionally, most radiological control activities (surveys, etc.) were not performed, and some safety activities (e.g. fire watch) were not rigorous. As a result of the simulation issues, at the start of the RA, project personnel were not ready to demonstrate the welding and testing processes under conditions mirroring the actual working conditions, and the support functions were not ready to be demonstrated.
- Simulation issues notwithstanding, the mockup activities observed by the team were not performed to a level of detail or rigor that permitted a thorough evaluation of in-cell performance. This caused the team to believe that readiness had not been validated to the level necessary prior to commencement of the RA.
- Although the MSA identified some deficiencies in its observations of the mockup activities, it was not effective in evaluating the performance of the mockup work to the level of detail necessary to preclude the issues identified during the RA.

The number and scope of the findings found during the RA raised questions concerning the quality of the review accomplished by the MSA. Greater emphasis should be placed on a "thorough" conduct and review of all operations associated with a readiness to operate (RA, ORR), frank and detailed identification of specific issues with a reviewed facility, and complete resolution of all issues prior to declaration of readiness. In this specific RA, the 324 Building did a good job of resolving post-MSA issues that were identified, but were not aware of the required standards of performance on activities that the MSA did not thoroughly review.

The RA was conducted to determine if 324 Building personnel, equipment, procedures, and documentation had achieved a sufficient state of readiness to ensure safe operation. The RA Team identified the following pre-start findings:

Pre-Start Findings:

- F-1-2 Improvement is required in the supervision and coordination of hoisting and rigging operations outside the 324 Building.
- F-1-4 The weight of the impact limiter was not identified or known by the crane operator or the PIC during the performance of 3I-SOP-SNF-003.
- F-1-5 The ISO Lifting Sling assembly's capacity was not clear. Two tags were attached; neither contained all correct information.
- F-1-6 Load securing tie down capacities and sizes were not provided in procedure 3I-SOP-SNF-002.
- F-1-7 The mobile crane used in performance of 3I-SOP-SNF-001 did not meet the 60,000 lb net capacity at 25 ft. radius requirement specified in the procedure.

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- F-1-8 The goose neck on the alternate Low Boy single drop trailer planned for use in the SNF transfer operations did not meet the 90 degree drop requirement of HNF-8705 (Safety Analysis Report for Packaging [SARP]).
- F-1-9 3I-SOP-SNF-001 procedure requirements for each sling leg in a multi-leg sling to have a 30,000 lb capacity (considering load angle) were not met.
- F-1-10 Transport trailer tires do not meet DOE requirements.
- F-1-12 The 324 Building needs to receive approval of its OCRWM QA Program or specific permission to move fuel from the NSNFP prior to commencement of operations.
- F-6-2 The Uni-Grapple used to attach to and lift fuel assemblies was not in service at the commencement of the RA due to questions about its load rating.
- F-6-3 The B-Cell three ton crane was out of service during the RA.
- F-6-4 The AAHS crane was not operable at the commencement of the RA.
- F-11-1 The initial 324 Building Emergency Drill failed to demonstrate accountability.
- F-15-1 An open 200 Area ISA Unreviewed Safety Question (USQ) associated with decreased inner canister void space must be closed before start-up.

The following Post-Start Findings were identified:

- F-1-1 Service and support personnel need to be made a part of the ISMS team implementation. Interfaces with organizations outside the 324 Building require operational attention.
- F-1-3 The 324 Building needs to ensure that the 200 Area ISA is informed of the lack of technical support for a 75 year storage life at the ISA. If the storage life conclusions are changed, the facility SARP needs to be updated per the revision to the ISA SAR. There is no technical basis beyond 20 years for storage of the ISO/NAC-1/SNF Canister in the 200 Area ISA.
- F-1-11 In some instances, the 324 Building did not comply with the administrative procedures or requirements within their own facility or requirements issued by higher authority.
- F-6-1 The 324 Building SNF Packaging and Shipping Project does not have a grapple with the working load limit necessary to handle the Rod Consolidation Container.
- F-7-1 The Tamper Indicating Devices (TIDs) slated for ISO container use were stored in an unlocked filing cabinet contrary to safeguards and security requirements.
- F-7-2 Review of HNF-8705, SARP, Revision 0, (NFS-4/NAC-1 Spent Fuel Shipping Cask), HNF-3553, Annex D, 200 Area ISA SAR, Revision 2, and SNF-4894, *Project Acceptance Criteria for LWR*

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Spent Fuel Storage System, found a number of administrative inconsistencies between documents.

- F-11-2 The routine operations drill program is not formally implemented, scheduled, or tracked.
- F-13-1 Some personnel who normally work outside the facility but who are involved in SNF movement activities as workers or supervisors (e.g. personnel involved in hoisting and rigging activities outside 324 Building) were not involved in the development, review, or approval of procedures pertaining to their specific activities and were not required to attend pre-job briefings.
- F-13-2 The Automated Job Hazards Analysis (AJHAs) processed by the 324 Building did not consistently bound the work to be performed.
- F-13-3 ISMS was not included as a requirement when contracting subcontractors outside the 324 Building.
- F-14-1 Schedules for gaining compliance with applicable Programmatic Agreement (PA) requirements were not completed, not defined in writing, and not formally approved.
- F-15-2 Revision to engineering and safety documentation, associated with the inner canister length, may require change upon completion of the 200 Area ISA USQ (Reference F-15-1).

The following Observations were identified:

- O-1-1 There is a need to promulgate lessons learned focused on operational issues and results from RAs, ORRs, and other evaluations.
- O-1-2 The list of OCRWM personnel provided to the team was not accurate.
- O-1-3 The 324 Building did not comply with some documentation requirements when preparing for the RA.
- O-1-4 Some assessments of quality-affecting activities governed by OCRWM requirements have not been done.
- O-1-5 A contingency plan for possible failure of the Uni-Grapple with fuel attached does not exist.
- O-1-6 HNF-3553, Revision 2, ISA SAR, for the SNF cask handling with a mobile crane contains specific mobile crane requirements based on safety analysis and boom failure criteria. The 324 Building SARP, HNF-8705, does not address this issue, provide crane analysis criteria, or explain non-applicability.
- O-7-1 The 324 Building SAR was non-compliant in format with DOE-STD-3009-94 and the requirements of 10 CFR 830, SubPart B.

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- O-13-1 The team observed instances where insufficient attention is given to industrial safety. These deficiencies were evident in the 324 Building environment and the Building 306 mockup area. These observations are consistent with those Radiological Control deficiencies identified in CR-13 Form 1.
- O-13-2 The team observed a number of Conduct of Operations (COO) weaknesses during demonstrations, indicating the need for more effective COO practices.
- O-13-3 The team observed a number of deficient radiological controls practices during the course of the RA.
- O-14-1 Roles and responsibilities between SNF and CP, though defined in an interface agreement, are implemented informally and sometimes duplicated.

The following Noteworthy Practices were identified:

- The areas of training, maintenance, fire protection, and emergency preparedness were very well managed and effective in the 324 Building.
- The attitude and courtesy shown by facility personnel toward the RA Team and the close teamwork observed among internal organizations were excellent.
- Facility personnel thought that facility management paid very close attention to any safety concerns raised.
- Welding practices were excellent.
- Pre-job briefs varied in level of performance but all were thorough, inclusive, and well above average.
- During an actual airlock entry observed by the RA Team, three actual upset conditions occurred. The airlock entry and all upset conditions were handled in an excellent manner.

The RA Team determined that the startup of the 324 Building B-Cell PWR SNF Fuel Packaging and Shipment Operations can safely proceed, pending completion of the identified pre-start items in this report, completion of the Manageable List of Open Items included in the facility's declaration of readiness, and execution of the Startup Plan to Operations.

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ACRONYMS

AAHS	Airlock A-Cell Bridge Hoist Structure
AC	Administrative Control
COO	Conduct of Operations
CP	Central Plateau
CR	Core Requirement
CRAD	Criteria and Review Approach Document
DOE	Department of Energy
DTS	Deficiency Tracking System
EP	Emergency Preparedness
EPA	U.S. Environmental Protection Agency
FD	Fire Department
FH	Fluor Hanford
IP	Implementation Plan
ISA	Interim Storage Area
ISMS	Integrated Safety Management System
LCO	Limiting Condition of Operation
MSA	Management Self-Assessment
NEPA	National Environmental Policy Administration
NOC	Notice of Construction
OSR	Operational Safety Requirements
POA	Plan of Action
PWR	Pressurized Water Reactor
RA	Readiness Assessment
RCP	River Corridor Project
RL	Richland Operations Office
SAR	Safety Analysis Report
SB	Safety Basis
S/RID	Standards/Requirements Identification Document
USQ	Unreviewed Safety Question
USQD	Unreviewed Safety Question Determination

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1.0 INTRODUCTION

1.1 General

This report has been prepared to comply with the requirements of U. S. Department of Energy (DOE) Order 425.1A, *Startup and Restart of Nuclear Facilities*, and HNF-PRO-055, *Startup Readiness*. The scope of the RA is described in the *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*, which was prepared by the 324 Building Deactivation Project line management and approved by the U.S. Department of Energy, Richland Operations Office (DOE-RL) Director of the Office of Nuclear Material Stabilization, on May 6, 2002.

The Manager, DOE-RL, is the approval authority for the start up.

1.2 324 Building B-Cell Pressurized Water Reactor Spent Fuel Packaging and Shipment Operations

The 324 Building B-Cell PWR SNF Packaging and Shipment Operations involve packaging of SNF currently in storage at the 324 Building and removal of the fuel from the 324 Building as part of the building deactivation process. Spent fuel assemblies and spent fuel pins will be placed into canisters for installation in Nuclear Assurance Corporation (NAC) spent fuel storage casks. The packaging operation includes fuel loading into the canister/cask assembly, canister closure welding, pressure testing, leak testing, cask loading onto transport vehicles, and shipment to the 200 Area ISA, including transfer of documentation.

2.0 READINESS ASSESSMENT EVALUATION

2.1 Management

The assessment in the Management functional area was performed against requirements contained in the 324 Building B-Cell PWR SNF Packaging and Shipment Operations POA and described in the RA IP. Activities and equipment associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were inspected and assessed to determine if Management program(s) had been developed or revised, as necessary, and implemented to address 324 Building B-Cell Spent Fuel Packaging operations.

During the course of the Management functional area review, over 50 documents were reviewed, 20 staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed and 16 activities/operational equipment evolutions were conducted.

Service and support personnel in and outside the 324 Building were not fully included in the process to ensure the safe conduct of work. Deficiencies were noted in hoisting and rigging operations with support services outside the facility. Communications with other entities required action or improvement. Industrial safety required increased emphasis.

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2.2 Operations

The assessment in the Operations area was performed against requirements established in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations and maintenance were assessed.

During the course of the Operations functional area review, over 40 documents were reviewed, a cross-section of staff (Nuclear Chemical Operators, craft, supervisors and managers) were interviewed and the six scenes demonstrating the SNF transfer evolution, in its entirety, were observed. One of the six scenes observed (Cask Preparations) was not performed satisfactorily as evaluated by the RA Team. The facility proposed and performed this scene a second time. The second performance was satisfactory. One scene (Welding/Purge/Backfill Testing) was performed as a mockup and failed to demonstrate acceptable performance in a mockup environment. The facility proposed and performed the scene a second time and satisfactory performance was observed.

Programmatic elements of COO were in place at the 324 Building. Interviews indicated personnel were trained and understood COO principles and how they applied to their particular job duties. Dry run demonstrations, however, revealed a number of weaknesses in this area. Additionally, issues were noted with subcontractor work at the facility. Findings in this area related to worker involvement by service and support personnel.

2.3 Maintenance

The assessment in the Maintenance functional area was performed against requirements contained in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations maintenance were assessed.

During the course of the Maintenance functional area review, over 20 documents were reviewed, five staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed and three activities were observed.

The 324 Building maintenance program was well defined and well run. It defined program requirements for corrective maintenance, preventive maintenance, and post-maintenance testing of systems required for the 324 Building B-Cell Spent Fuel Packaging Project. Spot checks of completed corrective maintenance work packages showed them to be comprehensive and detailed with all required re-tests and reviews completed. There was evidence of a feedback loop in that several of the procedures had been changed to incorporate worker inputs either prior to or after execution. Facility preventive maintenance records were current and indicated that all required preventive maintenance, including that for SSCs, had been completed within the required periodicities and that maintenance approaching a due date was scheduled for performance. No corrective or preventive maintenance issues existed that would affect the startup and execution of the 324 Building B-Cell Spent Fuel Packaging Project.

The 324 Building surveillance program was also well defined and well run. The program was implemented by procedures that captured the elements necessary to ensure that the safety basis for the facility was in place including required surveillances and the intervals at which they must be performed.

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Test procedures and acceptance criteria were consistent with the approved operating basis. Surveillance and test records were complete and showed that surveillances had been performed at the required intervals and that all required reviews had been completed. The records reviewed required no follow-up actions. Interviewed personnel were able to discuss how the follow-up process would be applied if needed. No deficiencies were noted during an observation of Zone I and Zone II ventilation surveillance execution. During a walk-down of the facility's Zone I and Zone II ventilation systems, the as-found configuration matched the SAR, procedures, and essential drawings.

2.4 Safety Documentation/Criticality Safety/S/RID

The assessment in the Safety Documentation functional area was performed against requirements established in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Safety Documentation, Criticality and S/RID functional area reviews, over 36 documents were reviewed, 22 staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed and three activities were observed.

The team's review of the 324 Building Authorization Agreement, the SAR and the Operational Safety Requirements (OSRs) documents confirmed that there was a DOE approved and adequate safety basis for the facility. Although the content of the SAR met DOE-STD-3009-94, it was non-compliant (in format) to the Standard and to the 10 CFR 830, Part B, "Final Rule." DOE-RL has directed the contractor to prepare a Basis for Interim Operation. Appropriate OSRs, Limiting Condition of Operation (LCOs), and Administrative Controls (ACs) were derived and implemented to control the potential hazards associated with the facility. The Safety Equipment List was current and accurate. An active USQ process was in use to ensure that modifications and procedure changes were analyzed and documented prior to their implementation. Positive USQs resulting from this process were integrated into the SAR during the annual review and update. A walk-down of the Zone I and Zone II ventilation systems critical to safety was conducted. Results of that walk-down confirmed that the pertinent drawings were current, and the appropriate surveillances and tests were conducted at the right frequency. The 324 Building Criticality Safety Program was implemented, although criticality was considered not credible by the safety analysis due to the limited amount of fissile material. The Criticality Safety Engineer had, however, implemented Criticality Safety Specifications and postings. Batch limits were established and controlled.

The SARP for the onsite NFS-4/NAC-1 Spent Fuel Shipping Cask was reviewed and compared to the site requirements, the NUREG requirements, the 200 Area ISA SAR, and the NRC Certificate of Compliance. The team concluded that there was no technical basis beyond 20 years for SNF storage in an ISO container in the 200 Area ISA. Comparison of the SARP to the SNF Project Acceptance Criteria found a number of administrative inconsistencies between documents. Storage of ISO container Tamper Indicating Devices (TIDs) in 324 Building was improper when reviewed.

The DOE-RL approved POA for the Project Readiness Review limited S/RID compliance to the PA between SNF and CP projects. The PA was evaluated and found to be satisfactory but it did not have a schedule defined or approval by the 324 Building Director.

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2.5 Engineering/Startup Test Program/ISMS

The assessment in the Engineering functional area was performed against requirements established in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Engineering, Startup Test Program and ISMS functional area reviews, over 19 documents, 12 staff (Engineers, safety basis, quality, craft, supervisors and managers) were interviewed and two evolutions observed.

The 324 Building Essential Drawings were reviewed and determined to be current according to site requirements. Drawings of the Zone I and Zone II ventilation system, which were essential, were current and had not been modified since ca. 1994. All Zone I and Zone II Essential Drawings reflected the current facility configuration. Facility and equipment modifications were reviewed and approved by the designated Design Authority (DA), execution was governed by the AJHA process and the JCS. The JCS ensured that procedures and training were appropriately changed. Spent Fuel handling equipment was designated as General Service and was largely exempted from rigorous site requirements by applying a graded approach. Factory Acceptance Tests of SNF handling equipment were well documented. Operational Tests (OTPs) of this equipment were performed using appropriate test procedures. An Operational Test Report that documented the results of the OTPs was reviewed. Management, operational, and service and support personnel were observed and interviewed by the team throughout the evaluation. ISMS was clearly understood and practiced by management and operational personnel in the 324 Building. Service and support personnel, both inside and outside the facility had not been assimilated into the ISMS process. Weaknesses were noted in service and support personnel in their understanding of their roles and responsibilities in ensuring success of the 324 Building SNF packaging and shipping process. Feedback to and from service and support personnel was immature, lacked coordination, and was not acted upon in a proper manner. Lessons learned were not effectively used to ensure that support was fully applied to the SNF Project by service and support personnel.

2.6 Radiological Controls

The assessment in the Radiological Controls functional area was performed against requirements contained in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Radiological Controls functional area review, over 45 documents were reviewed, 30 staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed and 11 activities were observed.

The radiological controls program was well administrated. The team reviewed numerous radiological controls records including survey records, instrument calibration records, Radiation Work Permits, dose estimate documentation for the SNF packaging and transfer work, high radiation area control records, ALARA Committee records pertaining to the project, and RCT training and continuing training records. All were complete, well maintained, and up to date. Although a few discrete areas of knowledge

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weakness were identified, personnel interviewed demonstrated a good understanding of programmatic radiological controls and record keeping requirements.

Radiological control performance during the activities observed by the team was generally strong with a few exceptions. Areas where deficiencies were observed included: the failure to properly document some survey results; poor survey performance during mockup operations; some poor practices such as touching the face and improperly reaching inside protective coveralls to retrieve a pen while in a contamination area; some confusion in the posting of radiation areas; and, four instances of radiation area boundary violations (these occurred early in the review and were not repeated in later activities). The team did not observe one required neutron survey due to the inability of the project team to transport the neutron instrument (a snoopy) to the top of the elevated platform due to its size and weight. No deficiencies were noted in radiological performance during an emergency preparedness drill and during an actual airlock entry. Overall the radiological controls performance observed was adequate to support the SNF activities.

2.7 Quality Assurance/OCRWM/Corrective Action Management

The assessment in the Quality Assurance, OCRWM, and Corrective Action Management functional areas was performed against requirements contained in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Quality Assurance and Corrective Action Management functional area reviews, over 19 documents were reviewed, and ten staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed.

QA was provided as a service from the Central Plateau (CP) Environmental, Safety, Health, and Quality Assurance organization. One full time QA Engineer with one backup served the 324 Building. Both engineers were Office of Civilian Radioactive Waste Management (OCRWM) Program qualified. FH QA procedures flowed-down to Administrative and Technical procedures developed and signed by the QA Engineers. QA maintained a log of Nonconformance Reports (NCRs) and their disposition as part of a site-wide requirement. QA was a reviewer of the AJHA without signature.

QA maintained a list of fully qualified and overview qualified OCRWM personnel for the 324 Building. QA also maintained a Q List of safety significant equipment/components per OCRWM requirements. QA was a recipient of Lessons Learned but not an active participant.

Incoming inspections were performed by Central QA according to requests prepared by cognizant engineers in conjunction with QA Engineers. A QA Inspector assigned to the 324 Building was qualified as a general/mechanical and weld inspector. There was one backup inspector from PFP; however, the inspector was not OCRWM qualified.

QA packages were inspected and found to be satisfactory. Two QA audits were reviewed, the last being in April 2002. Two deficiencies were identified, Deficiency Evaluation Forms written, and the items remain open.

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2.8 Fire Protection

The assessment in the Fire Protection functional area was performed against requirements contained in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Fire Protection functional area review, over six documents were reviewed and five staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed.

Fire Protection was a CP service provided to the 324 Building. The designated Fire Protection Engineer was qualified and had a qualified backup. The Fire Protection program was well defined and flowed-down from DOE requirements through FH procedures to facility procedures. Following the 1999 cell fire, a Fire Hazards Analysis (FHA) was conducted that identified deficiencies in both the Cell/High Bay Area and the 324 Building. The FHA implementation plan corrected the deficiencies primarily through administrative actions. The AC on flammable in cell material (OSR) was but one example. The Fire Protection Engineer had reviewed 3I-SOP-SNF-001, 002, and 003, the Hot Work Permit for welding the inner canister, and sent a copy to the Hanford Site Fire Marshall.

The annual fire assessment for the 324 Building was conducted by the CP organization.

The Fire Protection program for the 324 Building was well defined and executed.

2.9 Training/Emergency Preparedness

The assessment of the Training and Emergency Preparedness functional areas were performed against the requirements in the POA and described in the RA IP. Activities associated with the 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Training and Emergency Preparedness functional area reviews, over 15 documents were reviewed, 19 staff (Nuclear Chemical Operators, craft, supervisors and managers) were interviewed and over 10 activities were observed.

A CP EP Program Manual existed. The facility had developed a 324 Building Emergency Plan. Both documents were prepared and maintained current by the Facility EP Coordinator. Drills were conducted at regular intervals, and drill scenarios were adequate to test emergency response capabilities. Drill packages were complete. Drill critiques were thorough and the results were used to improve subsequent drill scenarios and drill team performance. The team observed a fire drill with an individual simulated in the airlock. Some deficiencies were noted. The most significant was that the building was unable to validate accountability of personnel. The building volunteered to perform a second drill to demonstrate accountability and was successful. The facility's routine operations drill program was reviewed. Although a satisfactory number of operational drills were being performed, the program was deficient in that it was not formally implemented (i.e., no documentation existed that defined program content or implementation methodology), no schedule for drill performance existed, and the tracking system in use did not specify the dates on which drills were completed.

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The 324 Building training and qualification programs were reviewed in depth including: the bases for the program (functional analyses and Task-to-Training Matrix); training plan content (site and facility course content, OJT and OJ E requirements, individual personnel training plans contained in ITEM and Training Field Files, continuing training programs for various organizations, etc.); and, individual qualification and re-qualification records. The status of overdue training was also reviewed. In general, the training program was well managed, comprehensive, and current. All training necessary to support the SNF Packaging and Shipping Operations had been completed. There was no overdue training that impacts these activities. All necessary qualifications had been completed and were current. The level of knowledge of building and support personnel was evaluated through interviews and observation. The team considered the level of knowledge to be satisfactory with minor exceptions.

2.10 Hoisting and Rigging

The assessment in the Hoisting and Rigging functional area was performed against requirements contained in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Hoisting and Rigging functional area review, over 32 documents were reviewed, 20 staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed and seven activities were observed.

Review of a sampling of personnel training records in People Soft, two ITEM reports, and facility position training plan, as well as staff interviews and observation of evolutions, indicated personnel were well trained and qualified to perform hoisting and rigging activities as required.

In a review of facility cranes and hoisting and rigging hardware, there was a tagging discrepancy found with the ISO Lid Lifting Sling Assembly. Further review of cranes and lifting devices as well as review of maintenance history, design documents, crane procedures, interviews with equipment custodians and performance of work activities did not yield any further discrepancies or produce indications of a programmatic problem.

In the process of performing 3I-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*, several findings developed and were validated by document review, interviews, and equipment evaluations. Procedure deficiencies, ISMS issues, and equipment discrepancies pertaining to hoisting and rigging evolutions with mobile cranes were observed. Similar deficiencies were found in review of 3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*.

Additional review of HNF-8705, *SARP Onsite NFS-4/NAC-1 Shipping Cask*, Revision 0, produced discrepancies in implementing procedures, transportation equipment compliance, and hoisting and rigging analysis.

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2.11 Welding

The assessment in the Welding functional area was performed against requirements contained in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Welding functional area review over 13 documents were reviewed and four staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed.

Welders were provided to the 324 Building from Central Services. There were three ASME Section III, Division 1, qualified welders that had trained in the 306 Building mockup. The welder qualifications were validated as current, and, upon interview, the welders demonstrated good knowledge of the ASME codes for welding and reworking failed welds. An active training program by Central Services maintained their qualifications current.

The welding procedures were reviewed and found to comply with ASME Section III, Division 1, requirements.

Observations of welding in the mockup in the 306 Building found welder performance to be good. Grinding and dressing of welds were performed by a Boiler Maker craft.

In summary, the welding program was well run and executed.

2.12 Transportation and Shipping

The assessment in the Transportation and Shipping functional area was performed against requirements contained in the POA and described in the RA IP. Activities associated with 324 Building B-Cell PWR SNF Packaging and Shipment Operations were assessed.

During the course of the Transportation and Shipping functional area review over 21 documents were reviewed, 10 staff (Nuclear Chemical Operators, RCTs, supervisors, and managers) were interviewed, and one activity was observed.

The transportation and shipment of SNF from the 324 Building to the 200 Area ISA was a complex operation involving three organizations; CP, Waste Management (WM) (Transportation), and SNF. A formal MOU was in place between CP and SNF that broadly defined respective roles and responsibilities. The transportation SARP developed by CP was based on certain assumptions of and closely coordinated to the SNF, 200 Area ISA SAR.

Upon review of the ISA SAR and 324 SARP a number of inconsistencies were found including an unanalyzed potential corrosion of the inner canister during storage in excess of 20 years. One open USQ remained to be closed before startup and both 200 Area ISA SAR and 324 SARP require revision.

During interviews with members of CP and SNF the implementation of the existing MOU was found lacking from job descriptions as there was no flow-down to the personnel active in the transportation of

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SNF. Additionally, there were no clear management expectations for the same personnel. Communications between SNF and CP working personnel were informal, sometimes confusing, and did not follow the MOU agreement.

There was a signed PID agreement between WM and CP that covered Waste Transfer but not SNF. Consequently Transportation (WM) personnel and CP personnel seem to have overlapping and unclear responsibilities.

3.0 LESSONS LEARNED

3.1 RA Team Lessons

- 3.1.1 A Management Self-Assessment (MSA) was performed in the 324 Building prior to the declaration of readiness. The MSA was not effective in itemizing specific deficiencies associated with the operations to be evaluated by the RA Team.

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APPENDIX B

Start-up Review Appraisal Forms

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**FORM 1
STARTUP REVIEW APPRAISAL FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Criteria Met: [] Yes [X] No
OBJECTIVE: Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements. Criteria: - Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations (POA). - Maintenance - Transportation/Packaging and Shipping - Emergency Preparedness - Engineering - Radiological Controls - Environmental - Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM) - Safety Analysis - Training - Fire Protection - Welding - Industrial Safety - Hoisting and Rigging - Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities. Management takes an active part in encouraging a strong safety culture. - Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective		

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Functional Area: Management	CRA Number: CR-1	Criteria Met: [] Yes [X] No
Date: August 8, 2002		

action without fear of reprisal.

4. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003.

APPROACH

Records Review:

- Review program documentation to determine that management programs were developed/revised, as necessary, and implemented.
- Review safety-meeting records to evaluate participation.
- Determine if a safety suggestion program exists and how quickly safety issues are addressed.
- Review procedures to ensure safety is adequately reflected in the operating and maintenance procedures.

Interviews:

- Interview managers to determine that management programs were developed/revised, as necessary, and implemented.
- Interview operations and support personnel to assess their understanding of ES&H policies and procedures and how they feel about management responsiveness to safety issues.

Shift Performance:

- Observe the performance of activities to determine if the programs are implemented to support operations.
- Walk-down two safety systems, from design specification to the drawings, to the field components, to verify the systems were built and installed to design.
- During observations, evaluate the implementation of the following programs:

Maintenance
Transportation/Packaging and Shipping
Emergency Preparedness
Engineering
Radiological Controls
Environmental
Quality Assurance/OCRWM

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Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
Safety Analysis Training Fire Protection Welding Industrial Safety Hoisting and Rigging - Observe workers in all demonstrations and drills to be sure they demonstrate awareness of requirements for safe operations. <u>Management Expectations:</u> - Sufficient work place surveillance exists to identify and track safety and health hazards to their manager for corrective action without fear of reprisal. - The 324 Building staff can explain how the task(s) being performed as part of the RA fit(s) within the established guidelines and practices of the CP ISMS. - The CP ISMS is maintained current and aligned with the FH ISMS Management Policy HNF-MP-003. REVIEW Records Reviewed: 324-SNFTP-11113-CASK-SI, <i>Quality Assurance Inspection Plan, Casks</i> 324 Training Plan 3I-SOP-SNF-001, <i>Pre-Staging the SNF Cask for Loading</i>, Revision/Change 2-C 3I-SOP-SNF-002, <i>SNF Cask Sealing and ISO Container Loading (OCRWM)</i>, Revision/Change 2-C 3I-SOP-SNF-003, <i>PWR Fuel Assembly Packaging and Load-Out (OCRWM)</i>, Revision/Change 3-0 49 CFR 173 (DOT Regulations) - ASME, Section III, NB 5000 - ASME, Section V, Article 6 - COGEMA-SVLT-PRC-003 - Crane History/Maintenance Files		

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Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
• Design Report ED-057, <i>Spent Fuel Packaging/Handling</i> • <i>Facility Startup Plan to Operations (draft)</i> • DOE-O-425-1B, <i>Startup and Restart of Nuclear Facilities</i> • DOE-RL-92-36, <i>Hanford Site Hoisting and Rigging Manual</i> • DOE-STD-3006-2000, <i>Readiness Self-Assessment</i> • Equipment Specific Tagging • Grove 80 ton truck crane H0017T-5692 load chart • HEP-324-02, <i>Hoisting and Rigging Hostile Environment Plan</i>, Revision 1 • HNF-3730, <i>324 Building Safety Basis Criteria Document</i>, Revision 0 • HNF-7483, <i>324 Building SNF Transfer Tech Specs</i>, Revision/Change 1-E • HNF-8705, <i>SARP Onsite NFS/NAC-1 Spent Fuel Shipping Cask</i>, Revision 5 • HNF-GD-10473, <i>Interface Management Documentation</i>, Revision 0 • HNF-IP-1264, <i>324/327 Building Administrative Procedures</i> • HNF-IP-1264, Section 4.1, <i>Job Control System Implementation</i>, Revision 16 • HNF-MD-4635, <i>Pre-Acquisition Review/Approval of Items and Services</i>, Revision 5 • HNF-MD-4821, <i>Guidance for Flow-Down of ISMS Requirements to Lower Tier Subcontractors</i>, Revision 1 • HNF-MP-003, <i>Integrated Environmental, Safety, and Health Management System Description</i>, Revision 6 • HNF-PRO-055, <i>Startup Readiness</i>, Revision 7 • HNF-PRO-069, <i>Maintenance Management</i>, Revision 3 • HNF-PRO-259, <i>Graded Approach</i>, Revision 2 • HNF-PRO-10472, <i>Configuration Management of Interface Management Documentation</i>, Revision 0 • HNF-RD-7648, <i>Emergency Preparedness Drill Program Requirements</i> • HNF-RD-9040, 8-8-FC-1, <i>Semi-Automatic Flux Cored Welding of Stainless Steel</i>, WPS-051 • HNF-RD-9041, 8-8-GT/SM-1, <i>Manual Gas Tungsten Arc &/or Shielded Metal Arc Welding of</i>		

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Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
<i>A693 (Type 630), A320 (Type 303), P No 8 Stainless Steel, and P No 10H Steel Castings, WPS-001</i> • HNF-SD-SPJ-OSR-001, 324 Facility Operational Safety Report, Revision 4, Section 5.2 - 5.9 • HNF-SD-SPV-SAR-001, 324 Building Safety Analysis Report • ISO Lid Lifting Slings Tagging, DOE-RL-92-36 • Lifting Device Maintenance Files • Maintenance Tagging • PeopleSoft Training Records • Review and conclusions re: engineering, fabrication, and acceptance of the modification and equipment required to perform the operation, J. Jens/T. Erickson, 07/15/2002 • SI-324 Building 005, 324 Standing Order • SNF-5047, 200 Area Interim Storage Area Technical Safety Requirements, Revision/Change 0-B • ITEM Training Reports • Upper Impact Limiter Lifting Fixture 324-MAT-LF-050 Tagging • USQ 324-FH-02-194 Personnel/Positions Interviewed: • Acting Facility Training Manager • Authorization Basis DA • Cognizant Engineer • Crane Custodian • Criticality Safety Engineer • Designated Leader • Emergency Preparedness Coordinator • Facility Engineer(s) (2) • Facility Supervisor(s) (2) • Fire Protection Engineer		

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Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
• Health Physics Technician • HVAC Cognizant Engineer • Industrial Safety • Maintenance Supervisor • Mobile Crane Operator • Nuclear Chemical Operator(s) (6) • Operations Crane Operator • Operations PIC • Operations Supervisor(s) (4) • Principle Engineer • Quality Assurance Engineer/QC • Rigger(s) (2) • Stationary Operating Engineer (SOE) • Training Scheduler/Planner • Truck Driver Evolutions/Operations/Shift Performance Observed: • Cask Preparation • Transfer of Cask and Components Into the Airlock • Cask Loading • Cask Load-Out From the Airlock • Welding/Purge/Backfill Testing • Cask Closure and Shipment • Facility Drill Involving a Fire and Contaminated Individuals • Airlock Entry		

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Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
Spaces Visited: • 306 Building Mockup Area • 324 Building Working Spaces • 324 Building Cask Handling Area • 324 Building Truck Lock • Equipment Yard • Low Boy Trailer HO-64-5712 • 324 Yard Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. Evolutions were observed and interviews were conducted with a focus on the level of knowledge of each individual of the Integrated Safety Management philosophy, and how it was part of the processes used on a daily basis through work planning, pre-job briefings, the AJHA, the JCS, post-job critiques, and lessons learned. In the interviews, the prompting question was, "What does Integrated Safety Management mean to you," and "How have you participated in the planning and conduct of work?" In general, responses were inadequate with service and support personnel having the least understanding of ISMS. Responses included, "Team approach, everyone involved," "worker and building safety," "informed/being informed," "team process," "program here to stay," "not the flavor of the day," "drives harder look," and "proactive approach." Support personnel indicated that, although they were involved in the AJHA process and in procedure review and approval, they had little or no involvement in post-job critiques, and use of lessons learned applicable to work. 3. A tabletop was conducted with two COGEMA employees responsible for conducting NDE on inner cylinder welds of the NAC-1 cask. The NDE Request/Instruction for Nondestructive Test services contained two inaccurate requirements. a. ASME Code Case N-595-1 instead of N-595-2 b. OCRWM general overview instead of training course 076685		

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4. The facility environmental group was well established and functioning as it should. The self-assessment process was active and effective in environmental monitoring. 5. A significant number of deficiencies were noted in the hoisting and rigging program: a. For the critical lift in 3I-SOP-SNF-001, the Load Moment Indicator (LMI) was identified by the mobile crane operator as not functioning properly, and he was unable to positively identify the radius. The DL and PIC properly determined, with crane operator concurrence, that a measuring tape would be used to validate the starting and ending load radius. Review of the load chart with the crane operator identified that the crane had a maximum capacity of 30 tons at a 25 foot radius. The load was well below identified capacity and the actual radius was less than 25 feet. The mobile crane operator identified the actual load weight and method of determination. The lift was well executed. b. One lift was performed without knowing the exact weight of the load being lifted. The upper impact limiter lifting fixture was attached and used per procedure 3I-SOP-SNF-001. The lifting device had a rated capacity of 500 pounds. When the PIC was asked the weight of the impact limiter, he could not provide an exact weight, but estimated the weight at approximately 300 pounds. The procedure did not identify the weight nor did the limiter have a weight marked on it. c. The lifting lid slings (bridal assembly) had two sets of tagging with conflicting data. One was provided by the manufacturer. The other was attached on site. Neither set of data was totally correct. The manufacturer's tagging contained the following information: MF date - 11/5/01 Rate Loaded - 7,000 lbs Load Test Date - 11/16/01 Load Test each leg - 5,600 lbs Load test Master Link - 20,000 The site tagging contained the following information: Load Test date - 11/01 Inspection due date - 05/03 Load rating @ 60 degrees - 8,313 lbs Load rating @ 45 degrees - 6,787 Load rating @ 30 degrees - 4,800		

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The assembly consisted of: Four 3/8" wire rope slings with thimbles Four Crosby 1 1/2 ton (3,000) hooks One Crosby 3/4" Oval master link The tagging was corrected using manufacturer's data and the appropriate standards for the material and components used. d. 3I-SOP-SNF-002, Attachment 3, "Critical Lift," pre-briefing pages 3 and 4 identified load tie down locations and configurations as well as blocking. It did not specify tie down size or capacity. e. After review of the load chart for the mobile crane HO-17T-5692 used in performance of 3I-SOP-SNF-001, <i>Staging and Movement of ISO Container/SNF Cask</i>, and an interview with the mobile crane operator, it was determined that the crane, as configured (with stowed jib/extension, load block, headache ball, and auxiliary boom head), did not have the 60,000 lbs. net capacity required by procedure at the given radius of 25 feet. f. The critical lift procedure did not require validation of crane capacity at a given radius. It also did not provide a process to determine net capacity of the crane in a given configuration. Additionally, the procedure did not require validation of load testing for the lifting slings, and did not assign responsibilities as required by DOE-RL-92-36, Chapter 2, for PICs and DLs. g. Review of the requirements of HNF-8705 and physical review of trailer HO-64-57125 (a trailer to be used during the transfer process), revealed that the trailer goose neck did not meet the 90 degree drop requirement. It also was not clear that the trailer met structural strength requirements. h. Review of sling identification and capacity tagging used in performance of 3I-SOP-SNF-001, <i>Staging and Movement of ISO container/SNF Cask</i> and interviews with the DL for mobile crane operation and the supervisor of site crane and rigging, determined that the rigging did not meet the 30,000 lb capacity requirements. The slings intended for use were Lift-It EA-904 X20' nylon with a capacity of 22,800 lbs on a vertical lift. As used at a 60 degree configuration, capacity would be further reduced. i. During the observation of cask loading, personnel confirmed that no established guidance or procedure was in place to address the possibility of a Uni-Grapple failure in the air lock with fuel attached.		

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Date: August 8, 2002		
j. The HNF-3553, Revision 2, ISA SAR for the SNF cask handling with mobile crane, contained specific mobile crane requirements based on safety analysis and boom failure criteria. The 324 Building SARP, HNF-8705, did not address this issue or provide crane analysis criteria. k. The procedure for the critical lift in cask closure and shipment was well written and provided the PIC and DL with data to ensure compliance to the SARP and maintain required capacities. The personnel executed the lift and overcame LMI inaccuracies with manual measurements to ensure boom length, radius, and capacities were adhered to. The PIC and DL maintained excellent control of the lift. The driver did express a valid concern on the condition of the transport trailer tires. The condition of the tires on inspection showed uneven wear, missing chunks, and probably early signs of recap separation. Some of the tires on both purchased trailers showed many pieces of the tire tread missing. The driver indicated the on-site tire man had also verbally indicated the tires were suspect. 6. HNF-PRO-055 required the development of an Activity Readiness Package (ARP) to include the use of an Activity Readiness Checklist (ARC). An ARP was not prepared that met the intent of either the reference cited or 324 Building Standing Instruction SI-324Bldg-025. The ARC prepared and used in readiness preparation was not properly completed and was missing four signatures when reviewed. 7. FH should provide a distribution process for lessons learned focused on operational issues and the results of RAs, ORRs, facility evaluation boards, and management self-assessments. The facility should address this issue with FH. 8. HNF-IP-1264 required a means to identify OCRWM personnel who support the 324 Building SNF Transfer Project. The 324 Building accomplished this through use of a Standing Instruction, SI-324Bldg-032. The listing of OCRWM personnel provided to the team was not up to date and accurate. 9. HNF-IP-1264 required a means to identify OCRWM personnel who support the 324 Building SNF Transfer Project. The 324 Building accomplished this through use of a Standing Instruction, SI-324Bldg-032. The listing of OCRWM personnel provided to the team was not up to date and accurate. 10. The 324 Building had submitted the 324 Building SNF Transfer Project OCRWM QA Program to the National Spent Fuel Program (NSNFP) for approval. The program approval had not yet been received.		

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CONCLUSION:

- Applicable programs itemized in the IP for the RA were evaluated per specific CRAD guidance. Programs were in place to have workers actively involved in safety. Management took the lead in promoting a strong safety culture. Safety and health hazards were identified, tracked, and corrected.
- The Hoisting and Rigging program pertaining to in-house equipment was well managed and understood within the 324 Building; however, as indicated by the number and scope of deficiencies related to mobile crane support, sling requirement understanding, and transportation, increased attention by the 324 Building was needed to compensate for the support it received from outside activities in hoisting and rigging. Additionally, AJHAs were not used in an effective manner to resolve safety interfaces between the 324 Building and outside activities. A formal critique of mobile crane issues was held by the 324 Building during the RA. The critique was effective in evaluating the problems and identified the following causal factors: engineering; procedure development; procedure execution; and the fact that personnel scheduled to execute procedures did not always attend/participate in pre-job briefs. A satisfactory path of action was established to resolve the problems. Compensatory actions were needed, including specific PIC training (at a minimum), increased inspections, evaluation of vehicles supplied for facility processes, and a precise inclusion of hoisting and rigging requirements in AJHAs and procedures used to conduct operations for the facility.
- In evaluation of the Safety Analysis of the 324 Building, the team was unable to find the technical basis for a 325 SARP/ISA SAR conclusion that the NAC-1 cask package, including SNF, will satisfy a 75 year storage capability. Interviews and documentation did not support this conclusion.
- Maintenance, Emergency Preparedness, Radiological Controls, Training, and Fire Protection were well managed and executed in support of safe work in the 324 Building.
- Management, operations, and services and support personnel were observed and interviewed by the team throughout the evaluation. ISMS was clearly understood and practiced by management and operations personnel in the 324 Building. Service and support personnel, both inside and outside the facility, had not been fully assimilated into the ISMS process. Weaknesses were noted in service and support personnel in their understanding of their roles and responsibilities in ensuring success of the 324 Building SNF packaging and shipping process. Feedback to and from service and support personnel was ineffective, lacked coordination, and was not acted upon in a proper manner. Lessons Learned were not effectively used to ensure that support was fully applied to the SNF Project by service and support personnel. These conclusions were further reinforced during evolutions when roles and responsibilities were not clearly understood during crane evolutions outside the 324 Building, identification of hazards was not completed by outside activities when

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Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
324 Building was performing work, and feedback was incomplete concerning SAR/SARP requirements among 324 Building, SNF, and Waste Management. - Lessons Learned from previous RAs and ORRs conducted at the Hanford Site were obtained by the 324 Building on their own and effectively employed in developing plans for SNF transfer and preparations for their RA. In reviewing the lessons learned program and promulgation process at FH, there was a lack of focus on distribution of readiness review practices to all projects to improve the safe performance of work and readiness preparations. - The 324 Building OCRWM QA Program needs to be approved by the NSNFP. Issue(s): F-1-1 Service and support personnel need to be made a part of the ISMS team implementation. Interfaces with organizations outside the 324 Building require operational attention. F-1-2 Improvement is required in the supervision and coordination of hoisting and rigging operations outside the 324 Building. F-1-3 The 324 Building needs to ensure that the 200 Area ISA is informed of the lack of technical support for a 75 year storage life at the ISA. If the storage life conclusions are changed, the facility SARP needs to be updated per the revision to the ISA SAR. There is no technical basis beyond 20 years for storage of the ISO/NAC-1/SNF Canister in the 200 Area ISA. F-1-4 The weight of the impact limiter was not identified or known by the crane operator or the PIC during the performance of 3I-SOP-SNF-003. F-1-5 The ISO Lifting Sling assembly's capacity was not clear. Two tags were attached; neither contained all correct information. F-1-6 Load securing tie down capacities and sizes were not provided in procedure 3I-SOP-SNF-002. F-1-7 The mobile crane used in performance of 3I-SOP-SNF-001 did not meet the 60,000 lb net capacity at 25 ft. radius requirement specified in the procedure. F-1-8 The goose neck on the alternate Low Boy single drop trailer planned for use in the SNF transfer operations did not meet the 90 degree drop requirement of HNF-8705 (SARP). F-1-9 3I-SOP-SNF-001 procedure requirements for each sling leg in a multi-leg sling to have a		

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30,000 lb capacity (considering load angle) were not met. F-1-10 Transport trailer tires do not meet DOE requirements. F-1-11 In some instances, the 324 Building did not comply with the administrative procedures or requirements within their own facility or requirements issued by higher authority. F-1-12 The 324 Building needs to receive approval of its OCRWM QA Program or specific permission to move fuel from the NSNFP prior to commencement of operations. O-1-1 There is a need to promulgate lessons learned focused on operational issues and results from RAs, ORRs, and other evaluations. O-1-2 The list of OCRWM personnel provided to the team was not accurate. O-1-3 The 324 Building did not comply with some documentation requirements when preparing for the RA. O-1-4 Some assessments of quality-affecting activities governed by OCRWM requirements have not been done. O-1-5 A contingency plan for possible failure of the Uni-Grapple with fuel attached does not exist. O-1-6 HNF-3553, Revision 2, ISA SAR, for the SNF cask handling with a mobile crane contains specific mobile crane requirements based on safety analysis and boom failure criteria. The 324 Building SARP, HNF-8705, does not address this issue, provide crane analysis criteria, or explain non-applicability.		
Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-2 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No

OBJECTIVE:

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria:

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

REVIEW APPROACH

Records Review:

- Review the facility safety basis document, to determine if it adequately defines functions, assignments, responsibilities, and reporting relationships.
- Review Administrative Procedures to determine that roles and responsibilities are clearly defined and understood.

Interviews:

- Interview operations and support personnel to assess their understanding and implementation of the management structure in place.

Shift Performance:

- None

Management Expectations:

- A clear management structure is established, approved, and in place for the packaging and shipment for SNF from the 324 Building to the 200 Area ISA. This management structure is

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Functional Area: Management	CRA Number: CR-2 Date: August 8, 2002	Criteria Met: [X] Yes [] No
implemented; and managers, operators, and operations support personnel involved in the packaging and shipment of the SNF to 200 Area ISA demonstrate knowledge of the structure. (This expectation applies to the CP organization only) 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s). The Director, 324 Building Deactivation Project, implements specific 324 Building plans as appropriate to ensure adequate management of safety program(s). REVIEW Records Reviewed: 324 Building Crane Operations Conduct of Operations Improvement Plan Checklist 324 Building Deactivation project Organization Chart 324-SNFTP-11113-CASK-SI, <i>Quality Assurance Inspection Plan, Casks</i> 3I-SOP-SNF-001, <i>Pre-Staging the SNF Cask for Loading</i>, Revision/Change 2-C 3I-SOP-SNF-002, <i>SNF Cask Sealing and ISO Container Loading (OCRWM)</i>, Revision/Change 2-C 3I-SOP-SNF-003, <i>PWR Fuel Assembly Packaging and Load-Out (OCRWM)</i>, Revision/Change 3-0 49 CFR 173 (DOT regulations) - ASME, Section III, NB 5000 - ASME, Section V, Article 6 - COGEMA-SVLT-PRC-003 - Design Report ED-057, <i>Spent Fuel Packaging/Handling</i> - Facility Startup Plan to Operations (draft) - DOE-O-425.1B, <i>Startup and Restart of Nuclear Facilities</i> - DOE-RL-92-36, <i>Hanford Site Hoisting and Rigging Manual</i> - DOE-STD-3006-2000, <i>Readiness Self-Assessment</i> - HNF-3730, <i>324 Building Safety Basis Criteria Document</i>, Revision 0 - HNF-7483, <i>324 Building SNF Transfer Tech Specs</i>, Revision 1E - HNF-8705, <i>SARP Onsite NFS/NAC-1 Spent Fuel Shipping Cask</i>, Revision 5		

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Functional Area: Management	CRA Number: CR-2 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• HNF-GD-10473, <i>Interface Management Documentation</i>, Revision 0 • HNF-IP-1264, <i>324/327 Building Administrative Procedures</i> • HNF-IP-1264, Section 4.1, <i>Job Control System Implementation</i>, Revision 16 • HNF-MD-4635, <i>Pre-Acquisition Review/Approval of Items and Services</i>, Revision 5 • HNF-MD-4821, <i>Guidance for Flow-Down of ISMS Requirements to Lower Tier Subcontractors</i>, Revision 1 • HNF-MP-003, <i>Integrated Environmental, Safety, and Health Management System Description</i>, Revision 6 • HNF-PRO-055, <i>Startup Readiness</i>, Revision 7 • HNF-PRO-069, <i>Maintenance Management</i>, Revision 3 • HNF-PRO-259, <i>Graded Approach</i>, Revision 2 • HNF-PRO-10472, <i>Configuration Management of Interface Management Documentation</i>, Revision 0 • HNF-RD-7648, <i>Emergency Preparedness Drill Program Requirements</i>, Revision 1 • HNF-RD-9040, 8-8-FC-1, <i>Semi-Automatic Flux Cored Welding of Stainless Steels</i>, WPS-051 • HNF-RD-9041, 8-8-GT/SM-1, <i>Manual Gas Tungsten Arc &/or Shielded Metal Arc Welding of A693 (Type 630), A320 (Type 303), P No 8 Stainless Steel, and P No 10H Steel Castings</i>, WPS-001 • HNF-SD-SPV-OSR-001, <i>324 Building Operational Safety Requirements (OSR)</i> • HNF-SD-SPV-SAR-001, <i>324 Building Safety Analysis Report</i> • Review and conclusions re: engineering, fabrication and acceptance of the modification and equipment required to perform the operation, J. Jens/T. Erickson, 07/15/2002 • SI-324 Building 005, 324 Standing Order Personnel/Positions Interviewed: • Director, 324 Building Deactivation Project • 324 Building Maintenance Manager • 324 Building Scheduling and Control Manager • 324 Building Surveillance Operations Manager		

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Functional Area: Management	CRA Number: CR-2 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• 324 Building Engineering/Procedures/Work Planning Manager • 324 Building Hot Cell Operations Manager • 324 Building Management and Integration Manager • Cognizant Engineer • Crane Custodian • Designated Leader • Facility Engineer(s) (2) • Maintenance Supervisor • Operations PIC Evolutions/Operations/Shift Performance Observed: • Cask Preparations • Transfer of Cask and Components into Airlock • Cask Loading • Cask Load-Out from the Airlock • Welding/Purge/Backfill Testing • Cask Closure and Shipment • Airlock Entry • Plan of the Day Meeting • EZAK Meeting • 324 Procedure Violation Critique • Pre-job Meeting(s) (3) Spaces Visited: • 324 Building • 306 Building		

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Functional Area: Management	CRA Number: CR-2 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. Based on interviews of facility personnel, attendance at facility pre-jobs and implementing activities, and document review it was apparent that internally, the 324 Building has a functioning organization with clear roles and responsibilities that were well articulated by staff. There was some confusion and misunderstanding when interfacing with outside support organizations. This was most apparent during the demonstration of the Cask Preparations demonstration of 3I-SOP-SNF-001. Misunderstanding of roles and responsibilities led to confusion and procedural violations when interfacing with FH Site Crane & Rigging. 3. There was a clear management structure in place to support environmental evaluation, assessment, and exercise of controls. The environmental group was effective. CONCLUSION: • The 324 Building had a clear and defined management structure to support the packaging and shipment of SNF from the facility. The project management associated with the preparation for the shipment was very good. • Weaknesses existed in definition and communication of the Roles and Responsibilities to service and support personnel/organizations that play a part in the safe conduct of work as discussed in CR-1. Procedural documentation was satisfactory. • 324 Building functioned very well internally but needed to establish a method to ensure that roles and responsibilities were clearly established and communicated when interfacing with outside support organizations. Issue(s): • None		
Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Training	CRA Number: CR-3 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No

OBJECTIVE:

The selection, training, and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers assures competence commensurate with responsibilities. (The training and qualification program encompasses the range of duties and activities required to be performed.)

Criteria:

1. The tasks required for competent 324 Building B-Cell Spent Fuel Packaging job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. Learning objectives are derived from the analysis. (DOE Order 5480.20A, Chapter I)
2. Requirements for 324 Building B-Cell Spent Fuel Packaging continuing training have been adequately defined and programs have been developed. Continuing training includes conduct of realistic drills, regarding the SNF handling operations, to maintain proficiency in responding to abnormal and accident situations, including those involving radiological hazards. (DOE Order 5480.20A, Chapter I)
3. Training programs for operations and maintenance personnel involved in 324 Building B-Cell Spent Fuel Packaging operations include training on the requirements contained in the approved operating basis for the facility. (DOE Order 5480.20A, Chapter I)
4. Training programs for 324 Building B-Cell Spent Fuel Packaging operations and maintenance personnel emphasize the importance of compliance with procedures and safety requirements. (DOE Order 5480.20A, Chapter I)
5. Technical and management qualification of operations, radiological control, maintenance, and engineering personnel are adequate to perform SNF operational activities. (DOE Order 425.1A)
6. Training and Qualification programs for personnel involved in the SNF program are based on the latest modifications to the facility caused by the SNF operational activities. (DOE Order

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Functional Area: Training	CRA Number: CR-3 Date: August 8, 2002	Criteria Met: [X] Yes [] No
5480.20A) 7. Training has been completed and documented for the latest revisions of procedures performed by operations personnel, supervisors, and shift technical advisors involved in the SNF program. (DOE Order 5480.20A) 8. The qualification of the weld process is in compliance with the American Society of Mechanical Engineers codes. 9. Modifications to 324 Building B-Cell Spent Fuel Packaging project have been defined and reviewed for impacts to training and qualifications. REVIEW APPROACH <u>Records Review:</u> • Review lesson plans for incorporation of safety and procedural requirements. • Review trainee feedback forms, training evaluations of lessons learned from operating experiences, and formal training program reviews to verify feedback is addressed in a formal manner. • Review the continuing training program plan to verify its adequacy to support safe operations. • Review the systematic analysis of job requirements to provide a reasonable assurance the training program addresses all tasks that are essential to safe and efficient operation. • Review to ensure that subject matter experts (SME), line management, and training staff develop and maintain a valid facility-specific task list as the basis for the training program. The facility-specific list of tasks selected for training is reviewed periodically and updated as necessary by changes in procedures, facility systems/equipment, job scope, and advances in technology. DOE and other appropriate training guidelines are used as a guide for selecting, sequencing, and verifying training program structure and content. • Verify that the current facility safety documentation, operating procedures, technical and professional references, and facility/industry experience are used to identify facility-specific training content and information for use in developing training materials. • Review the degree to which on-the-job training and hands-on evaluations for operations and maintenance personnel are used to reinforce classroom activities. • Review examinations (both oral and written) and performance evaluations to verify that they are		

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Reactor Spent Nuclear Fuel Packaging
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Functional Area: Training	CRA Number: CR-3 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
based on learning objectives, are reviewed by SMEs, are changed frequently enough to avoid compromise, and are formally controlled. • Review documentation to ensure technical and management qualifications are defined. • Review records that demonstrate that incumbents meet the defined technical and management qualifications. • Review the process used to evaluate changes to operations and maintenance personnel training needs. • Review lesson plans and supporting examinations to determine if lesson plans accurately reflect recent facility and/or procedure changes. <u>Interviews:</u> • Interview personnel as necessary to ensure the 324 Building B-Cell Spent Fuel Packaging training program is established, documented, and implemented. • Interview training personnel to determine their involvement with facility and/or procedure changes affecting lesson plans. <u>Shift Performance:</u> • Evaluate a continuing training classroom lecture or field training activity for technical and administrative adequacy. <u>Management Expectations:</u> • The training program for SNF packaging and shipment, for operators and operations support personnel, adequately addresses job functions and safety training for the packaging and shipment of the 324 Building SNF activities. • Documentation for training associated with these activities (SNF packaging and shipment) will be available and a review of the training records identifies no deficiencies. • The qualification of weld process shall be reviewed. The review will confirm compliance to the ASME codes and qualification of the process. • Personnel directly involved in the SNF handling and transfer activities demonstrate appropriate responses to mitigate upset conditions associated with the 324 Building SNF packaging tasks.		

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Functional Area: Training	CRA Number: CR-3 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• Nuclear Chemical Operators, Operations Specialists, Operating Engineers, Radiological Control Technicians, and other support personnel to the 324 Building SNF packaging and shipment project follow procedure compliance requirements. • CP QA has performed a review of the welder qualifications of those personnel assigned to perform the weld closure of the SNF canisters. • Training/review is provided for procedure changes for the 324 Building SNF packaging activities prior to placing a revised procedure into use. • All training issues associated with SNF packaging activities identified in ISMS verification (application of training procedures) and the FEB assessment have been reviewed and will not affect the safe startup of operations. • Modifications in support of the removal, handling, and packaging of the SNF have been defined. • Any modifications will be reviewed for impacts to training and qualification of personnel. • Training and qualification of personnel on modifications has been completed and deemed adequate. REVIEW Records Reviewed: • 324 Building SNF Transfer Project Training Plan • 3I-SOP-G-22, <i>Hot Cell Combustible Material Inventory</i> • ASME-NB-5000, <i>Acceptance Criteria for ASME Section IV Weldments</i> • 324 Building Task-to-Training Matrix • Case N-595-2, <i>ASME Requirements for Spent Fuel Canisters, Section III, Division 1</i> • COGEMA-SVPT-PRC-005, <i>Liquid Penetrant and Helium Leak Test Procedures</i>, Revision 1 • Continuing Training Records • CP-PRO-013, <i>Facility Worker Training</i>, Revision 0 • HNF-RD-9041, <i>Manual Gas Tungsten Arc &/or Shielded Metal Arc Welding</i>, Revision 2 • HNF-RD-9040, <i>Semi-Automatic Flux Cored Welding of Stainless Steels</i>, Revision 3 • HNF-RD-9058, <i>General Welding Procedure</i>, Revision 0		

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Functional Area: Training	CRA Number: CR-3 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• HNF-RD-9059, <i>Weld Joint Design Procedure WJDP-1</i>, Revision 0 • HNF-RD-9060, <i>Base Metal &/or Weld Repair Work Activity Instruction BM & WRP-01</i>, Revision 0 • Individual Training Plan Report for ECO • Integrated Training Electronic Matrix (ITEM) Data for Various Personnel • ITEM Delinquency Report • On-the-Job-Training (OJT) Records • On-the-Job-Evaluation (OJE) Records • Operational Evaluation (OE) Records • Qualification Records • RCP-PRO-002, <i>Training Development and Administration</i> • Selected Training Field Files Personnel/Positions Interviewed: • 324 Building Training Coordinator • 324 Building Training and Emergency Engineer • 324 Building Senior Training Specialist • 324 Building Training Specialist • Senior Technical Specialist • Weld Specialist/Trainer • Weld Specialist Central Plateau • Chief Engineer • QC Inspector Evolutions/Operations/Shift Performance Observed: • Cask Preparations • Transfer of Cask and Components Into the Airlock		

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Functional Area: Training	CRA Number: CR-3 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• Cask Loading • Cask Load-out From the Airlock • Welding/Purge/Backfill Testing • Cask Closure and Shipment • Facility Drill Involving a Fire and Contaminated Individuals Spaces Visited: • 324 Building Training Coordinator Office Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. The 324 Building training and qualification programs for operations, radiological controls, maintenance, and engineering workers and managers were reviewed in depth including: the bases for the program (functional analyses and Task-to-Training Matrix); training plan content (site and facility course content, OJT and OJ E requirements, individual personnel training plans contained in ITEM and Training Field Files, continuing training programs for various organizations, etc.); and, individual qualification and re-qualification records. The review covered all of the criteria for this Core Requirement. The status of overdue training was also reviewed. In general, the training program was well managed, comprehensive, and current. All training necessary to support the SNF Packaging and Shipping Operations had been completed. There was no overdue training that impacts these activities. All necessary qualifications had been completed and were current. 3. The canister weld process was reviewed through HNF welding procedures and interviews with welding/engineering personnel. The HNF procedures were compared to ASME Section III, Division 1, requirements and found to be compliant and made reference to these requirements. The Weld Specialist confirmed that three welders and two inspectors were certified by ASME Section III. The weld inspection, through dye penetrant test, will be performed by COGEMA personnel. The COGEMA test procedure was reviewed and found to be compliant to ASME Section III, Division 1, requirements. 4. The QC Inspector was designated and qualified as an ASME Section III weld inspector for the NAC-1 canister and had reviewed all welder qualifications. The welders were trained by the weld		

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Functional Area: Training	CRA Number: CR-3 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
specialist trainer and their ASME III Division qualifications were current. 5. The training and qualification records for the Environmental Compliance Officer and the Environmental Program Manager were reviewed. All training was complete and up to date. CONCLUSION: • The project's training and qualification programs fully satisfy Core Requirement 3. • The welders and weld process to be used for the SNF transfer process fully met ASME, Section III, Division 1, criteria and the CP QC had performed a review of all welder qualifications. • All environmental personnel training requirements that were reviewed were complete and current. Issue(s): • None		
Inspector: <u>Original Signature on File</u> W. S. Glover	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
OBJECTIVE: Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operations, and operations support personnel. Criteria: 1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV) 2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A, Criterion 2) 3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I) 4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I) 5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7) 6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A) 7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff, and management) understand their responsibilities toward procedure compliance and		

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Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: [X] Yes [] No
"stop work" authority. REVIEW APPROACH <u>Records Review:</u> • Review examinations to determine if they adequately test the operators' understanding of technical fundamentals, facility systems, and operating procedures. • Review examinations to determine if they adequately test management and support personnel's understanding of technical fundamentals, facility systems, and procedures. <u>Interviews:</u> • Interview 324 Building B-Cell Spent Fuel Packaging operators and their supervisors to assess their understanding of facility processes and procedures. • Interview 324 Building B-Cell Spent Fuel Packaging support personnel to assess their understanding of their actions when responding to abnormal and emergency conditions and facility hazards, as well as their understanding of how these actions relate to the safety basis for operations. Determine if these personnel have an adequate knowledge of health, safety, and environmental protection issues. <u>Shift Performance:</u> • Observe 324 Building B-Cell Spent Fuel Packaging drills, routine evolutions, and normal operations to assess technical understanding and ability of the operators and supervisors to conduct their duties and to safely operate systems and components in accordance with approved plant procedures. <u>Management Expectations:</u> • Operations and operations support personnel demonstrate an adequate level of knowledge based on review of performance demonstration results and selected interviews and drills. • During interviews personnel demonstrate their responsibilities regarding procedure compliance and their "stop work" authority. • Operations routines and control area activities that are associated with the packaging operation (e.g., opening and closing of the airlock door) will be evaluated during interviews. • Observation will be performed during the dry run/mockup activities. Personnel actions and		

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Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
demonstrated knowledge will be evaluated and verified to be at an acceptable level. • Management and technical support (OCRWM) personnel associated with the packaging activities of the 324 Building SNF transfer project have sufficient education and experience to enable them to oversee the safety and environmental protection aspects of the project activities. REVIEW Records Reviewed: • 324 Building Deactivation Project Organization Chart • ITEM reports for crane & rigging and OCRWM (2) • Facility Training Plan • Randomly selected Training Records (15) • HNF-MD-4821, <i>Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontracts</i>, Revision 1 Personnel/Positions Interviewed: • 324 Building Acting Facility Training Manager • 324 Building Authorization Basis Engineer • 324 Building Cognizant Engineer • 324 Building Crane Custodian • 324 Building Criticality Safety Engineer • 324 Building Designated Leader • 324 Building Emergency Preparedness Coordinator • 324 Building Engineering Manager • 324 Building Facility Engineer(s) (2) • 324 Building Facility Supervisors (2) • 324 Building Health Physics Technician • 324 Building Hot Cell Operations Manager • 324 Building HVAC Cognizant Engineer		

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Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• 324 Building Maintenance Supervisor • 324 Building Maintenance Manager • 324 Building Nuclear Chemical Operator(s) (10) • 324 Building Nuclear Safety Manager • 324 Building Operations PIC • 324 Building Operations Supervisor(s) (2) • 324 Building Project Management & Integration Manager • 324 Building Project Scheduling and Control Manager • 324 Building Quality Assurance Personnel (2) • 324 Building Quality Control Inspector • 324 Building Radiological Control Technician(s) (10) • 324 Building Radiological Controls Manager • 324 Building Radiological Controls Supervisor • 324 Building Rigging & Below the Hook Lifting Device Custodian • 324 Building Rigging Inspector • 324 Building Stationary Operating Engineer • 324 Building Supervisor Waste Removal Project • 324 Building Surveillance Operations Manager • 324 Building Training Scheduler/Planner • CP Lessons Learned Coordinator • CP Chief Engineer • CP Safety Project Manager • DA 324 Building SARP • DA SNF SAR • Fluor Hanford Transportation and Safety Operations Manager		

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Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• Industrial Safety Staff • Mobile Crane Operator(s) (2) • NDA/Leak Check Personnel (2) • Outside Support Crane & Rigging Supervisor • Riggers (2) • Support Personnel • Welding Specialist(s) (3) Evolutions/Operations/Shift Performance Observed: • Cask Preparation • Transfer of Cask and Components Into the Airlock • Cask Loading • Cask Load-Out From the Airlock • Welding/Purge/Backfill Testing • Cask Closure and Shipment • Facility Drill Involving a Fire and Contaminated Individuals • Airlock Entry Spaces Visited: • 306 Building Mockup Area • 324 Building Working Spaces • 324 Building Cask Handling Area • 324 Building Truck Lock Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation.		

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Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
2. Interviews with personnel assigned as the PIC of the SNF Transfer process were conducted. The interviewees were knowledgeable of the procedure and performed well in interviews. Some weaknesses were noted: a. The use and subsequent actions related to the AJHA process when high risk work was to be performed; b. How lessons learned were factored into the aspects of job planning and work execution; c. The conceptual differences between continuous use procedures and reference use procedures; and d. Elevation limitations when lifting the NAC-1 cask and why the limits existed. 3. Interviews with personnel involved in the Quality Assurance of the SNF Transfer and Cask Leak Test process revealed weaknesses in: a. An appreciation of the relationship between the aspects of their work and the principles of ALARA (QA/NDA); b. The use and feedback of past or in-process problems with work through the use of lessons learned (QA/NDA); c. The use and subsequent actions related to the AJHA process when high risk work was to be performed (QA); d. Knowledge of and actions to be taken during the SNF transfer as the fuel was transferred from the 324 Building to Transportation and to the 200 Area (QA); e. The differences between QA levels of manufacture and controls, and why weight handling equipment, used in this procedure, was acceptable as General Service equipment (QA); f. Knowledge of the facility training process (QA); g. General casualty response (QA/NDA); h. Fire watch requirements and use (QA/NDA); i. The roll of negative ventilation in contamination control and how it was monitored during the		

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Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
SNF Transfer process (QA); j. The use of ISMS in formulating the procedures and performing the work involved in the SNF Transfer process (QA/NDA); k. Basic understanding of radiological controls (yearly limits on exposure, administrative control limits, radiological controls in Building 306, ALARA concepts, exposure expected during the planned work) (NDA); l. Stop work and restart process (NDA); and m. Overall knowledge of the procedures used for SNF Transfer (QA/NDA). 4. Two facility supervisors were interviewed. Both supervisors were knowledgeable of the procedure and their area of responsibility. Some weaknesses were noted in: a. Full understanding of the limiting conditions of operation (LCOs) and administrative controls (ACs) associated with their area of responsibility; b. Management and control of pre- and post-startup deficiencies in execution of the SNF Transfer process; and c. The roll that ALARA controls and activities had in development of the SNF Transfer process. 5. Ten Radiological Control Technicians were interviewed. All were knowledgeable of their responsibilities relative to SNF Packaging and Transfer. Some knowledge weaknesses were noted in: a. Understanding of the totality of the ISMS process. All understood the concept of worker involvement in work planning and hazard identification and control. Few demonstrated a firm understanding of the remainder of the process. b. Stop work authority as outlined in the PHMC Radiological Control Manual. All stated that they would stop work for safety concerns. Only three stated they would stop work for radiological conditions outside the limits stated in the RWP. c. Understanding of administrative control levels and dose limits. All understood their project/facility and contractually imposed administrative limits. Eight were not knowledgeable of the PHMC maximum administrative control level or the lifetime control level.		

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Functional Area: Training	CRA Number: CR-4 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
6. Ten Nuclear Chemical Operators (NCO) specifically involved in the SNF packaging and transfer process were interviewed. All displayed good knowledge. One general area of weakness was noted; the relationship between the DOE limits for exposure to ionizing radiation and the administrative control limits for the project. 7. Fire protection personnel (one engineer, one manager) were interviewed. No areas of weakness were identified. 8. Welding personnel (two welders, one welder trainer, and one manager) were interviewed. Their level of knowledge was judged to be excellent. No areas of weakness were identified. 9. Transportation and shipping personnel (two DAs, one safety analyst, and four managers) were interviewed. Level of knowledge was satisfactory. Areas of weakness were noted in: a. Safeguards and security as it applies to Tampering Indicating Devices (TIDs). b. One unanalyzed cask storage corrosion scenario. 10. Lessons Learned personnel were interviewed. Level of knowledge was found to be satisfactory. No areas of weakness were identified. CONCLUSION: • The level of knowledge of managers, operations, and operations support personnel was adequate to support 324 Building B-Cell SNF operations. Issue(s): • None		
Inspector: <u>Original Signature on File</u> W. S. Glover	Approved: <u>Original Signature on File</u> <u>Team Leader</u> Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area:

Management

CRA Number:

CR-6

Criteria
Met:☐ Yes☒ No

Date: August 8, 2002

OBJECTIVE:

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria:

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

REVIEW APPROACH

Applicable programs:

Maintenance

Transportation/Packaging and Shipping

Emergency Preparedness (Covered under CR-11)

Engineering

Radiological Controls

Environmental

Quality Assurance /OCRWM

Safety Analysis (Covered under CR-7)

Training (Covered under CR-3)

Fire Protection

Welding

Industrial Safety

Hoisting and Rigging

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Functional Area: Management	CRA Number: CR-6 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
<u>Records Review:</u> - Review the safety basis documents for staffing requirements. Compare with personnel records to assess the ability of the facility to field the required personnel. <u>Interviews:</u> - Interview supervisors to ensure they understand the minimum staffing requirements for all phases of facility operations. <u>Shift Performance:</u> - Assess staffing levels while observing drills and routine evolutions to determine if they are adequate and satisfy administrative and safety basis requirements. <u>Management Expectations:</u> - The maintenance organization is established and functioning to support the packaging and shipment of SNF from the 324 Building to the ISA. Personnel to support maintenance activities associated with packaging activities are available and are familiar with the equipment. Equipment and instrumentation that support SNF packaging activities are available, operable, and in calibration. - The Hazardous Material Packaging and Shipping program is established and functioning to support the shipment of SNF from the 324 Building to the 200 Area. Responsibilities are clearly defined, and the organization is adequately staffed with trained personnel to support packaging and shipment of SNF. - The 324 Building Project Emergency Preparedness program has been updated to support packaging and shipment of SNF. The Emergency Preparedness organization (designated SNF handling BEDs) is familiar with the packaging process. - There are an approved emergency plan and documents in place. The plan encompasses the packaging and shipment of SNF and new equipment supporting the project. - An engineering organization is established and functioning to support packaging and shipment of SNF from the 324 Building to the 200 Area ISA. The organization is adequately staffed, and engineering personnel assigned to the SNF packaging work are knowledgeable of the packaging process. - The Health Physics organization is established, and there are sufficient personnel available to support packaging and shipment activities. Personnel are knowledgeable of the hazards and		

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Functional Area: Management	CRA Number: CR-6 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
potential for exposure resulting from the packaging operations. • The Environmental Safety and Health organization is familiar with the packaging process and reviewed the hazards associated with the packaging process including critical lifts. • Environmental requirements have been reviewed, and applicable permits and requirements have been determined to be in place and approved with respect to the 324 Building SNF packaging and shipment activities. • Fire Protection has reviewed welding activities, and the associated hot-work permits are in place. • Infrastructure Services, equipment, and materials are available to support the facility in support of the packaging and shipment of the SNF. • Quality Assurance has performed a review of SNF procurement packages, and the packages meet the requirements of CP QAP. OCRWM QA requirements established per Section 1.7 are complied with. • A staffing plan is established to specify the minimum numbers of qualified personnel required to support safe operations for the packaging and shipment of SNF to the 200 Area ISA. • Training records from Core Requirement 3 associated with the packaging and shipment of SNF will be evaluated as part of this review. An analysis defines the minimum required personnel. The minimum number of personnel are qualified and/or certified to perform this work. • A review will be conducted to ensure all applicable OCRWM requirements have been implemented. • Hoisting and rigging requirements specified by DOE-RL-92-36, and associated with SNF hoisting and rigging activities are met. REVIEW Records Reviewed: • 324-SNFTP-11113-CASKORINGS-RI, <i>QA Inspection Plan for Cask O-Rings</i> • 324-SNFTP-11113-CLOSUREPARTS-RI, <i>QA Inspection Plan for Inner Canister Cover Plates/Port Caps/Shield Plugs with Lifting Bails</i> • 324-SNFTP-11113-LOADEDISO-RI, <i>QA Inspection Plan, Loaded ISO Container</i>		

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• 324-SNFTP-11113-ISOCNT-SI, <i>ISO Container, Source Inspection</i> • 324-SNFTP-11113-PLUGS-SI, <i>Inner Canister Shield Plugs with Lifting Bails, Source Inspection</i> • 324-SNFTP-11113-PWRBASKET-SI, <i>PWR Canister Inner Basket Assembly, Source Inspection</i> • 324-SNFTP-11113-PORTCAPS-SI, <i>Inner Canister Port Caps, Source Inspection</i> • 324-SNFTP-11113-CANISTER-SI, <i>Inner Canisters, Source Inspection</i> • 324-SNFTP-11113-CASK-PWR-SI, <i>NAC-1 Cask (PWR), Source Inspection</i> • 324 SNF Project, <i>PWR Transfer Operations Minimum Staffing Plan, Revision 4</i> • 324 Building Deactivation Project Organization Chart, 07/08/02 • 3I-SOP-G-22, <i>Hot Cell Combustible Material Inventory</i> • 3I-SOP-SNF-001, <i>Pre-Staging the SNF Cask for Loading, Revision/Change 2-C</i> • 3I-SOP-SNF-002, <i>SNF Cask Sealing and ISO Container Loading, Revision/Change 2-C</i> • 3I-SOP-SNF-003, <i>PWR Fuel Assembly Packaging and Load-Out, Revision/Change 3-0</i> • 6-8EP.2, <i>Readiness Self-Assessment</i>, dated 6/5/02 • 99-TPD-130, <i>Categorical Exclusion for Stabilization/deactivation of the 324/327 Buildings, 300 Area, Hanford Site, Richland Washington</i>, dated 6/9/99 • Affidavit Punchlist 06-8EP.2, <i>Closure Document</i>, dated 6/14/02 • AIR-98-601, WDOH, <i>Notice of Construction Verification Inspection for the 324 B-Cell NOC</i>, 4/28/98 • AJHA Report, AJHA ID 3I-662, <i>Work Package No. 3I-SOP-SNF-002</i> • 324 Building Fire Protection Assessment, dated 03/2001 • Correspondence, M. R. Sackschewsky to M. M. Serkowski, <i>Biological Review of 324/327 Buildings Stabilization/Deactivation Project, 300 Area, ECR #99-3---007B</i>, dated 2/14/01 • Correspondence, N. Cadoret to M. Jansky, <i>Cultural Resources Review of 324/327 Buildings Stabilization/Deactivation</i>, dated 11/19/96 • Correspondence, A. Frankel, United States Environmental Protection Agency to J. Rasmussen, DOE, dated 08/12/98 • Correspondence, A. Conklin to J. Rasmussen, <i>AIR 95-903</i>, 9/18/95		

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• Correspondence, J. Rasmussen to A. Conklin, WDOH and P. Milliamp, US EPA, 95-PCA-443, Subject: <i>Cleanout of the Waste Technology Engineering Laboratory, B-Cell</i>, August 1995 • Correspondence, B. McAllister, US EPA to J. Hebdon, dated 06/29/01 • Correspondence, A. Conklin, WDOH to J. Hebdon, <i>AIR-1-068</i>, 6/26/01 • Correspondence, A. Conklin, WDOH to J. Hebdon, <i>AIR-02-210</i>, dated 2/25/02 • Correspondence, WDOE to DOE/RL and FDH, <i>324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault and Associated Areas Closure Plan</i>, Revision 1 (DOE/RL-96-73), dated 9/1/98 • Correspondence, J. Hebdon to M. Wilson, WDOE, <i>Complication Notification for Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Interim Milestone M-89-02</i>, dated 7/23/01 • Correspondence, M. Sackschewsky to M. Serowski, <i>Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area</i>, ECR # 1999-300-007d, dated June 7, 2002 • Correspondence, M. Sackschewsky to M. Serowski, <i>Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area</i>, ECR #99-300-007c, dated April 27, 2001 • CP-MP-002, <i>Central Plateau Remediation Project Quality Assurance Program Plan (QAPP)</i>, Revision 0 • DOE/EA-1185, <i>Environmental Assessment, Management of Hanford Site Non-Defense Production Reactor Spent Nuclear Fuel, Hanford Site, Richland Washington</i>, dated March 1997 • DOE/RL-96-73, <i>324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault, and Associated Closure Plan</i>, Revision 1, March 1998 • DOE-RL-2000-5, <i>Radioactive Air Emissions Notice of Construction for Deactivation Activities at the 324 Building</i>, Revision 0, February 2001 • DOE-RL-2000-5, <i>Radioactive Air Emissions Notice of Construction for Deactivation Activities at the 325 Building</i>, Revision 1, December 2001 • E Mail message, J. Perry to J. Berky, <i>WDOH Notification of ESP Filter Removal at 324 Facility</i>, dated 2/23/00 • HNF-3444, <i>324/327 Facilities Environmental Effluent Specifications</i>, Revision 3 • HNF-IP-1264, Section 1.4, <i>Fire Protection</i>, Revision 4 • HNF-PRO-222, <i>Quality Assurance Records Standards</i>, Revision 2		

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• HNF-RD-9900, <i>Hot Work Performance Requirements</i>, Revision 0 • HNF-SD-SPJ-SAR-001, <i>324 Building Safety Analysis Report</i>, Revision 4 • HNF-SD-ST-FHA-002, <i>324 Facility Fire Hazards Analysis</i>, Revision 1 • Listing of SWCX's (Site-wide Categorical Exclusion) currently available for PHMC use at the Hanford Site • Memorandum, D. Rasmussen to Distribution, <i>Attached Notice of Construction Revision Form for Cleanout of B-Cell at the 324 Building (AIR-95-903)</i>, Approved by WDOH September 21, 1999, dated 9/21/99 • <i>New Source Review Applicability Determination, 324 Building Spent Nuclear Fuel Disposition Activities</i>, dated February 28, 2002 • QA-OCRWM-3, <i>OCRWM, QARD Requirements Matrix, 325 Building Spent Nuclear Fuel Transfer Project</i>, Revision 0 • QAPP-OCRWM-001, <i>Quality Assurance Program Plan for Implementation of the OCRWM, QARD for the Hanford Spent Nuclear Fuel Program</i>, Revision 11 • <i>Radioactive Air Pollutants Notice of Construction for Cleanout of the Waste Technology Engineering Laboratory's B-Cell, 324 Building, 300 Area, Hanford Site</i>, August 1995 • Solid Waste Engineering Analysis, Hazardous Smart System Output reports for MSDS # 1987, MSDS # 16272 • <i>Update to Notice of Construction for Cleanout of B-Cell at the 324 Building</i>, (AIR-95-903), dated August 18, 1998 Personnel/Positions Interviewed: • Activity Manager • Emergency Preparedness Coordinator • Environmental Compliance Officer • Facility Engineer(s) (2) • Fire Protection Engineer • Maintenance Manager • Maintenance Supervisor • Operations Supervisor		

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• Outside support supervisor • Planner • QA Engineer • QC Inspector • Safety Program Manager, Central Plateau • SOE Evolutions/Operations/Shift Performance Observed: • Plan-of-the-Day Meeting • Cask Preparation • Transfer of Cask and Components into Airlock • Cask Loading • Cask Load-out from Airlock • Welding/Purge/Backfill Testing • Cask Closure and Shipment Spaces Visited: • 324 Building Material Control Area • 306 Building Mockup • 324 Building HCA • 324 Building Truck-Lock Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. Following the January, 1999 fire in the 324 Building High Bay Area, a detailed Fire Hazard Analysis (FHA) was conducted (HNF-SD-ST-FHA-002, Revision 1). The FHA identified a number of deficiencies that resulted in limiting flammable material in the High Bay Area and		

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individual cells. These limitations were implemented by administratively controlled OSRs. The steel columns in the loading dock area had been painted to meet two hours fire rating, and among other limitations, stairwells #2 and #6 had been upgraded to eliminate life safety hazards. The implementation of the FHA recommendations were outlined in HNF-3235, Revision 3, and supported by the 324 Building Fire Protection Assessment (03/2001). The Fire Protection Engineer had participated in the AJHA and signed off on 3I-SOP-SNF-001, -002, and -003. Additionally, the Hot Work Permit initiated by operations was reviewed by the Fire Protection Engineer and his manager and faxed to the Fire Marshall. The Fire Protection Engineer spent approximately 80% of his time to assist the 324 Building operations/services and had a back-up engineer. When additional manpower was required for the 324 Building this was supplied by the Central Plateau Services on a priority basis. 3. Annual Fire Safety Assessments were conducted in the 324 Building by one or more Fire Protection Engineers. 4. The environmental requirements were reviewed and applicable requirements had been identified in the readiness self-assessment 6-8EP.2. The only required permit, NOC IP 502, was in place; however, it needs approval from US EPA. The relevant documents were sent to US EPA for review and approval prior to the start of the RA. This will not preclude removal of SNF from the 324 Building. All other required documents were in place. 5. The conditions identified in DOE/RL-2000-5, <i>Radioactive Air Emissions Notice of Construction for Deactivation Activities at the 324 Building</i>, Revision 1, were not proceduralized. The facility stated they were waiting for approval from US EPA. Once the approval is obtained, HNF-3444 will be revised to include the conditions. EPA had stated in a letter to DOE/RL on August 12, 1998, that no specific approval was needed for the cleanout of the waste technology engineering laboratory B-Cell. 6. The 324 Building followed OCRWM QA requirements appropriate for SNF. 7. CP-MP-002, Revision 0, was the <i>Central Plateau Remediation Project Quality Assurance Program Plan (QAPP)</i>. The flow-down from the CP to SNF/CP level was with QAPP-OCRWM-001, <i>Quality Assurance Program Plan for Implementation of the OCRWM, QARD for the Hanford Spent Nuclear Fuel Program</i>, Revision 11. This document identified the implementation of the 18 OCRWM QARD sections in the SNF program. QA-OCRWM-3, <i>OCRWM QARD Requirements Matrix, 324 Building Spent Nuclear Fuel Transfer Project</i>, Revision 0, provides the connectivity between QARD requirements and the 324 Building specific procedures/other documents/exceptions.		

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8. QA procurement packages were maintained as records in compliance with HNF-PRO-222, <i>Quality Assurance Records Standards</i>, Revision 2. As an example, the complete QA package for NAC-1/ISA-EH-25 (complete set of matched packaging components for a fuel bundle) was reviewed to ascertain its compliance with OCRWM. 9. The following QA inspection plans signed by the Project DA and QA engineer were reviewed with accompanied drawings and attachments with the prefix of 324-SNFTP-11113: - Cask O-Rings - Inner Canister Cover Plates/Port Caps/Shield Plugs with Lifting Bails - Loaded ISO container - ISO Container, Source Identification - Inner Canister Shield Plugs with Lifting Bails - Source Inspection - PWR Canister Inner Basket, Source Inspection - Inner Canister Port Caps, Source Inspection - Inner Canister, Source Inspection - NAC-1 Cask, Source Inspection 10. Source QA inspections were carried out by third parties with signed conformance reports sent to Central Hanford QA. The remaining QA inspections were carried out by Central QA personnel upon material/component/assembly receipts and stamped. The attachments for the completed QA inspection plans comprised, but not limited to, material certifications, test plans and tests, non-conformance reports and closures, Engineering Change Notices (ECNs), and instrument calibrations. The packages were found to be complete and in conformance with OCRWM QA requirements. 11. The referenced documents were reviewed for minimum staffing levels. Besides the normal day shift contingent, the SAR required that an SOE and an RCT be available in the 300 Area on back shift and on weekends. The Emergency Plan designated a back shift and weekend rotating BED from CP. 12. SNF packaging and shipping procedures required certain numbers of trained and qualified personnel to staff the evolutions. The PWR Transfer Operations Staffing Plan identified, by name, the minimum numbers of personnel and their backups.		

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13. The facility had sufficient staff to accomplish their mission. The areas that appeared to be most susceptible to staffing issues, such as maintenance, appeared to have a plan that allowed for accessing resources from outside the organization. This plan had been implemented in the past and although not ideal due to facility specific issues did support accomplishment of objectives. None of those interviewed seemed to feel that present staffing levels would affect facility performance. The maintenance organization appeared to be the most susceptible to understaffing due to specific skills, experience and qualifications needed in some areas such manipulator maintenance and repair. This put pressure on the maintenance organization to balance assignments with ALARA issues.		
CONCLUSION: • Overall, the 324 Building had the required minimum staff to accomplish its mission. • The Fire Protection Program for the 324 Building was well managed and adequately staffed to meet the Safety Basis requirements. • The environmental requirements were satisfied. The required air permit had been secured. Pending EPA approval does not affect the project. All other applicable documentation and reviews had been completed. • QA had performed a review of SNF procurement packages, and the packages met the requirements of the CP QA plan. OCRWM QA requirements established per Section 1.7 were satisfied. • Minimum staffing requirements had been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels were met and were consistent with the safety basis requirements and assumptions. • Sufficient numbers of qualified operations personnel, including supervisors and managers, were available to carry out SNF operations. Staffing levels were consistent with the safety basis requirements. • Sufficient numbers of Radiological Controls personnel, including supervisors, and managers were available to carry out SNF operations. Staffing levels were consistent with safety basis requirements. • After a review of the facility's Maintenance Program, the team determined that the program was effective, well managed, well documented, and ready to support operations. Sufficient personnel, familiar with packaging operations, were available. Three pieces of equipment necessary to		

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support operations were not fully operable during the evaluation including the Uni-Grapple, the Airlock A-Cell Bridge Hoist Structure (AAHS) crane, and the B-Cell three ton crane. Visual inspection of the Uni-Grapple prior to the start of this evaluation revealed a modification that brought into question the load rating of the device. Subsequent analysis resulted in the Uni-Grapple's down grading from a load rating of 2100 lbs. to a load rating of 1350 lbs. The new rating was sufficient to handle the PWR spent fuel assemblies in the facility, but would not be sufficient to handle the Boiling Water Reactor (BWR) assemblies that will be handled later in the Rod Consolidation Container. Handling of the Rod Consolidation Container was planned as the final evolution in the removal of SNF from the 324 Building and would require a grapple with a working load limit of approximately 2100 lbs. Since the Rod Consolidation Container could be handled in B-cell and moved to the Airlock without use of a grapple, only one grapple would be needed to support loading of the Rod Consolidation Container within the Airlock. The current accelerated schedule identified the earliest need date for loading the Rod Consolidation Container as October 1, 2002. The project was considering three options to resolve this issue. One option must be selected and completed by the need date. The B-Cell three ton crane failed prior to the RA and had not been repaired by the end of the review.		
• The AAHS crane failed during the RA. It was restored to service and its operation demonstrated by the end of the review.		
Issue(s):		
F-6-1 The 324 Building SNF Packaging and Shipping Project does not have a grapple with the working load limit necessary to handle the Rod Consolidation Container.		
F-6-2 The Uni-Grapple used to attach to and lift fuel assemblies was not in service at the commencement of the RA due to questions about its load rating.		
F-6-3 The B-Cell three ton crane was out of service during the RA.		
F-6-4 The AAHS Crane was not operable at the commencement of the RA.		
Inspector:	Original Signature on File W. Harding	Approved: Original Signature on File W. Harding, Team Leader Date: August 8, 2002

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Criteria Met: [X] Yes [] No

OBJECTIVE:

Facility safety documentation is in place and has been implemented that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design and is established.

Criteria:

1. The safety documentation addresses appropriate hazards/risks associated with 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.23, paragraph 8, Attachment 1, Sections 3 and 4)
2. A safety basis has been prepared and approved by DOE. (DOE Order 5480.23, paragraph 8)
3. Administrative controls are in place to ensure that 324 Building B-Cell Spent Fuel Packaging equipment repairs (or modifications) are adequately analyzed to identify system degradation and to ensure that design changes are documented and approved prior to implementation. (DOE-STD-1073-93, Chapter 1.3)
4. An adequate process has been implemented to ensure that documentation for 324 Building B-Cell Spent Fuel Packaging systems critical to safety exists and is kept current, as appropriate for their safety functions, and that documentation is available to the 324 Building B-Cell Spent Fuel Packaging operators. (DOE-STD-1073-93, Chapter 1.3)
5. Drawings and other documentation relied upon for operations and maintenance associated with SNF activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)
6. The NAC-1 Cask SARP has been approved.
7. An unreviewed safety question process is in place to ensure that procedure changes applicable to

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Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Criteria Met: [X] Yes [] No
324 Building B-Cell Spent Fuel Packaging project is covered by the safety basis and the evaluations resulted in no positive USQ. REVIEW APPROACH <u>Records Review:</u> • Review safety documents, including the NAC-1 SARP, to verify they are approved by DOE. • Review any changes to the safety basis documentation to assess whether the safety basis includes appropriate hazards/risks. • Review recent design changes and modifications to ensure they have been reflected in drawings and documents available to operators and maintenance personnel. • Review the listing of safety systems and components to ensure it is consistent with the safety basis. • Review the configuration management process to ensure it will maintain up-to-date plant configurations. • Review dispositioned USQ/USQ Determination (USQD) for design changes, special procedures and tests, and other proposed changes. • Review initial USQ screenings and supporting USQ safety evaluations. • Determine the status of all ongoing USQs and USQDs and evaluate their implication on operations. • Review records for temporary modifications and verify required analysis is conducted and any required actions are implemented during the period the temporary modification is in place. <u>Interviews:</u> • Interview personnel associated with the 324 Building B-Cell Spent Fuel Packaging configuration management program to assess their understanding of program requirements and responsibilities. • Interview engineering personnel responsible for developing, reviewing, and approving 324 Building B-Cell Spent Fuel Packaging USQD and supporting safety analyses for proposed facility activities to assess their understanding of the program, individual responsibilities and safety basis documents.		

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Shift Performance:

- Observe routine operations and drills (these may be simulated) to assess whether any hazards or risks exist that have not been addressed by the facilities safety documentation.
- Perform a system walk-down to determine whether there are uncontrolled modifications to safety systems. This walk-down should evaluate the accuracy of drawings and other documentation for plant operation and maintenance. At least one recently completed modification should be walked down and changes verified, including changes to operating procedures, if applicable.
- Observe in-progress work control for compliance with administrative requirements such as currency of drawings and procedures, USQ reviews, non-conformance report dispositions, Radiological Work Permit implementation, and other requirements.
- Walk-down a temporary modification, if one is in effect, and evaluate the accuracy of the temporary modification records and drawings.

Management Expectations:

- An USQ process is in place to ensure that procedural changes applicable to the handling, transfer, and packaging of the SNF is covered by the safety basis. The USQ evaluation(s) of procedures applicable to the SNF handling, transfer, and packaging of the SNF have been completed with no positive findings.
- Credited controls and mitigating measures have been incorporated, as appropriate, into procedures applicable to the handling, transfer, and packaging of the SNF to address identified hazards/risks.
- Safety documentation addresses hazards and risks associated with SNF transfer, and provides appropriate controls.
- The NAC-1 Safety Analysis Report for Packaging (SARP) has been approved. Requirements have been incorporated as appropriate into procedures.

REVIEW

Records Reviewed:

- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- 10 CFR 830.203(b) *Nuclear Safety Basis- Unreviewed Safety Questions*
- 3I-SOP-SNF-002, *Perform Stationary Operating Engineer Surveillance, Revision/Change 2-C*

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Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Criteria Met: [X] Yes [] No
• CP-PRO-013, <i>Facility Worker Training</i>, Revision 0 • HNF-3553, <i>Annex D - 200 Area Interim Storage Area Final Safety Analysis Report</i>, Revision 2, Volume 5 • HNF-8705, <i>SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask</i>, Revision 0 • HNF-8749, <i>324 Building Failed Fuel Path Forward (OCRWM)</i>, Revision 0 • HNF-GD-7581, <i>Unreviewed Safety Question Process Guidance</i>, Revision 1 • HNF-IP-1264, <i>324/327 Facilities Stabilization Projects Administrative Manual, Section 2.7 Unreviewed Safety Question Process</i>, Revision 12 • HNF-PRO-018, <i>Unreviewed Safety Questions</i>, Revision 1 • HNF-PRO-062, <i>Unreviewed Safety Question Process</i>, Revision 4 • HNF-SD-SPJ-SAR-001, <i>324 Building Safety Analysis Report</i>, Revision 4 • HNF-SD-SPJ-OSR-001, <i>324 Building Operational Safety Requirements</i>, Revision 4, Section 6, "Design Features, Passive Safety SSCs" • Letter 0103014, K. A. Klein to E. K. Thompson, <i>Contract Number DE-AC06-96RL13200 - 324 Building Deactivation Project Authorization Agreement (AA)</i>, May 30, 2001 • NRC, Certificate of Conformance (COC) # 9183 for Model # NAC-1 Package, Revision 13, dated 09/14/99 • NRC, COC # 9183 for Model NAC-1 Package, Revision 11, dated 09/24/94 • NRC, COC # 6698 for Model NFS-4 Package, Revision 5, dated 9/23/77 • NRC, COC # 6698 for Model NFS-4 Package, Revision 17, dated 04/13/84 • <i>Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask</i>, dated 03/15/90 • <i>Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model # NFS-4</i>, dated 09/29/72 • SNF-4894, <i>SNF Project Acceptance Criteria for LWR Spent Fuel Storage System</i>, Revision 2 • Standard Review Plan for Dry Casks Storage System NUREG 1536, 1997		

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Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
Personnel/Positions Interviewed: • DA for SARP • DA for SAR, 200 Area ISA • Engineering/Procedures/Work Planning Manager • Nuclear Safety Manager, SNF Project • Principal Engineer • Safety Analysis Consultant to SNF Project Evolutions/Operations/Shift Performance Observed: • None Spaces Visited: • None Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. A DOE-RL approved procedure was in place which established the site USQ process consistent with the requirements of 10 CFR 830.203(b). The procedure permitted the contractor to make physical and procedural changes to a nuclear facility and to conduct tests and experiments without DOE approval, provided these changes did not explicitly or implicitly affect the safety basis of the nuclear facility. Guidance for implementing those requirements was provided in HNF-GD-7581. It included; the preparation of facility-specific documentation (e.g. Categorical Exclusions, Justifications for Continued Operations), and the establishment of a facility Plant Review Committee. The CP Remediation Project procedure, CP-PRO-018 defined the facility specific responsibilities, the facility procedure, training/qualifications requirements, and the Categorical Exclusions applicable to the 324 Building. Training and qualifications for USQ evaluators were defined and included an initial and refresher course 060710 CP USQ Evaluator Candidate. Training records were reviewed for a random sampling of five Engineers and support personnel. All had current training for this course. 3. The USQ log for CY2002 was reviewed.		

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Functional Area: Safety Documents	CRA Number: CR-7	Criteria Met: ☒ Yes
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4. The 324 Building SAR was non-compliant in format with the DOE Standard DOE-STD-3009-94, and provided instead, a cross-walk to the standard format. The content of the SAR was, however, complete relative to the adequacy of the safety basis to ensure sufficient control of the identified hazards associated with the planned near-term activities of SNF packaging and shipping for the facility. The SAR adequately addressed site characteristics; the facility description; the hazards and accident analysis; safety structures, systems and components (SSCs); the derivation of Technical Safety Requirements (TSRs); as well as the Safety Management Programs. OSRs had been derived from the hazards analysis, the initial and final hazards categorization, the accident analysis and the beyond design basis accident descriptions. There were no Safety Limits (SLs) or Limiting Control Settings (LCSs) for the 324 Building. Two LCOs resulted from the analysis. They were the Zone I/Zone II ventilation systems, their operability and efficiency. The ACs included: control of combustibles in cells; the Radiation Protection Program; Surveillance and Maintenance of SSCs (the building structure and the hot cells); the Emergency Management Program; control of radioactive material outside Zone I and II; organization/roles and responsibilities; the Fire Protection Program; and the Criticality Safety Program. DOE-RL had approved the current revision of the SAR and an approved Authorization Agreement existed.
5. The NAC-1 Cask SARP had been approved by the SNF Organization, Waste Management Organization, and the 324 Building Management.
6. DOE-RL approved the SARP by means of a Safety Evaluation Report (SER).
7. The current SARP issued on 04/22/02 was built upon, and had numerous references to, two earlier Safety Documents:
 - a. SARP for NFS-4/NAC-1 Spent Fuel Shipping Cask, Model, 03/15/90, issued to the Nuclear Assurance Corporation
 - b. SARP for Nuclear Services, Inc., Spent Fuel Shipping Cask, Model # NFS-4, 09/29/72
8. The genesis of the current NAC-1 as NFS-4 in the early 1970s was designed for both wet and dry spent fuel transport and resulted in the issue of NRC COC # 6698 through several revisions during the 1970s. Following a contamination incident in 1980 and the dissolution of Nuclear Fuel Services, the NAC-1 cask was acquired by Nuclear Assurance Corporation and after the development of a second SARP in 1990, the NRC issued a restricted use for dry SNF COC on 09/14/99 (Revision 13, valid for five years). The movement of SNF from the 324 Building to the Hanford 200 Area is covered by COC # 9183, Revision 13.
9. During the review of the current NAC-1 Cask SARP several references made to the earlier SARPs

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Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Criteria Met: [X] Yes [] No
were checked. It was found that some linkings between the SARP's were tenuous. In addition, several administrative inconsistencies were found in Appendix B (pages B-1-3 through B-1-22), that presented a matrix of requirements and how they were met in the SARP. Some examples were: • Item # 46, Packaging Design Criteria (PDC) Requirement referred to the COC 9183, Revision 11, where as the current COC is Revision 13. • Item # 53, PDC Requirement stated that the NAC-1 CASK will provide a secondary containment's boundary for transport. However, for ALARA considerations, leak testing the NAC-1 cask lid after loading was not necessary. Section A.4.3 of the SARP clearly demonstrated that the NAC-1 cask provides no containment per 10 CFR 71. • Item # 56, PDC Requirement stated that after NAC-1 cask modifications, the 10 CFR 71 performance for the cask will not be impacted. Section B 7.1.1 of HNF-8705 SARP and remarks for item #56 in the Appendix are confusing. Clearly the modifications made to the NAC-1 cask (plugging of appurtenances) have not been tested to the original design pressure of 65 psig, and conformance was erroneously claimed to 10 CFR 71 where a pressure test was required by ASME Section IX(a). • Item # 60, PDC required a compatibility analysis between package materials and the SNF contents for chemical corrosion. Section A.2.2 of the SARP did not address the potential for stress corrosion cracking/general corrosion of the inner cask with the appropriate technical basis, with the cask in contact with impurities present and on failed SNF with traces of water over the 75 year storage period. • Item 37, PDC required a tamper indicating device to be installed to the top lid of the ISO container. In the remarks column for this item it was stated that the SARP reviewers decided this item was not necessary. No technical justification was given for this decision process and it did not comply with nuclear material safeguards and security. • Item # 84 and item # 98, the PDC required the evaluation of containment for both NTC (10 CFR 71.71) Item # 84 and a Hypothetical Accident (10 CFR 71.73) Item # 98. To meet 10 CFR 71 criteria, the transportation package must have two containment vessels that meet ASME Section IV design and test criteria. The appropriate SARP section demonstrates that the transport package meets DOE O 460.1A. The DOE Order allowed equivalency considerations (with compensatory actions) for restricted transport as a means of meeting 10 CFR 71 criteria.		

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10. The SNF Shipping Cask SARP stated that the ISO container, once loaded with the NAC-1 Cask and Spent Fuel contents, would not require Tamper Indicating Devices (TIDs) for transportation. Similarly the 200 Area SAR reports that the ISO to be stored on the ISA open air pad did not require TIDs. However, 3I-SOP-SNF-002, Step 5.6.12 called for installation of TIDs on ISO container doors and between the ISO lid and the ISO container. In discussions with the DA for the 324 Building SARP it was indicated that four TIDs would be installed on the ISO container for both transportation and storage.

11. When evaluated the DA had the TIDs in his office in an unlocked filing cabinet.

12. For the case of dry storage of failed fuel (SNF-4894, Revision 2) the SNF Project Acceptance Criteria referred to the 200 Area ISA SAR (HNF-3553, Revision 2) requirements that the 324 Building Project comply with the following: "10 CFR 72.230 states that cask certified under 10 CFR 71 can be certified as spent fuel storage casks, if demonstrated in a SAR that the casks can meet the storage requirements for 20 years. The NAC-1 cask and the inner canister with welded closures exceed the 20-year storage life requirement." (ISA SAR P D4-56)

The NAC-1 cask presently was not certified under 10 CFR 71 because:

- It had been modified from the 1999 COC issued by NRC; and
- It had not been pressure/leak tested in its current configuration to meet 10 CFR 71 requirements.

HNF-8749, Revision 0, explored alternative options for storage of failed fuel and considered the preferred option that the NAC-1 cask could not be credited for confinement. Page 2 stated, "However, 10 CFR 72 requires only a single confinement for boundary storage. Also, credit can be taken for the double seal weld on the canister and no closure monitoring systems is required." The document continued stating that "Storage in the cask is expected to last for 40 years."

HNF-8705 (324 SARP, P. A-2-2) stated: "The materials are compatible with or provide adequate resistance to the chemical, galvanic, and/or corrosive effects of materials that they may be in contact with throughout their life cycle (75 years)."

10 CFR 72.236 stated that: "The spent fuel storage cask must be designed to store the spent fuel safely for a minimum of 20 years and permit maintenance as required."

NUREG 1536 that provided guidance for SNF dry storage stated that, "for intact fuel to prevent oxidation, helium backfill and store for 20 years." This statement was driven by lack of

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experimental data and the potential of failure of uranium fuels. If 10 CFR 72.236 and NUREG 1536 were considered as sources for requirements and guidance to implement storage, the guidance clearly defined a 20 year period for storage of helium inerted clad spent fuel to prevent potential corrosion. In the case of the Safety Documents for the 324 Building SARP and the ISA SAR, the storage period for assumed failed SNF varied from 40 to 75 years. In review of these and related documents, we have found no technical basis for extending the ISO/NAC-2/Canister assembly life beyond the NRC guidance for 20 years. CONCLUSION: • Site and facility procedures were in place and current to implement a USQ process at the 324 Building, which was consistent with the requirements. Personnel were trained in its use and routinely executed USQ screens for potential inadequacies, activities, modifications and occurrences. • Considering that the facility will enter into a Surveillance and Maintenance mode following removal of the SNF and that the facility is scheduled for demolition in 2007, the expenditure of programmatic funds to revise the SAR to a compliant status is likely neither justified nor cost effective. • Based on document review and cognizant persons interviewed, the SNF Transfer SARP, 200 Area ISA SAR and other related documents contain inconsistencies that require correction. Some of these inconsistencies may impact Authorization Basis and Safeguards and Security requirements. Issue(s): F-7-1 The Tamper Indicating Devices (TIDs) slated for ISO container use were stored in an unlocked filing cabinet contrary to safeguards and security requirements. F-7-2 Review of HNF-8705, SARP, Revision 0, (NFS-4/NAC-1 Spent Fuel Shipping Cask), HNF-3553, <i>Annex D, 200 Area ISA SAR</i>, Revision 2, and SNF-4894, <i>Project Acceptance Criteria for LWR Spent Fuel Storage System</i>, found a number of administrative inconsistencies between documents. O-7-1 The 324 Building SAR was non-compliant in format with the DOE-STD-3009-94 and the requirements of 10 CFR 830, SubPart B.		

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Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
Inspector: <u>Original Signature On File</u> M. Haas	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Maintenance	CRA Number: CR-8 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No

OBJECTIVE:

A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examination of records of tests and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work.

Criteria:

1. Confirmation of continued compliance with 324 Building B-Cell Spent Fuel Packaging safety requirements, including clearly defined surveillance intervals and periodic self-assessments, is required by procedure. (DOE Order 425.1A)
2. Adequate 324 Building B-Cell Spent Fuel Packaging surveillance test procedures and acceptance criteria have been established to support safe operation and are consistent with the approved operating basis. (DOE Order 5480.22, paragraphs 9 and 10, Attachment 1, Background; DOE Order 5480.23, paragraph 8, Attachment 1, Section 4)
3. Completed 324 Building B-Cell Spent Fuel Packaging surveillances and tests are reviewed and follow-up actions are documented. (DOE Order 5480.22, paragraph 8, Attachment 1, Section 4)
4. Approved 324 Building B-Cell Spent Fuel Packaging test procedures are based on safety analysis report requirements and have been used to establish and verify operability of safety systems. (DOE Order 5480.22, paragraph 9.3; DOE Order 5480.23, paragraph 8, Attachment 1, Section 4)
5. The maintenance program defines program requirements for corrective maintenance, preventive maintenance, and post-maintenance testing of systems required for the 324 Building B-Cell Spent Fuel Packaging Project.
6. The preventive maintenance backlog for systems important to the 324 Building B-Cell Spent Fuel Packaging Project is defined in the preventive maintenance recall list, with no overdue preventive maintenance item that impact operations.

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Functional Area: Maintenance	CRA Number: CR-8 Date: August 8, 2002	Criteria Met: [X] Yes [] No
REVIEW APPROACH <u>Records Review:</u> • Review the surveillance test tracking system to assess the mechanisms used for scheduling, performing, reporting results, and dispositioning test deficiencies. • Review the surveillance test program to determine that each safety requirement has a corresponding surveillance test. • Review surveillance tests to determine if acceptance criteria are established and met during the performance of periodic system testing. • Verify that surveillance procedures are technically correct and implement the requirements of the Operational Safety Requirements and the safety basis documents. • Review a listing of outstanding safety system deficiencies identified through the corrective maintenance program, preventive maintenance program, surveillance test program, or other reporting process to assess the condition of facility systems to support safe operations. • Review the maintenance program to determine that it defines requirements for corrective maintenance, preventive maintenance, and post-maintenance testing systems required for the 324 Building B-Cell Spent Fuel Packaging Project. • Review the preventive maintenance backlog to determine there are no overdue items that impact the 324 Building B-Cell Spent Fuel Packaging Project. <u>Interviews:</u> • Interview personnel associated with the USQ surveillance test program to assess their understanding of program requirements and responsibilities. <u>Shift Performance:</u> • Observe the performance of safety system surveillance tests. • Walk-down a safety-related system to assess operability and condition, and verify that the status is consistent with the condition specified.		

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Functional Area: Maintenance	CRA Number: CR-8 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No

Management Expectations:

- Adequate surveillance and test procedures and acceptance criteria have been established to support safe operation of the SNF packaging equipment.
- The maintenance program (job control system) defines program requirements for corrective maintenance, preventive maintenance, and post-maintenance testing of systems required for the packaging of the SNF.
- The preventive maintenance backlog for systems important to the packaging and shipment operations is defined in the PM recall list, and there are no overdue preventive maintenance that impact operation.
- The applicable criticality prevention specification and operational safety requirements are incorporated into applicable procedures.

REVIEW

Records Reviewed:

- 3I-SOP-PWR-002, *Perform Stationary Operating Engineer Surveillance*, Revision/Change 4-F
- 3I-SOP-PWR-005, *Operate 324 Building HVAC System*, Revision 3
- Completed corrective and preventive work package(s) (8)
- Completed 324 Building Surveillance Data Sheets
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*, Revision 4
- Preventive maintenance scheduling and completion records
- Surveillance test tracking system
- Safety class systems preventive maintenance completion and periodicity records

Personnel/Positions Interviewed:

- 324 Building HVAC Cognizant Engineer
- 324 Building Maintenance Manager
- 324 Building Stationary Operating Engineers (2)
- 324 Building Surveillance Operations Manager

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Functional Area: Maintenance	CRA Number: CR-8 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
Evolutions/Operations/Shift Performance Observed: • Walk-down of 324 Building Zone I and Zone II ventilation systems • Observation of Zone I and Zone II ventilation system surveillances Spaces Visited: • 324 Building (Various Spaces) Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. The 324 Building surveillance and maintenance programs were reviewed. The surveillance program was well-defined and well run. The program was implemented by procedures that captured the elements necessary to ensure that the safety basis for the facility was in place including required surveillances and the intervals at which they must be performed. Test procedures and acceptance criteria were consistent with the approved operating basis. Surveillance and test records were complete and showed that surveillances had been performed at the required intervals and that all required reviews had been completed. The records reviewed required no follow-up actions. Interviewed personnel were able to discuss how the follow-up process would be applied if needed. No deficiencies were noted during an observation of Zone I and Zone II ventilation surveillance execution. During a walk-down of the facility's Zone I and Zone II ventilation systems, the as-found configuration matched the SAR, procedures, and essential drawings. 3. The maintenance program was well-defined and well run. It defined program requirements for corrective maintenance, preventive maintenance, and post-maintenance testing of systems required for the 324 Building B-Cell Spent Fuel Packaging Project. Spot checks of completed corrective maintenance work packages showed them to be comprehensive and detailed with all required re-tests and reviews completed. There was evidence of a feedback loop in that several of the procedures had been changed to incorporate worker inputs either prior to or after execution. Facility preventive maintenance records were current and indicated that all required preventive maintenance, including that for SSCs, had been completed within the required periodicities and that maintenance approaching a due date was scheduled for performance. No corrective or preventive maintenance issues existed that would affect the startup and execution of the 324 Building B-Cell Spent Fuel Packaging Project.		

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Functional Area: Maintenance	CRA Number: CR-8 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
CONCLUSION: - The 324 Building surveillance and maintenance programs fully satisfied Core Requirement Eight and were ready to support the 324 Building Spent Fuel Packaging and Shipping Project. Issue(s): - None		
Inspector: <u>Original Signature on File</u> W. S. Glover	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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**FORM 1
STARTUP REVIEW APPRAISAL FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Safety Documents	CRA Number: CR-9 Date: August 8, 2002	Criteria Met: [X] Yes [] No

OBJECTIVE:

The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

Criteria:

1. Documentation for system modifications related to 324 Building B-Cell Spent Fuel Packaging exist and is kept current. (DOE-STD-1073-93, Chapter 1.3)
2. Drawings and other documentation relied upon for 324 Building B-Cell Spent Fuel Packaging operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

REVIEW APPROACHRecords Review:

- Review 324 Building B-Cell Spent Fuel Packaging essential drawings to ensure modifications are incorporated.

Interviews:

- None

Shift Performance:

- Select at least one safety system and walk it down to compare the as-found configuration to the current safety documentation, operating procedures, and controlled drawings. Include in the walk-down any portions of the system that has recently been modified.

Management Expectations:

- All SNF Transfer Project required modifications to facility SSC's were implemented in accordance with the FH/CP/324 Building procedures controlling facility modifications.
- Drawings and other documentation relied upon for SNF operations and maintenance activities are consistent with the facility/project configuration.

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Functional Area: Safety Documents	CRA Number: CR-9 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
REVIEW Records Reviewed: • 3I-SOP-PWR-005, <i>Operate Building 324 HVAC System</i>, Revision/Change 3-0 • Controlled copies of Essential Drawings • H-3-49514, <i>Exhaust Flow Diagram Zone 1</i>, Revision 2, last ECN and update 8/22/94 • H-3-49514, <i>Exhaust Flow Diagram Zone 2</i>, Revision 2, last ECN and update 8/22/94 • H-3-49514, <i>Exhaust Flow Diagram Zone 3</i>, Revision 2, last ECN and update 6/16/94 • H-3-49514, <i>Exhaust Flow Diagram Zone 4</i>, Revision 2, last ECN and update 10/20/92 • H-3-70224, <i>Exhaust Flow Diagram POG and Vessel Vent</i>, Revision 1, last ECN and update 10/20/92 • HNF-6898, <i>324 Building Essential Drawing List</i>, Revision 3 (with ECNs) • HNF-PRO-1819, <i>PHMC Engineering Requirements</i>, Section 6.a.6, "Change Control" • HNF-SD-SPJ-SAR-001, <i>324 Building Safety Analysis Report</i>, Revision 4 • JCS Work Packages 3I-02-00059/p and 3I-02-00058/P • CP Essential Drawing List sorted by Drawing, 07/15/02 Personnel/Positions Interviewed: • HVAC Cognizant Engineer • Engineering/Procedures/Work Planning Manager Evolutions/Operations/Shift Performance Observed: • None Spaces Visited: • Safety Systems Walkdown • Outside Exhaust Fans, Stack, and Stack Monitoring Buildings • B-Cell, B-Cell Gallery • Walkdown of Safety Systems (Zone I and Zone II Ventilation) including: Room 317 having the supply fans/filters and the power control room with its Heating/Ventilating Control Panel; Room 310 process control room containing remote delta p readouts for A, B, C, and D Cell as well as the		

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Functional Area: Safety Documents	CRA Number: CR-9 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
gallery and airlock; Rooms 312 and 315 containing the Zone III exhaust fans; location of the 5/6/7/8/9/10/ and 11 filter rooms; outside exhaust fans 971/972/973/974/975; and the stack and basement exhaust fans. Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. The Zone I and Zone II ventilation systems were walked down to compare the as-found configuration to the current safety documents (SAR Section 4.2.1), operating procedures and controlled essential drawings. The walk-down was initiated following review of the referenced drawings. The last ECNs incorporated into the Zone I and Zone II systems drawings occurred on 8/24/94. There had been no system modifications since then. Some areas (e.g., filter rooms) were not accessible due to their radiological status. Most of the system was, however, viewed and confirmed. 3. The 324 Building Essential Drawings included the following: SMF Doors; Stack/Ducting; REC Doors; Zone II Confinement; Normal Power; Fire Protection Sprinklers; Fire Alarms; Passive Fire Protection; HVAC Controls; Process Off-Gas; Steam Condensate Room; HVAC; Compressed Air; Instrument Air; Breathing Air; Sanitary Water; Process Water; Chilled Water; Safety Showers and Eye Wash; Vacuum Air Sampling; Radioactive Liquid Waste; Sewer Retention; Process Sewer; Radioactive Liquid Waste Sewer; Retention Process Sewer; Stack Monitoring; Material Handling Floor Plans; and Group Piping. The Essential Drawing tracking list generated on July 17, 2002, lists seven drawings requiring incorporation of outstanding ECNs, the oldest being dated July 3, 2002. HNF-PRO-1819 required that work complete ECNs be incorporated into essential drawings within 30 days. Accordingly, the building's Essential Drawings conform to the site standard for timely incorporation of ECNs. 4. HNF-PRO-1819 required that work complete ECNs be incorporated into essential drawings within 30 days. CONCLUSION: • No outstanding ECNs existed for these systems. • All control and readout instrumentation had current calibration. • The systems had proven themselves to be well designed and reliable given an adequate		

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Functional Area: Safety Documents	CRA Number: CR-9 Date: August 8, 2002	Criteria Met: [X] Yes [] No
maintenance program. Few problems had been experienced. The heat recovery system on the supply fans were non-functional and will soon be removed to make space for additional inlet filtration, reduce the delta p, and save energy. The construction drawings (General Service Drawings) will be deactivated after their removal. An AJHA, USQ, and JCS work package had been prepared and the job will be executed once scheduled. When accomplished, a future SAR revision should correct Paragraph 4.2.1 to reflect the final configuration. • Evidence fulfilling the last annual LCO requirement for HEPA filter efficiency (greater than 95% efficient) testing was observed to be satisfactory and exceeded 99.9% on 3/26/02. • The essential drawing tracking list generated on July 17, 2002, listed seven drawings requiring incorporation of outstanding ECNs, the oldest being dated July 3, 2002. Accordingly, the building essential drawings conform to the site standard for timely incorporation of ECNs. Issue(s): • None		
Inspector: <u>Original Signature on File</u> J. Nuzum	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area:
Operations

CRA Number:
CR-10

Date: August 8, 2002

Criteria
Met:
☒ Yes

☐ No

OBJECTIVE:

There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

Criteria:

1. Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e; DOE Order 5480.19, Chapter XVI)
2. The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)
3. 324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A, Criterion 5)
4. Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility.
5. An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.
6. An AJHA of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.
7. Administrative procedures, as defined in the POA, Appendix A, are prepared, approved, and implemented.

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Functional Area: Operations	CRA Number: CR-10 Date: August 8, 2002	Criteria Met: [X] Yes [] No
REVIEW APPROACH <u>Records Review:</u> • Select two safety requirements and determine if associated operating, test, and maintenance procedures implement the limiting condition for operation. • Review the surveillance test tracking system to determine if test intervals are provided. • Review procedures for implementation of safety envelope requirements. • Assess the adequacy of the review and approval process for procedures. • Assess the currency of procedures and verify current configuration of safety systems is reflected in operations, maintenance, and surveillance procedures. <u>Interviews:</u> • Interview operators and supervisors to assess their understanding of the procedure change process, and how they verify the latest approved revision of a procedure. • Interview operators and supervisors to assess their understanding of the site procedure compliance policy. <u>Shift Performance:</u> • Observe the performance of surveillance tests and operator rounds to determine if safety system parameters used to verify compliance with safety requirements are accurately verified. • While observing evolutions and drill response, determine if the facility procedures are adequate in content, level of detail, and acceptance criteria, and properly implement safety requirements. • If procedure changes are necessary, assess the steps taken in the review and approval process. • Verify procedures used by the operators are properly controlled to ensure only the latest revision is used. • Verify that operators are following the procedure compliance policy. • Walk-down at least two facility modifications to verify that modifications were reflected in procedures, as applicable.		

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Functional Area: Operations	CRA Number: CR-10 Date: August 8, 2002	Criteria Met: [X] Yes [] No
Management Expectations: • All SNF Transfer Project required modifications to facility SSCs were implemented in accordance with the FH/CP/324 Building procedures controlling facility modifications. • Drawings and other documents relied upon for SNF operations and maintenance activities are consistent with the facility/project configuration. • An AJHA of the 324 Building SNF Packaging and shipment work scope activities has been completed. Each new or revised operating procedure will have an AJHA review conducted. • Appropriate controls for criticality have been incorporated into the SNF handling, transfer, and packaging procedures and are reviewed and approved by the 324 Building criticality safety representative. • Controls are established and implemented that ensure only current and accurate procedures are available for distribution and use by plant personnel. • A program is in place that ensures validation and approval of new procedures and procedure changes. • Preventive maintenance procedures for the equipment supporting the packaging of the SNF is prepared, validated, and implemented. • Administrative procedures as defined in Appendix A of the 324 Building SNF Project Startup Plan of Action are prepared, approved, and implemented. REVIEW Records Reviewed: • 3I-SOP-PWR-002, <i>Perform Stationary Operating Engineer Surveillance</i>, Revision/Change 4-F • 3I-SOP-SNF-001, <i>Pre-Staging the SNF Cask for Loading</i>, Revision/Change 2-C • 3I-SOP-SNF-002, <i>SNF Cask Sealing and ISO Container Loading (OCRWM)</i>, Revision/Change 2-C • 3I-SOP-SNF-003, <i>PWR Fuel Assembly Packaging and Load-Out (OCRWM)</i>, Revision/Change 3-0 • 324 Building Revised Conduct of Operations Applicability Matrix • 324 Building Surveillance Data Sheets, March 25-31, 2002 • HNF-IP-1264, Section 2.3, <i>Technical Procedure Development and Control</i>, Revision 10		

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Functional Area: Operations	CRA Number: CR-10 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
• HNF-IP-1264, Section 9.1, <i>Spent Nuclear Fuel Transfer Project Administrative Procedure Control (OCRWM)</i>, Revision 2 • HNF-SD-SPJ-OSR-001, <i>324 Building Operational Safety Requirements</i>, Revision 4 • SOM/SOE log book Personnel/Positions Interviewed: • Health Physics Technician(s) (2) • Nuclear Chemical Operator(s) (NCO) (4) • Operations Supervisor • Planner • Procedure Writer • Radiological Control Supervisor • Stationary Operating Engineer(s) (SOEs) • Surveillance Operations Manager Evolutions/Operations/Shift Performance Observed: • Cask Preparations • Transfer of Cask and Components into Airlock • Cask Loading • Cask Load-Out from Airlock • Welding/Purge/Backfill Testing • Cask Closure and Shipment • SOE Rounds Spaces Visited: • Room 317 Power Control Room • 324 Building Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were		

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Functional Area: Operations	CRA Number: CR-10 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. SOEs and their Manager were interviewed. Multiple visits were made to the Power Control Room. The LCO Surveillance Procedure was reviewed and compared to the OSR requirements for Zone I and Zone II as stipulated in the requirements document. The LCOs for Zone I were: 1) At least one of the three exhaust fans shall be operating; 2) One testable stage of HEPA filtration shall be operable and demonstrate an efficiency of at least 95%; and 3) That the differential pressure (DP) across Zone I HEPA filters shall be less than or equal to 4.8 inches of Water Gauge. The Limiting Conditions for Operations for Zone II were: 1) At least two of the exhaust fans shall be operating; 2) One testable stage of HEPA filtration shall be operable and demonstrate an efficiency of at least 95%; and 3) The differential pressure (DP) across the Zone II HEPA filters shall be less than or equal to 4.0 inches of Water Gauge. Surveillance requirements were defined in Section 4.1 of the OSRs and the bases for those requirements were found in Section SR4.1.1 through Section SR4.1.4. In summary the following was identified: a. The surveillance procedure required that the surveillance be performed every day, once per shift. This ensured abnormal trends were identified early and that corrective actions and repairs could be implemented in a timely manner without violation of the OSRs. The 324 Building SOEs perform surveillance on a much greater frequency than required by the OSRs. b. The surveillance procedure was reviewed and found to be accurate and conservative relative to the OSRs. c. A random sampling of SOE round sheets were reviewed for completeness and found to be satisfactory. d. SOEs interviewed were found to have a satisfactory understanding of the building LCOs and their importance to the safe operation of the building. e. SOEs were cognizant of the building's management structure, needed support and important interfaces. f. SOEs considered building management responsive to safety issues and proactive. g. SOEs believed that adequate funds were available and management was committed to maintaining safety class systems. h. Some improvement could be made in shift to shift review and sign-off in the SOE/SOM Log		

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Functional Area: Operations	CRA Number: CR-10 Date: August 8, 2002	Criteria Met: [X] Yes [] No
Book. 3. Standard operating procedures within the scope of this RA were reviewed for content and completeness. Reviews of the history files showed procedures 3I-SOP-SNF-001, 002, and 003 had been processed in accordance with governing facility administrative procedures (HNF-IP1264, Sections 2.3 and 9.1). AJHA, validation, USQ, and radiological assessment documentation was complete. Procedures implemented applicable operating safety requirements and criticality controls. An ALARA review had been completed and necessary controls incorporated into the work documents. Review and approval documentation showed all comments were resolved and all approvals complete prior to issuance. 4. Interviews were conducted with four operators and two HPTs to assess their understanding of procedure compliance. These individuals were aware of their responsibilities to follow procedures (site requirements) and their "stop work" authority. They were trained to their procedures. All knew how to access procedures on the computer or used controlled copies to ensure they had the most current copy. Individuals were aware of hold points, knowledgeable about when steps could be performed out of sequence, and aware of their responsibilities in an abnormal or emergency condition. 5. Interviews were conducted with two supervisory personnel to find out their understanding of procedure control and compliance. Both were well aware of the site policy on procedure compliance. The Radiological Control supervisor reported they were able to monitor procedure compliance by doing frequent checks of their employee's work; appropriate follow-through, and accountability further stressed the expectation. Both the Radiological Control and the Operations supervisor took an active role in the procedure review process. A noteworthy item was that the Operations supervisor often used a procedure reader for complex evolutions to reduce confusion and assure compliance. CONCLUSION: • Surveillance Procedures and Round Sheets: a. The surveillance procedure required that the surveillances be performed every day, once per shift. This ensured that abnormal trends were identified early and that corrective actions, and repairs could be implemented in a timely manner without violation of the OSRs. b. The 324 Building SOEs performed these surveillances on a much greater frequency than that required by the OSRs. c. The procedure was reviewed and found to be accurate and conservative relative to the OSRs		

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d. A random sampling of SOE round sheets were reviewed for completeness and found to be satisfactory. • Interviews: a. SOEs were found to have a satisfactory understanding of the building LCOs and their importance to the safe operation of the building. b. SOEs were cognizant of the building's management structure, needed support and important interfaces. c. SOEs considered building management responsive to safety issues and proactive. d. SOEs perform building walk-downs beyond what is required by procedure. e. SOEs believed that adequate funds were available and management was committed to maintaining safety class systems. • SOE/SOM Log Book: a. Some improvement could be made in shift to shift review and sign-off. Issue(s): None		
Inspector: <u>Original Signature on File</u> J. Nuzum	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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**FORM 1
STARTUP REVIEW APPRAISAL FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Emergency Preparedness	CRA Number: CR-11 Date: August 8, 2002	Criteria Met: [] Yes [X] No
OBJECTIVE: A routine drill program and emergency operations drill program, including program records, have been established and implemented. Criteria: 1. An effective emergency preparedness program, which reflects specific SNF activity-based drills, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 151.1; DOE Order 5480.20A, Chapter I) 2. An effective routine operations drill program, reflecting SNF activities, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 425.1A) 3. Approved emergency plan and supporting documents are in place and the plan encompasses the 324 Building B-Cell Spent Fuel Packaging Project and new equipment. REVIEW APPROACH <u>Records Review:</u> • Review the 324 Building B-Cell Spent Fuel Packaging records that describe the recent emergency preparedness drills and review the results from each. Determine if the drill scenarios were adequate and if the necessary numbers of drills have been conducted to fully verify and test compliance with the approved authorization bases of the facility. Determine if lessons learned from drills are factored into following drills and training. • Review the 324 Building B-Cell Spent Fuel Packaging Project shipment hazard assessment to ensure that facility and site emergency activities have been addressed. <u>Interviews:</u> • Interview 324 Building B-Cell Spent Fuel Packaging personnel responsible for the development and conduct of emergency drills to evaluate their understanding of the purpose of the drill program and their ability to execute it.		

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Functional Area: Emergency Preparedness	CRA Number: CR-11 Date: August 8, 2002	Criteria Met: [] Yes [X] No
- Interview the 324 Building B-Cell Spent Fuel Packaging personnel involved with the emergency preparedness program to determine whether adequate support is being provided for safe facility operations. <u>Shift Performance:</u> - Observe at least one pre-drill briefing, conduct, and post-drill critique of an emergency preparedness drill. - Observe a Table Top drill seminar. <u>Management Expectations:</u> - An evaluation of a tabletop drill designed to test the crew's (i.e., core SNF handling team) anticipated response to upset conditions shall be conducted. - An evaluation of a drill designed to test the crew's (i.e., core SNF handling team) anticipated response to upset conditions, utilizing mockups to simulate actual working conditions, shall be conducted. - The person-in-charge, assigned SNF handling personnel, and facility management satisfactorily respond to the upset condition. - The Emergency Preparedness drill program incorporates scenarios that reflect packaging of SNF in the 324 Building. - The 324 Building Emergency Response Organization has reviewed the SNF packaging shipment hazard assessment, and facility and site emergency activities have been addressed. - The 324 Building Emergency Response Organization demonstrates acceptable performance to a simulated SNF related drill. REVIEW Records Reviewed: - CP Project Drill Package, CP-FIRE-001, 07/24/02 - HNF-IP-0263-324, <i>Building Emergency Plan for 324 Facility</i>, Revision 7 - Operational Drill Records - RCP-FIRE-006, <i>Fire at 324 During Fuel Movement</i>, 05/07/02		

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Functional Area: Emergency Preparedness	CRA Number: CR-11 Date: August 8, 2002	Criteria Met: [] Yes [X] No
• RCP-PRO-004, <i>Emergency Preparedness Program</i>, Revision 5 • RCP-RAD-002, <i>SNF Cask Drop at 324</i>, 04/03/02 • RCP-RAD-003, <i>Rad Material Impingement at 324 Building High Rad Storage Yard</i>, 02/14/02 • RCP-RADCON-011, <i>Airlock Man Down</i>, 06/06/02 Personnel/Positions Interviewed: • Facility Emergency Preparedness Coordinator • Project Scheduling and Control Manager Evolutions/Operations/Shift Performance Observed: • Building Fire Drill • Drill Critique • Drill Pre-Brief • Operational Drills Conducted during the Execution of 3I-SOP-SNF-001/002/003 Evolutions Spaces Visited: • Cask Handling Area • 324 Building Staging Area • Radiological Staging Area • 324 Building Main Entrance • Incident Command Post (ICP) Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. The drill objectives, as defined by the CP Drill Package, included: a. Event Scene operations;		

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Functional Area: Emergency Preparedness	CRA Number: CR-11 Date: August 8, 2002	Criteria Met: [] Yes [X] No
b. Determination of event classification; c. Determination and implementation of protective actions; d. Determination of the status of the contingency plan implementation; e. Radiological Response; f. Demonstration of the ability to develop a drill scenario; g. Demonstration of the ability to control a drill; and h. Demonstration of the ability to evaluate drill performance. 3. The RA Team observed the conduct of the drill. The following observations were made: a. At least one person was late to evacuate the building and several personnel were late to report to the staging areas. b. Accountability of personnel was not completed because 23 persons were unaccounted for when the drill was completed. Contributing to this were problems generated by the drill controllers. c. The Staging Area Manager did not have a radio, resulting in communications difficulties with the Building Emergency Director (BED) and other key stations. d. The Facility Operations Specialist was late to arrive to brief the FD on the casualty situation because he did not get a full initial brief in the ICP. e. Entry into the building by the FD was delayed when initial personnel did not have a key to the building. f. Some FD personnel did not have a radio for communications while fighting a fire. g. The BED was not promptly informed that he had one person contaminated. h. False reports existed that accountability was complete and satisfactory when it was not. i. FD radios caused alarms within the building when keyed.		

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Functional Area: Emergency Preparedness	CRA Number: CR-11 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
j. Drill control problems existed including: • Accountability • Response to a possible actual alarm during the drill k. Informal communication existed in the ICP: • first names were used • there was excessive noise • repeat backs were not consistently used l. BED/Supervisory personnel were never informed of actual contamination levels. m. Formality of the drill brief requiring improvement: some controllers were not ready to give all indications necessary; and there was a failure to understand the circumstances under which a drill would be terminated. n. Drill termination was not well communicated in all areas when directed by the Drill Coordinator. 4. The CP Remediation Project Facility Emergency Management Preparedness Coordinator prepared and maintained the EP Program Manual. The manual detailed the roles and responsibilities for management positions, BED, wardens, Points-of-Contact (POC), and for the facility emergency response organization. It presented the organization's approach and philosophy for EP, the drill program, and provided the necessary procedural direction for each member of the response organization. A Building Emergency Plan for the 324 Building provided additional specifics for the EP program. It included a description of the facility and site, the building organization, evacuation routes, potential emergencies, appropriate response, emergency termination criteria, and available emergency equipment. 5. The 324 Building emergency drill program was reviewed. Drills were conducted at regular intervals, and drill scenarios were adequate to test emergency response capabilities as they pertain to SNF activities. Drill packages were complete. Drill critiques were thorough and the results were used to improve subsequent drill scenarios and drill performance. 6. The facility's routine operations drill program was reviewed.		

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Functional Area: Emergency Preparedness	CRA Number: CR-11 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
CONCLUSION: - The RA Team concluded that the objectives of the drill run for the RA were met. The building drill coordinator, at the request of the RA Team, later completed reconstruction of the location of the 23 people unaccounted for at drill termination. Four personnel remained unaccounted for at the conclusion of that investigation. The drill performance failed to demonstrate satisfactory accountability. The Facility Manager volunteered a repeat of an evacuation causing drill to demonstrate accountability of personnel. The subsequent evaluation of accountability was satisfactory. - The pertinent manuals and procedures were maintained current and were approved. Roles and responsibilities were well established and understood by building personnel and the program was fully supported by CPRP and 324 Building management. - The 324 Building Emergency Drill program was satisfactory. - Although a satisfactory number of operational drills were being performed, the program was deficient in that it was not formally implemented (i.e., no documentation exists that defined program content or implementation methodology), no schedule for drill performance existed, and the tracking system in use did not specify the dates on which drills were completed. Issue(s): F-11-1 The initial 324 Building Emergency Drill failed to demonstrate accountability. F-11-2 The routine operations drill program is not formally implemented, scheduled, or tracked.		
Inspector: <u>Original Signature on File</u> M. Haas	Approved: <u>Original Signature on File</u> Team Leader Date: <u>August 8, 2002</u>	

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**FORM 1
STARTUP REVIEW APPRAISAL FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Engineering/Start-up Testing	CRA Number: CR-12 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
OBJECTIVE: An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators. The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations including any required restrictions and additional oversight. Criteria: 1. The startup plan to operations for the 324 Building B-Cell Spent Fuel Packaging includes all activities required to transition from the RA through operations for PWR fuel and is being implemented. Specific hazards and evaluations that cannot be addressed prior to commencement of operations are included. (DOE Order 425.1A) 2. Factory acceptance and operational acceptance tests have been completed with no findings that impact the safe operations of equipment for the 324 Building B-Cell Spent Fuel Packaging Project. REVIEW APPROACH <u>Records Review:</u> • Evaluate the status of actions under the plan. Assure a phased approach to normal operations and inclusion of procedures, operator qualifications, and equipment startup testing, as required. Verify the plan includes mechanisms to deal with specific hazards. • Review documentation of test results (Factory Acceptance and Operational Acceptance tests) and resolution of open items for at least three tests of systems an/or components. • For two systems, review test plans and test records to determine if testing has been adequate to demonstrate operability over the full range of required operations. <u>Interviews:</u> • None		

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Functional Area: Engineering/Start-up Testing	CRA Number: CR-12 Date: August 8, 2002	Criteria Met: [X] Yes [] No
Shift Performance: • None Management Expectations: • A plan or method for tracking and closure of open items is in place. • Prerequisite actions to mockup disassembly are tracked to ensure completion as a part of the Startup Plan to Operations. • Factory acceptance test plans (ATPs) have been completed, witnessed, and signed off as appropriate for equipment procured and/or modified to support the packaging and shipment of SNF. • Operational tests of the equipment support the SNF packaging and movement have been completed, and there are no findings that will impact the safe operation of the equipment. • An adequate Startup Plan to Operations exists describing the process to transition from readiness to proceed and closure of pre-start open items, to equipment transfer and setup, to startup of SNF transfer operations. • The Startup Plan to Operations will confirm that authorization has been given by the SNF Project for the 200 Area ISA to receive 324 SNF material. REVIEW Records Reviewed: • Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10/31/01 • HNF-10996, <i>Start-up Plan to Operations</i>, Revision C, June 26, 2002 • RCP-7816, <i>Design and Fabrication Specification for Building 324 AAHS</i>, Revision 0-A • RCP-11507, <i>Operational Test Report for PWR Equipment</i>, Revision 0, July 3, 2002 Personnel/Positions Interviewed: • Chief Engineer • SNF Project Acquisitions Engineer • SNF Project Engineer		

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Functional Area: Engineering/Start-up Testing	CRA Number: CR-12 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
Evolutions/Operations/Shift Performance Observed: - Mockup Video for AAHS Spaces Visited: - None Discussion of Results: - All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that are applicable to this evaluation. - Mid-Columbia Engineering (MCE) prepared acceptance tests for the AAHS to the requirements of the FH CP specifications. Factory Acceptance Tests were conducted in three phases at G&M Machining in the Tri-Cities. The first, was intended to test the controls (functionality before application of load), the second was intended to verify that critical interface dimensions could be met (dry run installation) and the final test was intended to demonstrate that the AAHS could be installed in near-airlock conditions (full dress installation). Building personnel (e.g. crafts, NCOs, etc.) who witnessed the latter test had the opportunity to critique the equipment and its ability to be installed. In each test, exceptions were noted and exception reports generated. The vendor corrected the exceptions with design changes documented by ECN. Re-testing, also documented, followed the modifications. The SNF Acquisition Project Engineer had the opportunity to review and approve each test, exception, change and test result. - The CP Remediation SNF Packaging and Shipping Project has designated SNF Fuel handling equipment (e.g. Uni-Grapple, upper end fitting, etc.) as General Service Equipment. As such, it was not subject to the engineering rigor applied to Safety Class or Safety Significant Equipment, which would have been included on Essential Equipment. This designation was based upon the Project duration, the deactivation status and the fact that the identified accidents in the SAR bound the SNF transfer. FH CP engineering procedures allowed that latitude. Accordingly, OTPs guided Operational Tests and an OTR was produced. The OTR confirmed that the test results were reviewed by the DA, however the OTR lacked detail and rigor. - The Start-up Plan to Operations was reviewed. It described the prerequisites, management control and oversight, work flow and sequencing of activities, a summary of operational procedures, the PWR Start-up Checklist, the equipment list, and the repetitive reviews.		

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Functional Area: Engineering/Start-up Testing	CRA Number: CR-12 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
CONCLUSION: - Although designed, fabricated and tested by a vendor, the SNF Project had sufficient involvement and approval to influence the outcome of the procurement. Mockup testing at the 324 Building as well as air lock installation and subsequent operational testing had confirmed the viability of the AAHS following one final design change to avoid reaving of the wire rope when the hook was unloaded. This reviewer had the opportunity to review the Factory Acceptance Test Report, the detailed appendices containing the test data, and the Final Data Package (including certifications, qualifications, etc.). No exceptions were found. - Good engineering practices would dictate the generation of a thorough OTR to document the results of the OTPs. - The Start-Up Plan to Operations was satisfactory, undergoing completion using RA results and was being implemented.		
Issue(s): None		
Inspector: <u>Original Signature on File</u> M. Haas	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Criteria Met: [X] Yes [] No
OBJECTIVE: The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline. Criteria: 1. Programmatic elements of Conduct of Operations (COO) are in place. (DOE Order 5480.19) 2. Personnel have been trained in key COO principles. (DOE Order 5480.19) 3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19) 4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19) 5. Personnel understand their roles and responsibilities. REVIEW APPROACH <u>Records Review:</u> • Review recently completed operations logs, shift turnover documents, and other plant records of note to assess compliance with COO principles. • Review identified weaknesses in COO and compensatory actions. • Review the facility training records to determine that personnel have been trained to COO principles. <u>Interviews:</u> • Interview operators and supervisors to assess their understanding of the COO principles in the performance of their duties.		

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Criteria Met: [X] Yes [] No
- If these orders are not fully implemented, interview management personnel to ensure they are aware of the non-compliance(s) and action necessary to fully implement the order requirements, as well as current compensatory measures in the interim. <u>Shift Performance:</u> - Observe at least one cycle of SNF mockup/walk through evolution to determine if the facility is effectively implementing the COO requirements. - Attend shift turnovers, and pre-job briefings and observe control area activities, operator rounds, panel walk-downs, procedure use, communications, response to alarms, control of system status, and lockout/tagout activities. - Observe the implementation of any specified compensatory measures within the facility to determine their effectiveness. - Observe casualty/off normal drills to verify operations personnel are able to properly respond to casualty situations. <u>Management Expectations:</u> - Personnel understand their roles and responsibilities. During the dry run, personnel demonstrate ability to communicate and work together. The personnel are knowledgeable of emergency action responses. - Good housekeeping is evident throughout the REC area. - Verification has been made that COO is implemented in accordance with an approved applicability matrix. REVIEW Records Reviewed: 324 Building Revised Conduct of Operations Applicability Matrix 324-SNFTP-11113-CASK-SI, <i>Quality Assurance Inspection Plan, Casks</i> 3I-SOP-SNF-001, <i>Pre-Staging the SNF Cask for Loading</i>, Revision/Change 2-C 3I-SOP-SNF-002, <i>SNF Cask Sealing and ISO Container Loading (OCRWM)</i>, Revision/Change 2-C 3I-SOP-SNF-003, <i>PWR Fuel Assembly Packaging and Load-Out (OCRWM)</i>, Revision/Change 3-0		

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Criteria Met: [X] Yes [] No
• 49 CFR 173 (DOT regulations) • ASME, Section III, NB 5000 • ASME, Section V, Article 6 • COGEMA-SVLT-PRC-003 • Design Report ED-057, <i>Spent Fuel Packaging/Handling</i> • DOE Order 5480.19 • DOE-O-425.1B, <i>Startup and Restart of Nuclear Facilities</i> • DOE-RL-92-36, <i>Hanford Site Hoisting and Rigging Manual</i> • DOE-STD-3006-2000, <i>Readiness Self-Assessment</i> • <i>Facility Startup Plan to Operations (draft)</i> • HNF-3730, <i>324 Building Safety Basis Criteria Document</i>, Revision 0 • HNF-7483, <i>324 Building SNF Transfer Tech Specs</i>, Revision 1E • HNF-8705, <i>SARP Onsite NFS/NAC-1 Spent Fuel Shipping Cask</i>, Revision 5 • HNF-GD-10473, <i>Interface Management Documentation</i>, Revision 0 • HNF-IP-1264, <i>324/327 Building Administrative Procedures</i> • HNF-IP-1264, Section 4.1, <i>Job Control System Implementation</i>, Revision 16 • HNF-MD-4635, <i>Pre-Acquisition Review/Approval of Items and Services</i>, Revision 5 • HNF-MD-4821, <i>Guidance for Flow-Down of ISMS Requirements to Lower Tier Subcontractors</i>, Revision 1 • HNF-MP-003, <i>Integrated Environmental, Safety, and Health Management System Description</i>, Revision 6 • HNF-PRO-055, <i>Startup Readiness</i>, Revision 7 • HNF-PRO-069, <i>Maintenance Management</i>, Revision 3 • HNF-PRO-259, <i>Graded Approach</i>, Revision 2 • HNF-PRO-10472, <i>Configuration Management of Interface Management Documentation</i>, Revision 0		

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Criteria Met: [X] Yes [] No
• HNF-RD-7648, <i>Emergency Preparedness Drill Program Requirements</i>, Revision 1 • HNF-RD-9040, 8-8-FC-1, <i>Semi-Automatic Flux Cored Welding of Stainless Steels</i>, WPS-051 • HNF-RD-9041, 8-8-GT/SM-1, <i>Manual Gas Tungsten Arc &/or Shielded Metal Arc Welding of A693 (Type 630), A320 (Type 303), P No 8 Stainless Steel, and P No 10H Steel Castings</i>, WPS-001 • HNF-SD-SPV-OSR-001, <i>324 Building Operational Safety Requirements (OSR)</i> • HNF-SD-SPV-SAR-001, <i>324 Building Safety Analysis Report</i> • Logbook (SOE, 324 CHA, and Operations) • Required Reading book (Operations) • Review and conclusions re: engineering, fabrication and acceptance of the modification and equipment required to perform the operation, J. Jens/T. Erickson, 07/15/2002 • SI-324 Building 005, 324 Standing Order • Turnover documentation Personnel/Positions Interviewed: • DA, CP, Tabletop • DA, SNF, Document Transfer • Facility Supervisor(s) (2) • Health Physics Technician(s) (HPTs) (2) • Hot Cell Operations Manager • NDA/Leak Check Personnel (2) • Nuclear Chemical Operator(s) (NCOs) (6) • Operations Supervisor • Quality Assurance Personnel (2) • Radiological Control Supervisor • Stationary Operating Engineer (SOE)		

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
Evolutions/Operations/Shift Performance Observed: • Cask Preparation • Transfer of Cask and Components into Airlock • Cask Loading • Cask Load-Out from Airlock • Welding/Purge/Backfill Testing • Cask Closure and Shipment • AAHS Operation • Airlock Entry • Operations Turnover • SNF Document Transfer Spaces Visited: • 324 Truck Load and Staging Area • 324 Building • 306 Building Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. Interviews performed with personnel involved in the QA of the SNF transfer and cask leak test process revealed weaknesses in almost all areas. These included: a. An appreciation of the relationship between the aspects of their work and the principles of ALARA (QA/NDA); b. The use and feedback of post or in-process problems with work through the use of lessons learned (QA/NDA); c. The use and subsequent actions related to the AJHA process when high risk work was to be		

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Criteria Met: [X] Yes [] No
performed (QA); d. Knowledge of and actions to be taken during the SNF Transfer as the fuel was transferred from the 324 Building to Transportation and to the 200 Area (QA); e. The differences between QA levels of manufacture and control, and why weight handling equipment, used in this procedure, was acceptable as General Service equipment (QA); f. Knowledge of the facility training process (QA); g. General casualty response (QA/NDA); h. Fire watch requirements and use (QA/NDA); i. The roll of negative ventilation in contamination control and how it was monitored during the SNF Transfer process (QA); j. The use of ISMS in formulating the procedures and performing work involved in the SNF Transfer process (QA/NDA); k. Basic understanding of radiological controls (yearly limits on exposure, administrative control limits, radiological controls in Building 306, ALARA concepts, exposure expected during the planned work) (NDA); l. Stop work and restart process (NDA); and m. Overall knowledge of the procedures used for SNF Transfer (QA/NDA). 3. After review of sling identification and capacity tagging used in performance of 3I-SOP-SNF-001, Staging and Movement of ISO Container/SNF Cask, interview with the DL for mobile crane operation and the supervisor of site crane and rigging, the rigging support craft and their supervisor was not aware of the rigging requirements of the procedure. They stated they had never reviewed the procedure nor were they involved in the planning or development of it or other procedures pertaining to the 324 SNF Fuel Transfer. 4. The team observed the performance of 3I-SOP-SNF-001, <i>Pre-Staging the SNF Cask for Loading</i> (Scene D). This included relocating cask/ISO container from the 324 yard staging area to the truck-lock, removing the cask from the ISO container, staging at the work platform in the CHA, and preparing for transfer of the cask into the airlock. Personnel were clear on their roles and level of knowledge was adequate. Personnel were attentive and worked well together. Some deficiencies		

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were noted: a. The pre-job briefing began without the QC representative, who arrived late. The QC representative was held after the meeting so the PIC could go over his individual responsibilities. The individual was not briefed on all aspects of the job. b. During the evolution, the HPT taking smears in the truck-lock remained in the truck-lock and relied upon communications between the operator and another HPT in the CHA for results from the smears. No repeat-backs were observed during the process. c. The mobile crane in use, a Grove 80-ton truck crane HO-17T-5692, did not have a capacity greater than 30 ton at 25 feet. d. The PIC/DL could not provide the exact weight of the load and the procedure, 3I-SOP-SNF-001, did not identify the load weight or impact limiter weight. e. The sling assembly's capacity was not clearly identified on tagging, especially if it was based on sling angles. DOE-RL-92-36, Section 9.2.3.4, <i>Sling Identification</i>, "The tag or other identification methods shall state the following: Manufacturer name, Rated Load, Load Test Date, Performance Inspection Due Date." f. The PIC and DL did not verify the crane met the required capacity of 3I-SOP-SNF-001. g. The requirements of 3I-SOP-SNF-001 were violated as the crane did not meet the weight requirements at the given radius of 25 feet. Although no limits were actually exceeded during the lifts and safe performance existed, the team evaluated this operation as unsatisfactory. The pre-staging of the cask and movement of the ISO container to the truck did not meet requirements. The operation from the truck-lock to Scene I completion (operations inside the 324 Building) was performed correctly. The procedures were revised and the lifts associated with the cask preparation demonstration were performed again. The team evaluated performance of this operation as satisfactory. During the performance a question arose concerning the tire wear on the transportation trailer(s) provided for the operation. A Washington State transportation inspector was called to inspect the tire condition and found them satisfactory.		

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5. The team observed the performance of 3I-SOP-SNF-003, Section 5.3, <i>Transfer of Cask and Components into Airlock</i> (Scene II). This procedure involved the movement of the SNF cask and ancillary equipment from the Cask Handling Area to the Airlock. Some deficiencies were noted: a. Not all personnel involved in the performance of Scene II were involved in the pre-job briefing. b. Some pieces of equipment needed for cask inspection (a flashlight, a small stepladder, and wooden wedges) were not pre-staged resulting in delays while personnel were sent to find them. c. The flashlight used for cask inspection did not have a tether and could have been inadvertently dropped into the cask. d. A line that had been tied to a bucket used to transport tools and equipment to the elevated platform was removed from the bucket and tied to a small stepladder to lift it to the elevated platform. The strength of the line and the pedigree of the knot were not known and the ladder could have become a missile hazard had either failed. e. Four minor radiological area boundary violations were observed. The team evaluated performance of this operation as satisfactory. 6. The team observed the performance of 3I-SOP-SNF-003, Sections 5.2, 5.4, and 5.5, <i>Cask Loading</i> (Scene III). This procedure involved in-cell fuel handling, loading of SNF into cask in the airlock, installation of the shield plug, and preparation for cask-load out from the airlock. One deficiency was noted. a. The PIC and involved personnel were asked what action would be taken if the Uni-Grapple failed while in the airlock with fuel attached and lowered into the cask. The PIC and involved personnel confirmed there was no established guidance or procedure to address this event. The team evaluated performance of this operation as satisfactory. 7. The team observed the performance of 3I-SOP-SNF-003, <i>PWR Fuel Assembly Packaging and Load-out</i> (Scene IV). This procedure involved removing the cask from the airlock in the 324 Building. Overall communications were clear and concise; operators ensured communications were received by using repeat-backs. Some deficiencies were noted:		

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a. When a HRA was declared, the signs posting the area were not properly placed, confusing the operators and rendering the signs ineffective. b. The criticality safety representative violated PPE requirements by reaching inside his coveralls to obtain a pen. Once used, the pen was put back inside the coveralls. The HPT was alerted to the situation and took action. c. The PIC walked within 5 feet of the elevated work platform without a hard hat while work was in progress. d. The HPTs miscommunicated dose rate levels around the cask, causing a lower value dose rate to be recorded. Repeat backs between these individuals were rarely observed. e. The team did not observe one required neutron survey due to the inability of the project team to transport the neutron instrument (a "Snoopy") to the top of the elevated work platform, due to its size and weight. f. Gates on the elevated work platform were occasionally left open while work was performed. The team evaluated performance of this operation as satisfactory. 8. The team observed the performance of 3I-SOP-SNF-002, <i>SNF Cask Sealing and ISO Container Loading (OCRWM)</i> (Scene V). This stage of the procedure involved performance of a mockup welding and testing process in a building remote to the 324 Building (306 Building). The mockup was staged in the 306 Building to minimize exposure to ionizing radiation and due to spacial constraints within the 324 Building. Deficiencies were note: a. During the pre-job brief: • AJHA hazards covered were focused on the remote facility (306 Building) instead of the job. • The brief of the RWP was not specifically related to the job to be performed. • The RCT expected hoods to be used during the procedure but this was not itemized in the RWP.		

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• Dye penetrant test guidance was not covered in the pre-job concerning radiation exposure. • In discussing required evacuation the HPT directed personnel to remove shoe covers when exiting the building. b. The proper PPE (other than fire protection) was not used by any personnel involved in the evolution. c. During the preparation to begin the weld process, no foreign material exclusion (FME) was practiced to protect the surfaces to be welded. Various objects were staged on the simulated cask (light, shield ring, weld equipment). d. There were no doors on the access points to the mockup to simulate to the real elevated platform. e. Radiation and contamination surveys were specified by the procedure. Neither survey was properly performed (perfunctory/no simulated or approximated levels/no record of readings made). As a result, observation of ALARA concepts and controls did not take place. f. No radiation or contamination postings existed at or around the mockup. g. The weld process will be performed on an elevated platform approximately 14' in the air. No practice or performance evaluation had taken place to evaluate the ability of the welders to climb up to the weld area in proper PPE and outside air breathing protection. h. A stool or step was not used or provided for the welders in the mockup, yet plans were for use of a stool or step during actual performance of the work. i. Plastic wrap was not used on hoses, welding leads, and other pieces of equipment to limit contamination of the equipment and help with survey of the equipment out of the mockup simulated contaminated area. j. The welding exhaust hood sat on the sample connection for welding operations. At times the hood was on the flex tubing, potentially cutting the tubing. The sample connection was not effectively held in position for welding and could fall from the sample area. k. With the geometry of the weld area, one fire extinguisher was not enough to have staged for use of the fire watch. l. Although welders had the proper flame retardant coveralls, unacceptable PPE was available at		

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the job site and throughout service organizations. m. Welding protective clothing was not used below the simulated platform, as would be required by a lower area fire watch during actual performance of the weld. n. The PIC performed work at times instead of supervising work. o. The staged fire extinguisher was outside the drop cloth area. This positioning would have delayed its use by the fire watch during a real casualty. p. The HPT lingered unnecessarily in the vicinity of the simulated cask thereby failing to minimize his exposure. q. The helium leak test was not performed. r. The weld had evident visual flaws at completion and would have failed the QA process. The QC inspector passed the weld on visual inspection. s. One operator was not wearing a TLD; this would have been required during actual operations. t. Communication: • One NCO rarely confirmed completed procedure steps. • The PIC had to intervene to prevent skipping steps. • Poor radio communications existed between the simulated weld platform and the PIC. • Radio cross-talk was observed. u. The HPT did not survey the welder's hood before the welder took it off and did not survey the welder's face after the hood came off. v. NFPA requirements called for a second Fire Watch below a platform. There was no second Fire Watch stationed "below" the simulated platform. w. The boiler maker spent a lot of time leaning on the cask before and after welding operation, thereby increasing his exposure to ionizing radiation.		

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x. There were no weld gas spare bottles in the event that one bottle depleted. y. Contrary to requirements, when the helium sample bombs were filled following the bounce test the date and number were not written on the sample bottles. z. The brown coveralls worn by welder and boiler maker were not the red fire retardant type worn throughout the Hanford Site for hot permit work in contaminated areas. - aa. There were tripping hazards around the platform with no attempt to identify and take action. 9. The performance of Scene V in a mockup setting failed to demonstrate an ability to properly perform the SNF sealing process to the team. Based upon observation of Scene V, the facility proposed a second performance of the Scene V mockup. Some deficiencies were noted: a. One person was late to arrive at the pre-job brief. b. In-process radiation and contamination measurements taken to evaluate work place changes (not surveys) did not consistently exhibit sound technique in the mockup setting. c. The helium tester did not have test gas to use with it at the start of the mockup. d. Unnecessary exposure would have been taken by the Technical Authority and QC Inspector while waiting in the simulated radiation area. e. On one occasion, an object was placed at the simulated egress point. The HPT properly cleared himself from the simulated contamination area but failed to properly clear the object. f. A required verification of no dose change on the helium leak test unit HEPA filter was not properly performed. g. One operator did not wear a hard hat when walking in the area around the simulated platform requiring hard hats. h. During the dye penetrant test the PIC wanted to run the exhaust blower to evacuate PT fumes. The NDA person said he did not need it and the blower was not run. The blower should have been run. i. Communications informality existed at times and there were few repeat backs by personnel other than the HPTs.		

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j. Service personnel (outside activity support personnel) assigned to the project were not proficient in removing PPE. The following good practices were observed during this evolution: a. When one individual came into the mockup area who had not attended the pre-job brief, the PIC stopped work and briefed the individual into the area (good). b. Two early halts occurred during the mockup evolution. One was due to the HEPA filter number not being recorded on the applicable RWP. The second was due to the discovery that seals were missing from the fire extinguisher. Both problems were found by the operators and properly addressed. When these events occurred the Senior Supervisory Watch directed evacuation of the site to reduce exposure (good). The second performance of Scene V was satisfactory. 10. The team observed the performance of 3I-SOP-SNF-002, SNF Cask Sealing Process (Scene VI). This procedural step involved the installation of the ISO container lid and transfer of the container to a designated position on a transport trailer. Deficiencies were noted: a. The minimization of exposure to ionizing radiation (ALARA) was not practiced when: • The entire work group entered the CHA prior to preparation of the cask lid for use. As a result, the work group unnecessarily remained in the CHA for over 30 minutes while the cask lid was prepared for use. • When loading of the cask to the trailer was complete, one member lingered unnecessarily by the ISO container and beside the cask. This would have resulted in unnecessary exposure to ionizing radiation during an actual SNF transfer process. • When removing the cask vertical lifting yoke from the cask with the cask in a horizontal position, no attention was given to the increased exposure to personnel while in close proximity to the top and sides of the cask. • Following cask lid installation, the lid and cask area were used as a desk while filling out paper work. Increased exposure would have resulted from this action during an actual SNF transfer process. b. A crow bar was used during removal of the ISO container lid, penetrating an area of potential contamination. This was observed and correct actions were taken by area HPTs to ensure no		

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spread of potential contamination. c. No poly sheeting was used on the dock when placing the ISO container lid on the truck lock mezzanine to prevent the potential spread of contamination to a permanent surface. d. There was unnecessary trash accumulated in the trailer area. This was addressed and removed by resident HPTs. e. Contrary to the requirement of the procedure used for Scene VI, a survey of accessible areas of the ISO container lid and interior was not properly conducted. No readings obtained were observed. While areas of this evolution observed were evaluated as satisfactory, Scene VI was not completed as the critical lift could not be observed at that time. The mobile crane lift was later observed with satisfactory results. The critical lift procedure was well written and provided needed information to ensure crane and rigging capacities, and procedural limits were not violated. The personnel performing the lift all attended a well-presented pre-job brief with questions and open discussion. The lift was well executed as planned with no deficiencies observed. The crane's LIM malfunctioned, and would not provide accurate readings. This malfunction was identified by the crane operator, who notified the DL and PIC. An alternate method of identifying boom length and radius was planned and used. Personnel overcame the malfunction in a professional manner, adhering to crane and procedural limitations. 11. The 324 Building had a Conduct of Operations applicability matrix that had been approved by DOE. 12. The facility conducted morning turnovers for all work groups. The morning work release meeting and the Operations turnover were observed. There were no negative observations. The Operations turnover was excellent. A checklist was used to cover the meeting. The manager clearly communicated facility status and assigned work for the day. 13. The SOE round sheets and the SOE logbook were reviewed. No issues were noted. Records were complete and identified requirements. A discussion with the on-duty SOE showed a good understanding of the requirements associated with surveillance. 14. Training records showed supervisory personnel were formally trained in COO principles. HPT cycle training provided annual COO refresher. Continuing COO training occurred for facility personnel through COO briefings and self-assessments. No issues were noted. 15. Interviews were conducted with ten operators and ten HPTs regarding COO principles in the		

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performance of their job duties. All personnel indicated they had been trained in conduct of operations and understood the importance of this added rigor in their everyday work activities. When asked where this rigor applied, answers such as participation in morning turnovers, pre-job briefings, operational and emergency drills, alarm response, good radiological practices, and knowledge of facility operating safety requirements were given. All interviewed stated that they understood their role and responsibility at the facility. Interviews were also conducted with the Radiological Control supervisor and the Operations supervisor. Supervisors made clear the COO management expectation. The facility used self-assessments and spent time in the field to assure satisfactory performance. 16. The team observed the proposed document transfer that would accompany a transportation package from the 324 Building to the ISA pad in the 200 Area. a. According to the CP DA, a work package would be generated in the 324 Building, and signed by the DA and QA to accompany the SNF Cask transfer. The item list for this package was not yet available as a number of drawings, inspection QA packages, and other materials had already been transferred from CP and were now in SNF custody. The SNF DA expected to be called to inspect the fuel bundles following blow-down in the cell to ascertain the integrity and coloration of fuel as this was videotaped. The video was identified as an item to be included in the work package. The SNF DA declared that before shipment all items comprising the work package would have been signed by him and his CP counterpart. b. The CP DA declared that the 324 Building personnel would alert for road closures, transporter escort services, and probably accompany the ISO container to the ISA pad to hand over the work package to the CSB manager. These plans were in disagreement with those of the Transportation Manager who was interviewed. The Transportation Manager stated that he was responsible for coordinating all road closures, escorts, etc., outlined in HNF-RD-7900, <i>Transportation and Packaging Program Requirements</i>, Revision 0. Furthermore, Transportation under Waste Management was responsible for inspecting the transporter, its load, and the driver qualifications to ensure that these complied with OCRWM QA and intrasite Hanford transportation requirements. c. The SNF DA said that SNF organization was responsible for annual surveillance of the ISO container where a TID would be broken and a radiological survey would be conducted outside the ISO and on the impact limiter and cask body to check for radioactive releases. When the SNF DA was asked for the requirement for 40 year safe storage of failed fuel in the ISA, he responded that this was a given before he joined the project. d. The CP DA provided a marked-up copy of the SNF Acceptance Criteria, Enclosure 1, which		

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indicated the current status of document transfers. e. In summary: • The SNF DA and CP DA had an informal relationship operating outside the PA (MOU) between SNF and CP. • The roles and responsibilities of the CP and Transportation (WM) were duplicated and confusing. • Formality had not yet been established on the contents for the Transportation Work Package to accompany each NAC-1 cask. • No formal document was found that defined the programmatic interface between CP and Transportation (WM) for the SNF transfers. 17. An initial operation of the AAHS failed due to a control system fault. The team later observed a performance demonstration of the AAHS. No deficiencies were noted. The team evaluated the performance for this operation as satisfactory. 18. The team conducted interviews of personnel to evaluate their level of knowledge with respect to safety, assess their safety culture, look at the facility's attention to safety and determine the effectiveness of their safety programs with satisfactory results. 19. The 324 Building safety program leads were interviewed and found to have a good knowledge base in their area of expertise. a. The safety program leads were known to facility personnel and most participated in the AJHA process to identify hazards and controls. b. The safety program leads demonstrated more proactive involvement by performing frequent facility walk-downs and concurrently make themselves more available to personnel. c. High marks were given to facility management for their attention to safety by those interviewed. 20. The team observed/interviewed the implementation of the safety program within the facility as well as personal involvement.		

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a. The facility manager held monthly all hands meetings where safety was a consistent topic. b. Accident statistics were prominently displayed in the facility lobby and were discussed at safety meetings. c. Radiological control statistics and ALARA goals were prominently displayed on the second floor of the office building, not readily visible to all facility workers. d. The 324 Building Safety Log Book was located in the 324 lobby and was available for all personnel to voice safety concerns. e. The FH President's Zero Accident Council and the Employee's Zero Accident Council program were both actively utilized. f. Areas for improvement in Industrial Safety were noted (O-13-1). 21. ISMS was not considered or included as a requirement when using subcontractors outside the 324 Building. Specifically, COGEMA (a subcontractor outside the building) personnel were used to perform NDA services as a part of the SNF Transfer process. The contractual paperwork associated with the 324 Building tasking did not include a requirement for COGEMA to certify ISMS implementation. Interviews revealed that the personnel assigned for the process were not familiar with ISMS. Additionally, they were neither a part of nor did they verify that the AJHA for their work was adequate. 22. The AJHA process used by the 324 Building was per requirements but did not consistently bound the work to be performed. Examples included: elevated work and fall considerations were not included as applicable in the AJHA covering work in the CHA; foot protection was not adhered to when operating with mobile cranes during the procedure; radioactive contamination and radiation levels associated with airlock entry place the AJHA in a high risk category, but was marked as medium risk; and subcontractors outside the facility that performed work for the facility were not included in the AJHA process in an effective manner. CONCLUSION: • QA personnel in the facility need to be brought to an appreciation of their role in ISMS within the facility. NDA personnel (an outside service subcontractor) need to be contracted to achieve an appreciation of their role in ISMS when they provide service to an operational entity. • Personnel and staff in direct supervision of involved personnel and activities (who normally work outside the facility) were not required to attend pre-job briefings or involved in development.		

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review, or approval of procedures that pertained to their specific activities. • The team observed a number of instances where greater attention to industrial safety was needed. • The team observed a number of COO weaknesses during demonstrations. Issue(s): F-13-1 Some personnel who normally work outside the facility but who are involved in SNF movement activities as workers or supervisors (e.g. personnel involved in hoisting and rigging activities outside 324 Building) were not involved in the development, review, or approval of procedures pertaining to their specific activities and were not required to attend pre-job briefings. F-13-2 The AJHA processed by the 324 Building did not consistently bound the work to be performed. F-13-3 ISMS was not included as a requirement when contracting subcontractors outside the 324 Building. O-13-1 The team observed instances where industrial safety practices could have been improved. Some of the observed deficiencies noted included: • Gates on the CHA platform were occasionally left open while personnel were present on the platform. • Personnel walked to within 5 feet of the CHA platform without wearing hard hats and activity was in progress on the platform. • There was initially an incomplete understanding of Fire Watch responsibilities. • There was a 4 foot gap between the truck and dock creating a trip/fall hazard. • Cleanliness and housekeeping of the 324 Building needs improvement (specifically in the CA) • Tripping hazards (cords on the floor) existed in the 306 mockup area • Fire extinguishers were not readily accessible at the initial welding mockup. • An inadequate number of fire extinguishers were provided at the welding mockup. • Unnecessary trash was allowed to accumulate around the trailer area.		

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O-13-2 The team observed a number of COO weaknesses during demonstrations, indicating the need for more effective COO practices.		
O-13-3 The team observed a number of deficient radiological controls practices during the course of the RA.		
Inspector: <u>Original Signature on File</u> J. L. Nuzum	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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**FORM 1
STARTUP REVIEW APPRAISAL FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Standards and Requirements Identification Documents (S/RID)	CRA Number: CR-14 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
OBJECTIVE: Formal agreements establishing requirements are in place between the operating contractor and DOE, via the contract or other enforceable mechanism, which govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place, and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE. Criteria: 1. A systematic review of the facility's conformance to applicable Programmatic Agreement requirements for the 324 Building B-Cell Spent Fuel Packaging has been performed and documented. 2. Applicable Programmatic Agreement requirements not completed have been identified and schedules for gaining compliance have been defined, in writing and formally approved. REVIEW APPROACH <u>Records Review:</u> • Review the facility's conformance to applicable Programmatic Agreement requirements for the 324 Building B-Cell Spent Fuel Packaging and verify any revisions required due to 324 Building B-Cell Spent Fuel Packaging have been incorporated. <u>Interviews:</u> • Interview management personnel to ensure they are aware of any Programmatic Agreement non-compliances and action necessary to fully implement the order requirements, as well as any interim compensatory measures. <u>Shift Performance:</u> • Where appropriate, observe the implementation of any specified compensatory measures within the facility to determine their effectiveness.		

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Functional Area: Standards and Requirements Identification Documents (S/RID)	CRA Number: CR-14 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
<u>Management Expectations:</u> • A detailed list of applicable Programmatic Agreement requirements relevant to the scope of the activity has been completed and verified to be accurate. • A systematic review of the facility's conformance to applicable Programmatic Agreement requirements has been performed and documented. • Documented evidence exists that ensures the SNF program has provided all applicable requirements to the CP. • Applicable Programmatic Agreement requirements not completed have been identified and schedules for gaining compliance have been defined in writing and formally approved by the Director, 324 Building Deactivation Project. • A clear definition exists regarding roles and responsibilities for the packaging and shipment of the SNF between CP and the SNF project organization. • A clear definition exists regarding roles and responsibilities for the packaging and shipment of the SNF between CP and the site shipping organization. • Compliance with the SNF packaging criteria (SNF-4894, <i>Spent Nuclear Fuel Project Acceptance for Light Water Reactor Spent Nuclear Fuel Storage System</i>, latest revision) is demonstrated. REVIEW Records Reviewed: • 3I-SOP-SNF-002, <i>SNF Cask Sealing and ISO Container Loading (OCRWM)</i>, Revision/Change 2-C • Commercial Origin Light Water Reactor Spent Fuel Storage System "Q" List Compliance Matrix • Fluor Hanford Project Interface Description for Waste Services Provided by the Waste Management Project to the CP-324 Facility • HNF-8869, <i>Project Execution Plan – 324 Building Spent Nuclear Fuel Transfer Project</i> • HNF-GD-10473, <i>Interface Management Documentation</i>, Revision 0 • HNF-IP-1264, Section 9.5, <i>Spent Nuclear Fuel Transfer Project Material</i>, Revision 0 • HNF-IP-1264, Section 9.6, <i>Spent Nuclear Fuel Transfer Project Design Control</i>, Revision 0 • HNF-PRO-10472, <i>Configuration Management of Interface Management Documentation</i>, Revision		

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Functional Area: Standards and Requirements Identification Documents (S/RID)	CRA Number: CR-14 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
0 • Management of the 300 LWR SNF (Programmatic Agreement between SNF and CP) • MBA Custodian List • Programmatic Agreement on the Management of the 300 Area Light Water Reactor SNF • SNF-4894, <i>Spent Nuclear Fuel Project Acceptance for Light Water Reactor Spent Nuclear Fuel Storage System</i>, Rev. 2 • SNF Project Acceptance Criteria for Light Water Reactor Spent Fuel Storage System Compliance Matrix Personnel/Positions Interviewed: • Project Management and Integration Manager • 324 Waste Removal Project Manager • DA for 324 SARP • DA for SNF SAR • Fluor Hanford Transportation and Safety Manager • Safety Project Manager, CP • Site-wide SNF Project Manager • SNF SAR Consultant Evolutions/Operations/Shift Performance Observed: • N/A Spaces Visited: • 324 Building Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that are applicable to this evaluation. 2. This RA only assessed compliance with the PA between CP and SNF projects. Existing S/RID		

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Functional Area: Standards and Requirements Identification Documents (S/RID)	CRA Number: CR-14 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
requirements were established and did not require change in order to accomplish the SNF transfer work scope. 3. The PA specified the interface requirements that must be satisfied by SNF and CP for the managements for the LWR SNF at the 324 Building. Specifically, 25 responsibilities to SNF and CP had been assigned. 4. An assessment of compliance with PA responsibilities was performed by the facility. A review of this assessment showed CP to be in compliance, with no outstanding actions for 16 of the 25 items. Documentation demonstrating compliance for the required items was reviewed – documentation was complete with no issues noted. 5. The remaining 9 PA requirements not completed were identified. Assessment criteria stated schedules for gaining compliance must be defined in writing and formally approved by the Director, 324 Building Deactivation Project. No evidence that this documentation existed could be found. 6. HNF-GD-10473, <i>Interface Management Documentation</i>, set up the framework for a MOA/MOU agreement between projects that interface or had shared services. The PA between SNF and CP followed HNF-GD-10473 guidance and set out roles and responsibilities for both organizations. WM that provided transportation services had an interface document with CP covering transfer of waste and not SNF. Since Transportation provided the link between SNF and CP, a separate interface document between these organizations was expected but not found. 7. Interviews of Transportation, CP, and SNF personnel indicated that although they were aware of the SNF/CP interface document, their specific interfaces did not follow the document and were informal. There was confusion as to the roles and responsibilities between Transportation and CP surrounding the transport of the SNF casks from the 324 Building to the 200 Area ISA. In one instance the same safety analyst was used under different contracts to serve both organizations. CONCLUSION: • Formal agreements between SNF and CP were in place. There was no documentation from the 324 Building Director regarding approval of and completion schedule for PA actions not yet completed. • Although a formal interface agreement existed between SNF and CP that described roles and responsibilities, the relationship between the personnel of organizations was informal and did not conform to the letter of the agreement. Transportation interface documents were lacking between		

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Functional Area: Standards and Requirements Identification Documents (S/RID)	CRA Number: CR-14 Date: August 8, 2002	Criteria Met: ☒ Yes ☐ No
SNF and CP, leading to confusing roles and responsibilities. Issue(s): F-14-1 Schedules for gaining compliance with applicable PA requirements were not completed, not defined in writing, and not formally approved. O-14-1 Roles and responsibilities between SNF and CP, though defined in an interface agreement, are implemented informally and sometimes duplicated.		
Inspector: <u>Original Signature on File</u> J. Nuzum	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 1
STARTUP REVIEW APPRAISAL FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Lessons Learned Feedback and Improvement	CRA Number: CR-15 Date: August 8, 2002	Criteria Met: [] Yes [X] No

OBJECTIVE:

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria:

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A, Criterion 3; 10 CFR 830, Subpart A)
2. Facility management has reviewed and tracked post-start issues.

REVIEW APPROACHRecords Review:

- Review 324 Building B-Cell Spent Fuel Packaging open and closed issues, selecting a representative sample to determine the adequacy of tracking and closure. Assess the backlog and prioritization system for reducing it.
- Review the process used to evaluate individual issues and groups of issues to ensure they have no impact on safe operations.

Interviews:

- Interview appropriate managers to determine if they are aware of the items remaining to be completed before startup.
- Determine if there is a single list of outstanding items to be completed before startup.

Shift Performance:

- Verify adequate closure of selected deficiencies, with emphasis on Test Deficiency Reports and findings from recent ISMS verifications.

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Functional Area: Lessons Learned Feedback and Improvement	CRA Number: CR-15 Date: August 8, 2002	Criteria Met: [] Yes [X] No
Management Expectations: • 324 Building SNF packaging pre/post-start actions/issues have been tracked by facility management prior to declaration of operational readiness. • Documentation is available to demonstrate pre-start actions/issues have been closed and operational readiness of equipment and supporting services is adequate to commence 324 Building SNF packaging. REVIEW Records Reviewed: • 324 Building Crane Operations Conduct of Operations Improvement Plan Checklist • A-6003-341, Finding Resolution Form • Affidavit Punchlist # 06-8EP.2, Punchlist Closure Document, dated 6/14/02 • CP-PRO-016, <i>Processing Lessons Learned</i>, Revision 0 • Critique CRT-324-2002-011 • Deficiency Tracking System Data Base • DR-02-FHQA-007, <i>OCRWM Deficiency Report/Corrective Action</i> (QA Audit 02-02) • DR-02-FHQA-008, <i>OCRWM Deficiency Report/Corrective Action</i> (QA Audit 02-02) • DR-02-076, <i>Inner Canister USQ - E Mail from D. Takasumi to R. Smith</i>, 07/26/02 • Employee Concern Log Book • EZAK Meeting Minutes • FH-QA-02-042, <i>QA Audit 02-02 River Corridor Project</i> • HNF-3235, <i>324 Building Fire Hazards Analysis Implementation Plan</i>, Revision 3 • HNF-PRO-052, <i>Corrective Action Management</i>, Revision 7 • HNF-PRO-055, <i>Startup Readiness</i>, Revision 7 • HNF-SD-HT-FHA-002, <i>324 Facility Fire Hazards Analysis</i>, Revision 1 • Management of the 300 Area LWR, SFN, "Programmatic Agreement between Spent Nuclear Fuel and River Corridor Project" • Memorandum, M. S. Wright to N. C. Boyter, <i>Management Self-Assessment Results</i>, July 15, 2002		

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Functional Area: Lessons Learned Feedback and Improvement	CRA Number: CR-15 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
• Non Deficiency Tracking System Data Base • CP CY-2002 Incoming Lessons Learned (M. Wright/D. Turner) Personnel/Positions Interviewed: • Activity Manager • 324 Building Project Management and Integration Manager • CP Technical Support Operations Specialist • DA, 324 Building SARP • DA, SNF, 200 Area ISA SAR • Environmental Compliance Officer • EZAK Representative • Fire Protection Engineer • Hoisting & Rigging DL • Lessons Learned Coordinator, CP • Maintenance Manager • NCO(s) (2) • Operations PIC(s) (2) • QA Engineer • Rigger(s) (2) • Rigging Supervisor • Safety Project Manager, CP • Site-wide SNF Project Manager • SNF, SAR Consultant Evolutions/Operations/Shift Performance Observed: • Critique CRT-324-2002-011 • DR-02-076 Meeting, 07/24/02		

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Functional Area: Lessons Learned Feedback and Improvement	CRA Number: CR-15 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
• EZAK Meeting • July 11, 2002 "All Hands" Video • Plan of The Day Meeting Spaces Visited: • 324 Building • Trailer 1 • Trailer 2 Discussion of Results: 1. All functional areas (Management, Operations, etc.) covered in this core requirement (CRAD) were evaluated by the RA Team during the course of the review per the RA IP. Specific functional area comments follow that were applicable to this evaluation. 2. FH CP chartered a Management Self Assessment (MSA) Team to evaluate the readiness of the PWR Spent Fuel Transfer Project to proceed with operations at the 324 Building. The Team developed a Management Assessment Plan and executed the assessment between June 24, 2002 and July 8, 2002. The Plan and the Assessment were written and conducted according to the requirements of HNF-PRO-055, Section 2.1.5, "Standard Startup Reviews." An MSA report was written and approved on July 9, 2002, briefed and transmitted to the facility management, DOE-RL and to the Vice President, CP Remediation Project. 3. Eight deficiencies (Detailed on Form 2s) describing five findings and three recommendations were included. HNF-PRO-055, <i>Startup Readiness</i>, Section 2.2.1.d required that facility management evaluate findings from startup review processes. Included in that evaluation is the determination of direct cause/root cause codes, the identification of ISMS core function impacted, and the submittal of that data to the CAM on a Deficiency Evaluation Form (DEF). 4. Contrary to site requirements, the 324 Building management chose to internally track and to correct all MSA identified deficiencies including findings, observations and Form 1 identified action items. The process had been rigorously performed; most all actions were now completed and substantiated with closure documentation or had been entered into the 324 SNF Project punch list. The MSA facility corrective action records were intended to become a part of the Project files. 5. A review of the "All Hands" video conducted on July 11, 2002 revealed that the subject of the		

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Functional Area: Lessons Learned Feedback and Improvement	CRA Number: CR-15 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
MSA results was addressed in general terms only. 6. The facility environmental group reviewed (as documented in the affidavit punchlist # 06-8EP.2) facility air quality self-assessments to ensure any action items or corrective actions relative to those assessments had been completed. The facility reviewed three management self-assessments and found that one deficiency regarding electronic scanning of the record was not closed. This requirement was imposed by HNF-RD-87603. It was being addressed through the CP corrective action management system. This deficiency had no effect on the B-Cell cleanup. 7. The facility had established programs and infrastructure designed to address concerns and issues as well as incidents and occurrences. The Employee's Zero Accident Council appeared to be responsive to issues and concerns as evidenced by closeouts and pursuit of open items in Safety Log book. The response to issues addressed by RA was timely in most cases. There were several issues that were pre-identified by the facility but not pre-identified to the assessment team. The personnel interviewed fell into two categories; those assigned to the facility and those from outside support organizations. The facility assigned personnel were well versed and understood the process for addressing employee concerns as well as other safety and equipment issues. The outside support personnel were not all as well versed. Some of the outside personnel were not aware of safety logbook or had concerns that they did not address other than verbally. 8. Although post-job reviews were conducted by operations, external organization representatives (QA, Fire Protection, Safety) did not participate. 9. A formal MOU was in place between SNF and CP organization listing respective roles and responsibilities. The formal assignment of the designated individuals that had responsibilities flowing down from the MOU was incomplete. 10. Lessons Learned were transmitted by the CP Coordinator to the 324 Building Manager. Review of the incoming Lessons Learned log for CY 2002 lacked specificity as to actions taken within the 324 Building and hence the feedback for Lessons Learned could not be fully evaluated. 11. PacTech Discrepancy Report (DR-02-076) identified the fabricated inner canisters were up to 1/2" shorter than the approved drawing. This presented a USQ for the impact on analyzed transportation accidents. Closure of this USQD was a pre-start item. CONCLUSION: • Although facility management has conscientiously attempted to internally track and correct deficiencies identified in the MSA, they had not followed site requirements for corrective action management. This failure had ISMS implications, in that the lessons learned and feed back loop		

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Functional Area: Lessons Learned Feedback and Improvement	CRA Number: CR-15 Date: August 8, 2002	Criteria Met: ☐ Yes ☒ No
was not complete. A similar issue was identified by the MSA as a vulnerability. The MSA found that the findings of the April 2002 Facility Evaluation Board had not been DEG'd and not entered into the CAM system in a timely manner. • One open item was identified by the facility during their review of the management self-assessments. The open item was being addressed through the CP corrective action management system. This deficiency had no effect on the B-Cell cleanout. • The facility had established programs that met this criteria that may need to be addressed in an orientation program for temporary or outside support personnel. • External organizations to operations, as a rule, did not participate in post job reviews. This had ISMS implications in that the lessons learned and feedback loop were incomplete. • One open USQ (as-built dimensions of inner canister) must close before startup. Safety and engineering documents need revision after startup. Issue(s): F-15-1 An open 200 Area ISA USQ associated with decreased inner canister void space must be closed before start-up. F-15-2 Engineering and safety documentation, associated with the inner canister length, may require change upon completion of the 200 Area ISA USQ (Reference F-15-1).		
Inspector: <u>Original Signature On File</u> J. Psaras	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 20002</u>	

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APPENDIX C

Start-up Review Finding Forms

324 Building B-Cell Pressurized Water
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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-start	Issue Number: F-1-1

FINDING:

Service and support personnel need to be made a part of the ISMS team implementation. Interfaces with organizations outside the 324 Building require operational attention.

REQUIREMENT:

N/A

REFERENCE(s):

HNF-MP-003, *FH ISMS Management Policy*

DISCUSSION:

Weaknesses were noted in service and support personnel in their understanding of their Roles and Responsibilities in performing work safely. These weaknesses were observed inside and outside the facility.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-2
FINDING: Improvement is required in the supervision and coordination of hoisting and rigging operations outside the 324 Building. REQUIREMENT: N/A REFERENCE(s): DOE-RL-92-36, <i>Hanford Site Hoisting and Rigging Manual</i> DISCUSSION: The number and scope of deficiencies related to mobile crane operations and transportation indicate a need for significant improvement.			
Inspector: <u>Original Signature on File</u> W. Harding D. Morgan		Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations

Type of Review: Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: [X] Finding [X] Post-start	Issue Number: F-1-3

FINDING:

The 324 Building needs to ensure that the 200 Area ISA is informed of the lack of technical support for a 75 year storage life at the ISA. If the storage life conclusions are changed, the facility SARP needs to be updated per the revision to the ISA SAR. There is no technical basis beyond 20 years for storage of the ISO/NAC-1/SNF Canister in the 200 Area ISA.

REQUIREMENT:

10 CFR 72.122 Overall Requirements

- (h) *Confinement barriers and systems* (1) The spent fuel cladding must be protected during storage against degradation that leads to gross ruptures or the fuel must be otherwise confined such that degradation of the fuel during storage will not pose operational safety problems with respect to its removal from storage. This may be accomplished by canning of consolidated fuel rods or unconsolidated assemblies or other means as appropriate.
- (4) Storage confinement systems must have the capability for continuous monitoring in a manner such that the license will be able to determine when corrective action needs to be taken to maintain safe storage conditions. For dry spent fuel storage, periodic monitoring is sufficient provided that periodic monitoring is consistent with the dry spent fuel storage cask design requirements. The monitoring period must be based upon the spent fuel storage cask design requirements.

10 CFR 72.236 Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication

- (g) The spent fuel storage cask must be designed to store the spent fuel safely for a minimum of 20 years and permit maintenance as required.

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Functional Area: Management	CRA Number: CR-1	Issue Designation: [X] Finding	Issue Number: F-1-3
	Date: August 8, 2002	[X] Post-start	

REFERENCE(s):

- 10 CFR 72.122, *Overall Requirements*
- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- HNF-3553, *Annex D - 200 Area Interim Storage Area Final Safety Analysis Report*, Revision 2, Volume 5
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*, Revision 0
- NUREG 1536, 1997, *Standard Review Plan for Dry Casks Storage System*
- HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*, Revision 0

DISCUSSION:

No technical basis exists for a 75 year storage life at the ISA. The ISA SAR and 324 Building SARP may require change.

10 CFR 72.122 and 236 requirements referenced and quoted above are further qualified by NUREG 1536, *Standard Review Plan for Dry Casks Storage System* (p. 128) stating, "For dry storage conditions, experimental data have not demonstrated an acceptably low oxidation rate for UO₂ spent fuel, over the 20 year licensing period, to permit safe storage in an air atmosphere. Therefore, to reduce the potential for fuel oxidation and subsequent cladding failure, an inert atmosphere (e.g., helium cover gas) has been used for storage UO₂ spent fuel in a dry environment."

The above NUREG statement applies to clad (not failed) fuel. NUREG (p. 21) states, "If the applicant proposes the storage of spent fuel with gross cladding defects or storage of non-fuel core components that do not have an integral confinement boundary, the range of permissible conditions for the stored materials must be defined. If the DCSS system is intended to be used to store fuel, with gross cladding defects or an integral confinement boundary when placed in the confinement DCSS, the possible range of conditions of the fuel or components should be stated. 10 CFR 72.122 (h) (1) requires 'canning' or use of other unconsolidated assemblies (without inert cladding). The application therefore, should address the following basic requirements:

- maintain subcriticality
- prevent unacceptable release of contained radioactive material
- avoid excessive radiation dose rates and doses

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Functional Area: Management	CRA Number: CR-1	Issue Designation: [X] Finding	Issue Number: F-1-3
	Date: August 8, 2002	[X] Post-start	

- maintain ready retrievability of the contents

If the request approval is to address the possible use of the DCSS system for storing non-fuel core components, the application should present summary descriptions of those components. Also, if the components are degraded (e.g., the component does not provide adequate confinement under design basis conditions to contain radioactive gas or other dispersible radioactive materials), the application should describe the possible conditions and alternative confinement methods, if any."

HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*, Revision 0, assumes that the fuel has failed and quotes from NUREG p21, the above mentioned statement and provides additional guidance to the project for the path forward.

On page 4 (HNF-8749) the following bullet states: "Prevent unacceptable release of contained radioactive material - no further analysis required - the NRC accepts that for welded confinement boundary (e.g., the double sealed inner canister within the NAC-1 cask) no discernible undetected leakage is credible." A footnote attributes support for this statement to NUREG 1536.

HNF-3553, *200 Area ISA*, Revision 2 (p. D4-21) states: "The LWR canister and internal components are designed safety class for criticality only." It goes on to state: "The analysis did identify safety significant functions of the inner canister."

On p. D4-56 it states: "The 300 Area LWR fuel storage system, composed of the NAC-1 Cask, inner canister, and an ISO shipping/storage container, can withstand the normal and natural phenomena conditions anticipated during the 50 year design life of the system."

Further down on p. D4-56 it states: "10 CFR 72.230 states that casks certified under 10 CFR 71 can be certified as spent fuel storage casks, if demonstrated in a SAR that the casks can meet the storage requirements for 20 years. The NAC-1 cask and inner canister with welded closures exceed the 20 year life requirement."

The NAC-1 Cask is not presently certified under 10 CFR 71 because:

- It has been modified versus 1999 COC issued by NRC; and
- It has not been pressure/leak tested in its current configuration to meet 10 CFR 71 requirements.

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Reactor Spent Nuclear Fuel Packaging
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Functional Area: Management	CRA Number: CR-1	Issue Designation: ☒ Finding	Issue Number: F-1-3
	Date: August 8, 2002	☒ Post-start	
HNF-3553, Revision 2, assumes failed fuel is in a double welded inner canister that is credited as single confinement in compliance with 10 CFR 72.236. The inner canister is inerted with helium after a 30 minute vacuum drying operation at 3 torr and under the storage conditions (ISO/NAC-1/inner canister) storage of the cask is expected to last 40 years. HNF-8705 (324 Building SARP) on page A-2-2 states: "The materials are compatible with or provide adequate resistance to the chemical, galvanic, and/or corrosive effects of materials that may be in contact throughout the life cycle (75 years)." In addition to the discrepancy between 324 SARP and 200 Area ISA SAR on the projected storage useful life of the ISO/NAC-1/Inner Canister package (40 - 75 years) no rigorous technical basis was present in any of the documents that considered halide corrosion in the presence of low moisture content in failed fuel. The fuel stored in B-Cell is contaminated, has been stored for 15+ years in a high humidity (non-regulated) atmosphere, in addition to assumed as failed. The blow-down that will take place in cell will not remove all loose, let alone fixed contamination. The 30 minute 3 torr vacuum drying will leave at least two monolayers of water on metal and oxide surfaces (where cladding failed). The potential exists for general corrosion and stress corrosion cracking at elevated temperature of halides in the presence of water. No corrosion analysis was found covering storage conditions that predict the inner cylinder will not corrode beyond the 20 year period supported by NRC data in 10 CFR 72 and NUREG 1536 for clad fuel. The proposed annual surveillance of the ISO externals and accessible internal surfaces for contamination (directed by 10 CFR 72) will form a basis for detecting potential inner cylinder breach. However, since the inner canister will be repackaged in another transport cask before transport to permanent storage the potential for a breached canister presents a challenge to both ALARA and repackaging. A corrosion analysis can only provide a valid technical basis for a safe period of interim storage exceeding 20 years.			
Inspector: <u>Original Signature on File</u> J. Psaras		Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Hoisting and Rigging	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-4

FINDING:

The weight of the impact limiter was not identified or known by the crane operator or the PIC during the performance of 3I-SOP-SNF-003.

REQUIREMENT:

"The lifting device shall not be loaded in excess of its rated capacity. The operator shall ensure the load will not exceed rated capacity of equipment."

REFERENCE(s):

DOE-RL-92-36, *Hanford Site Hoisting and Rigging Manual*, Sections 2.2.5 and 11.6.4

DISCUSSION:

Exact weight of the load to be lifted (Impact Limiter) with a below the hook lifting device could not be confirmed by the operator or the PIC and the weight was not identified in the procedure.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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**FORM 2
STARTUP REVIEW FINDING FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Hoisting and Rigging	CRA Number: CR-1	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-5
Date: August 8, 2002			

FINDING:

The ISO Lifting Sling assembly's capacity was not clear. Two tags were attached; neither contained all correct information.

REQUIREMENT:

"A tag or other identification method shall state Rated Load."

REFERENCE(s):

DOE-RL-92-36, *Hanford Site Hoisting and Rigging Manual*, Section 9.2.3.4

DISCUSSION:

The ISO Lifting Sling had two tags with different capacities; neither was fully accurate.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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**FORM 2
STARTUP REVIEW FINDING FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Transportation	CRA Number: CR-1	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-6
Date: August 8, 2002			

FINDING:

Load securing tie down capacities and sizes were not provided in procedure 3I-SOP-SNF-002.

REQUIREMENT:

Exact capacities are defined in HNF-8705

REFERENCE(s):

3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*

HNF-8705, *SARP Onsite NFS/NAC-1 Spent Fuel Shipping Cask*

DISCUSSION:

The procedure did not provide tie down chain or strap capacities of 7,100 lbs WLL, as specified in HNF-8706.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Crane and Rigging	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-7

FINDING:

The mobile crane used in performance of 3I-SOP-SNF-001 did not meet the 60,000 lb net capacity at 25 ft. radius requirement specified in the procedure.

REQUIREMENT:

Mobile crane with a 60,000 lb net capacity at 25 feet.

REFERENCE(s):

3I-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*

Grove 80 ton truck crane HO-17T-5692 load chart

DISCUSSION:

Crane capacity was not appropriately validated prior to performance of the procedure. Contributing to this, the critical lift procedure did not require validation of crane capacity at a given radius. It also did not provide a process to determine net capacity of the crane in a given configuration.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations

Type of Review: Readiness Assessment

Functional Area:

Transportation

CRA Number:

CR-1

Issue

Designation:

☒ Finding

Issue

Number:

F-1-8

☒ Pre-start

Date: August 8, 2002

FINDING:

The goose neck on the alternate Low Boy single drop trailer planned for use in the SNF Transfer operations did not meet the 90 degree drop requirement of HNF-8705(SARP).

REQUIREMENT:

A Low boy must have a 90 degree angle on the goose neck drop.

REFERENCE(s):

HNF-8705, *SARP Onsite NFS/NAC-1 Spent Fuel Shipping Cask*

DISCUSSION:

The designated Low Boy trailer to be used as a transport did not meet the 90 degree drop requirement.

Inspector: Original Signature on File

D. L. Morgan

Approved: Original Signature on File

W. Harding, Team Leader

Date: August 8, 2002

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Crane and Rigging	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-9

FINDING:

3I-SOP-SNF-001 procedure requirements for each sling leg in a multi-leg sling to have a 30,000 lb capacity (considering load angle) were not met.

REQUIREMENT:

Each sling leg with a 30,000 lb capacity (considering load angle) is required for the lift in Section 4.2 of 3I-SOP-SNF-001

REFERENCE(s):

3I-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*

DISCUSSION:

Sling leg capacity was 22,800 before angle loading deductions.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Transportation	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-10

FINDING:

Transport trailer tires do not meet DOE requirements.

REQUIREMENT:

(a) No motor vehicle shall be operated on any tire that, (1) has body ply or belt material exposed through the tread or sidewall, (2) has any tread or sidewall separation, (3) is flat or has an audible leak, or (4) has a cut to the extent that the ply or belt material is exposed.

REFERENCE(s):

DOE 373.75, "Tires"

DISCUSSION:

Some tires on designated trailers had missing parts of tread, uneven wear or cuts and indication of tread separation from casing. Some tires on transports need to be replaced and all tires need to be evaluated by a qualified person.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review: Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-start	Issue Number: F-1-11

FINDING:

In some instances, the 324 Building did not comply with the administrative procedures or requirements within their own facility or requirements issued by higher authority.

REQUIREMENT:

"Facilities will comply with administrative requirements and procedures established by their own directives and those of higher authority."

REFERENCE(s):

HNF-IP-1264, 324-327 *Administrative Manual*
HNF-PRO-055, *Startup Readiness*, Revision 7

DISCUSSION:

As noted in Observations enclosed (O-1-2, O-1-3, and O-1-4) some administrative procedures or requirements applicable to the 324 Building were not adhered to.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-1-12

FINDING:

The 324 Building needs to receive approval of its OCRWM QA Program or specific permission to move fuel from the NSNFP prior to commencement of operations.

REQUIREMENT:

N/A

REFERENCE(s):

DOE/RW-0333P, *Office of Civilian Radioactive Waste Management Quality Assurance Requirements and Description for the Civilian Radioactive Waste Management Program*, Revision 8

DISCUSSION:

The 324 Building has submitted the 324 Building SNF Transfer Project OCRWM QA Program to the NSNFP for approval. The program approval has not yet been received.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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**FORM 2
STARTUP REVIEW FINDING FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-6 Date: August 8, 2002	Issue Designation: [X] Finding [X] Post-start	Issue Number: F-6-1

FINDING:

The 324 Building SNF Packaging and Shipping Project does not have a grapple with the working load limit necessary to handle the Rod Consolidation Container.

REQUIREMENT:

"Equipment necessary to perform standard operating procedures must be operable."

REFERENCE(s):

3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-out (OCRWM)*, Revision 3

DISCUSSION:

Handling of the Rod Consolidation Container is planned as the final evolution in the removal of SNF from the 324 Building and will require a grapple with a working load limit of approximately 2100 lbs. Since the Rod Consolidation Container can be handled in B-cell and moved to the Airlock without use of a grapple, only one grapple will be needed to support loading of the Rod Consolidation Container within the Airlock. The current accelerated schedule identifies the earliest need date for loading the Rod Consolidation Container as October 1, 2002. The project is considering three options to resolve this issue. One option must be selected and completed by the need date.

Inspector: <u>Original Signature on File</u> W. S. Glover	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations

Type of Review: Readiness Assessment

Functional Area: Management	CRA Number: CR-6 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-6-2

FINDING:

The Uni-Grapple used to attach to and lift fuel assemblies was not in service at the commencement of the RA due to questions about its load rating.

REQUIREMENT:

"Equipment necessary to perform standard operating procedures must be operable."

REFERENCE(s):

3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-out (OCRWM)*, Revision 3

DISCUSSION:

Visual inspection of the Uni-Grapple prior to the start of this evaluation revealed a modification that brought into question the load rating of the device and caused it to be placed out of service. Subsequent analysis resulted in the Uni-Grapple's down grading from a load rating of 2100 lbs. to a load rating of 1350 lbs. The Uni-Grapple was returned to service with the revised load rating which is sufficient to handle the PWR spent fuel assemblies in the facility. The new rating is not sufficient to handle the Boiling Water Reactor (BWR) assemblies that will be handled later.

Inspector: <u>Original Signature on File</u> W. S. Glover	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations	
Type of Review: Readiness Assessment	

Functional Area: Management	CRA Number: CR-6	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-6-3
Date: August 8, 2002			

FINDING:

The B-Cell three ton crane was out of service during the RA.

REQUIREMENT:

"Equipment necessary to perform standard operating procedures must be operable."

REFERENCE(s):

3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-out (OCRWM)*, Revision 3

DISCUSSION:

The B-Cell three ton crane, which is essential to SNF packaging and shipping operations, failed prior to the RA and had not been repaired by the end of the review.

Inspector: <u>Original Signature on File</u> W. S. Glover	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review: Readiness Assessment

Functional Area: Management	CRA Number: CR-6 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-6-4

FINDING:

The AAHS crane was not operable at the commencement of the RA.

REQUIREMENT:

"Equipment necessary to perform standard operating procedures must be operable."

REFERENCE(s):

3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-out (OCRWM)*, Revision 3

DISCUSSION:

The AAHS crane failed when facility personnel first attempted to operate it for RA activities. The crane was subsequently repaired and the team observed it in operation prior to completion of the RA.

Inspector: Original Signature on File
W. S. Glover

Approved: Original Signature on File
W. Harding, Team Leader
Date: August 8, 2002

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-start	Issue Number: F-7-1

FINDING:

The Tamper Indicating Devices (TIDs) slated for ISO container use were stored in an unlocked filing cabinet contrary to safeguards and security requirements.

REQUIREMENT:

HNF-MP-5477, III - 5.2, 4th Bullet states, "Each MBA shall store TIDs and seal application and removal forms (SARFs) in locked repositories that allow enforced controlled access."

REFERENCE(s):

HNF-MP-5477, *Material Control and Accountability Plan*, Revision 1, Section III, Part 5.2, 4th Bullet

HNF-PRO-613, *Controlling Tamper Indicating Devices*, Revision 2

DISCUSSION:

Procedure 3I-SOP-SNF-002, Step 5.6.12 called for installation of TIDs in the ISO container. While in the office of the DA for HNF-8705, SARP, Revision 0, discussing the above referenced SOP step, the DA opened a filing cabinet and produced a box of TIDs to demonstrate the type to be used on the ISO containers.

TIDs are required to be kept under a controlled and secure condition by the Materials Control Officer to ensure enforced control access.

Inspector: <u>Original Signature on File</u> John Psaras	Approved: <u>Original Signature on File</u> Team Leader Date: <u>August 8, 2002</u>

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Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-Start	Issue Number: F-7-2

FINDING:

Review of HNF-8705, SARP, Revision 0, (NFS-4/NAC-1 Spent Fuel Shipping Cask), HNF-3553, Annex D, 200 Area ISA SAR, Revision 2, and SNF-4894, *Project Acceptance Criteria for LWR Spent Fuel Storage System*, found a number of administrative inconsistencies between documents.

REQUIREMENT:

- DOE O 460.1A, *Packaging and Transportation Safety*
- HNF-PRO-440, *Engineering Document Change Control*, Revision 4

REFERENCE(s):

- DOE O 460.1A, *Packaging and Transportation Safety*
- HNF-PRO-440, *Engineering Document Change Control*, Revision 4

DISCUSSION:

1. During the review of the current NAC-1 Cask SARP several references made to the earlier SARPs were checked. It was found that some linkings between the SARPs were unclear. In addition, several inaccuracies were found in Appendix (pages B-1-3 through B-1-22).
2. The SNF Shipping Cask SARP reports that the ISO container, once loaded with the NAC-1 Cask and Spent Fuel contents, will not require Tamper Indicating Devices (TIDs) for transportation. Similarly the 200 Area SAR reports that an ISO stored on the ISA open air pad does not require TIDs. However, 3I-SOP-SNF-002, Step 5.6.12, calls for installation of TIDs on ISO container doors and between the ISO lid and the ISO container. In discussions with the DA for the 324 Building SARP it was stated that four TIDs will be installed on the ISO container for both transportation and storage.

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Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-Start	Issue Number: F-7-2
HNF-8705, SARP, Revision 0, requires revision per the above referenced requirements and consistency needs to be established with HNF-3553, Annex D, 200 Area SAR, Revision 2.			
Inspector: <u>Original Signature on File</u> John Psaras	Approved: <u>Original Signature on File</u> Team Leader Date: <u>August 8, 2002</u>		

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Emergency Preparedness	CRA Number: CR-11 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-11-1

FINDING:

The initial 324 Building Emergency Drill failed to demonstrate accountability.

REQUIREMENT:

"Accountability of personnel shall be performed commensurate with the hazards associated with the facility. The accountability shall be conducted immediately after emergency evacuation to ensure that all employees and transient personnel are properly accounted for."

REFERENCE(s):

DOE/RL-94-02, *Hanford Emergency Management*, Revision 2, February 5, 2002, Section 7.2.3.4

DISCUSSION:

The RA Team concluded that the drill objectives were met, with some deficiencies. The building drill coordinator completed reconstruction of the location of the 23 people unaccounted for at drill termination. Four personnel remained unaccounted for at the conclusion of that investigation. The initial drill failed to demonstrate accountability.

Inspector: <u>Original Signature on File</u> M. Haas	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations			
Type of Review: Readiness Assessment			
Functional Area: Training	CRA Number: CR-11 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-start	Issue Number: F-11-2
FINDING: The routine operations drill program is not formally implemented, scheduled, or tracked.			
REQUIREMENT: "A routine drill program and emergency operations drill program, including program records, have been established and implemented."			
REFERENCE(s): DOE O 425.1A; <i>STARTUP AND RESTART OF NUCLEAR FACILITIES</i> , CR#9			
DISCUSSION: The facility's routine operations drill program was reviewed. Although a satisfactory number of operational drills were being performed, the program was deficient in that it is not formally implemented (i.e., no documentation exists that define program content or implementation methodology), no schedule for drill performance exists, and the tracking system in use did not specify the dates on which drills were completed.			
Inspector: <u>Original Signature on File</u> W. S. Glover		Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Hoisting and Rigging	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: [X] Finding [X] Post-start	Issue Number: F-13-1

FINDING:

Some personnel who normally work outside the facility but who are involved in SNF movement activities as workers or supervisors (e.g. personnel involved in hoisting and rigging activities outside 324 Building) were not involved in the development, review, or approval of procedures pertaining to their specific activities and were not required to attend pre-job briefings.

REQUIREMENT:

Workers are involved actively in preparing work, including planning, hazards and environmental impact identification and analysis, implementation of controls, and readiness reviews. The expectation for worker involvement is established by Project Hanford policy. FH applies a team approach that encourages early worker involvement. This direct involvement by workers allows them to share their knowledge and experience, improving work efficiency and ensuring safe work performance. Each worker has the right, responsibility, and authority to report unsafe or environmentally unsound conditions or practices and stop work without fear of reprisal.

REFERENCE(s):

HNF-MP-003, Section 2.1, *Guiding Principles*

DISCUSSION:

In the performance of 3I-SOP-SNF-001, facility management did not follow requirements of ISMS to involve mobile crane operators/supervisors in the planning and procedural development for crane operations outside the 324 Building.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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**FORM 2
STARTUP REVIEW FINDING FORM**

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations	
Type of Review: Readiness Assessment	

Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: [X] Finding [X] Post-Start	Issue Number: F-13-2

FINDING:

The AJHAs processed by the 324 Building did not consistently bound the work to be performed.

REQUIREMENT:

"AJHAs should address the hazards associated with all work to be performed."

REFERENCE(s):

HNF-PRO-079, *Job Hazard Analysis*, Revision 5

DISCUSSION:

The AJHA process used by the 324 Building was per requirements but did not consistently bound the work to be performed. Examples included: elevated work and fall considerations were not included as applicable in the AJHA covering work in the CHA; foot protection was not adhered to when operating with mobile cranes during the procedure; radioactive contamination and radiation levels associated with airlock entry place the AJHA in a high risk category, but the AJHA reviewed was marked as medium risk; and subcontractors outside the facility that performed work for the facility were not consistently included in the AJHA process in an effective manner.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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Type of Review: Readiness Assessment

Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-Start	Issue Number: F-13-3

FINDING:

ISMS was not included as a requirement when contracting subcontractors outside the 324 Building.

REQUIREMENT:

"FH contractual requirements listed in Contract No. DE-AC06-96RL13200, Part III, Section J, Appendix C. These standards and requirements include federal, state, and local laws and regulations specific DOE directives. FH is responsible for compliance and flowdown of these requirements throughout the FH organization and to subcontractors (as applicable) performing under FH direction."

REFERENCE(s):

10 CFR 830.120, *Quality Assurance Requirements*
HNF-MP-003, *Integrated Environment, Safety, and Health Management System Description*, Section 1.2, "Flowdown of ISMS from FH Institutional Level to Projects and Hanford Site Operations"

DISCUSSION:

Specifically, COGEMA (a subcontractor outside the building) personnel were used to perform NDA services as a part of the SNF Transfer process. The contractual paperwork associated with the 324 Building tasking did not include a requirement for COGEMA to certify ISMS implementation. Interviews revealed that the personnel assigned for the process were not familiar with ISMS. Additionally, they were neither a part of the AJHA process nor did they verify that the AJHA for their work was adequate.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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**FORM 2
STARTUP REVIEW FINDING FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Standards/Requirements Identification Documents (S/RID)	CRA Number: CR-14 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-start	Issue Number: F-14-1

FINDING:

Schedules for gaining compliance with applicable PA requirements were not completed, not defined in writing, and not formally approved.

REQUIREMENT:

Applicable PA requirements not completed have been identified and schedules for gaining compliance have been defined in writing, and formally approved.

REFERENCE(s):

OIA-2002-RA-003-IP, *Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipping Operations*

DISCUSSION:

The outstanding PA requirements have been identified and are documented. Schedules for completion have not been documented and approved by the 324 Building Director.

Inspector: <u>Original Signature on File</u> J. L. Nuzum	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations

Type of Review: Readiness Assessment

Functional Area: Lessons Learned Feedback & Improvement	CRA Number: CR-15 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Pre-start	Issue Number: F-15-1

FINDING:

An open 200 Area ISA USQ associated with decreased inner canister void space must be closed before start-up.

REQUIREMENT:

HNF-PRO-062, Section 4.1.a, "The USQ process shall be implemented in situations where there is a temporary or permanent change in the facility as described in the existing safety analysis."

REFERENCE(s):

10 CFR 830.203

HNF-PRO-062, *Unreviewed Safety Question Process*, Revision 4

DISCUSSION:

The as-built inner canister length is up to 1/2" shorter than approved drawings. This change has impact on the hypothetical accident conditions analyzed in the 200 Area ISA SAR (HNF-3553, Revision 2).

The decreased void space of the inner canister requires resolution for all analyzed accident conditions.

Inspector: <u>Original Signature on File</u> J. Psaras	Approved: <u>Original Signature on File</u> Team Leader Date: <u>August 8, 2002</u>

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Type of Review:	Readiness Assessment

Functional Area: Lessons Learned Feedback & Improvement	CRA Number: CR-15 Date: August 8, 2002	Issue Designation: ☒ Finding ☒ Post-start	Issue Number: F-15-2

FINDING:

Engineering and safety documentation, associated with the inner canister length, may require change upon completion of the 200 Area ISA USQ (Reference F-15-1).

REQUIREMENT:

HNF-PRO-062, Section 4.1.a, "The USQ process shall be implemented in situations where there is a temporary or permanent change in the facility as described in the existing safety analysis."

REFERENCE(s):

10 CFR 830.203

HNF-PRO-062, *Unreviewed Safety Question Process*, Revision 4

DISCUSSION:

The as-built inner canister length is up to 1/2" shorter than approved drawings. This change may have an impact on the Normal Transportation Conditions (NTC) and hypothetical accident conditions analyzed in the SARP (HNF-8705, Revision 0).

The 200 Area ISA SAR (HNF-3553, Revision 2), NAC-1 SARP (HNF-8705, Revision 0, and associated inner canister engineering drawings may require revision to reflect the as-built canister dimensions.

Inspector: <u>Original Signature on File</u> J. Psaras	Approved: <u>Original Signature on File</u> Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-1-1

OBSERVATION:

There is a need to promulgate lessons learned focused on operational issues and results from RAs, ORRs, and other evaluations.

REQUIREMENT:

N/A

REFERENCE(s):

N/A

DISCUSSION:

FH should provide a distribution process for lessons learned focused on operational issues and the results of RAs, ORRs, facility evaluation boards, and management self-assessments. The facility should address this issue with FH.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-1	Issue Designation: Observation	Issue Number: O-1-2
Date: August 8, 2002			

OBSERVATION:

The list of OCRWM personnel provided to the team was not accurate.

REQUIREMENT:

N/A

REFERENCE(s):

N/A

DISCUSSION:

HNF-IP-1264 requires a means to identify OCRWM personnel who support the 324 Building SNF Transfer Project. The 324 Building accomplishes this through use of a Standing Instruction, SI-324Bldg-032. The listing of OCRWM personnel provided to the team was not up to date and accurate.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Management	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-1-3

OBSERVATION:

The 324 Building did not comply with some documentation requirements when preparing for the RA.

REQUIREMENT:

N/A

REFERENCE(s):

N/A

DISCUSSION:

HNF-PRO-055 requires the development of an Activity Readiness Package (ARP) to include the use of an Activity Readiness Checklist (ARC - Attachment 1 to the reference cited). An ARP was not prepared that met the intent of either the reference cited or 324 Standing Instruction SI-324Bldg-025. The ARC prepared and used in readiness preparation was not properly completed and was missing four signatures when reviewed.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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Activity or Project: 324 Building B-Cell PWR SNF Packaging And Shipment Operations	
Type of Review: Readiness Assessment	

Functional Area: Management	CRA Number: CR-1	Issue Designation: Observation	Issue Number: O-1-4
Date: August 8, 2002			

OBSERVATION:

Some assessments of quality-affecting activities governed by OCRWM requirements have not been done.

REQUIREMENT:

N/A

REFERENCE(s):

N/A

DISCUSSION:

HNF-IP-1264 requires that the 324 Building SNF Transfer Project Manager establish a management assessment process to assess quality-affecting activities governed by OCRWM requirements. Further required is that assessments are performed per a schedule. Some assessments scheduled are delinquent.

Inspector: <u>Original Signature on File</u> W. Harding	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Hoisting and Rigging	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-1-5

OBSERVATION:

A contingency plan for possible failure of the Uni-Grapple with fuel attached does not exist.

REQUIREMENT:

N/A

REFERENCE(s):

N/A

DISCUSSION:

No recovery or contingency plan exists for recovery in the case of grapple failure in the airlock while lowered into cask.

Inspector: <u>Original Signature on File</u> D. L. Morgan	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Hoisting and Rigging	CRA Number: CR-1 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-1-6
OBSERVATION: HNF-3553, Revision 2, ISA SAR, for the SNF cask handling with a mobile crane contains specific mobile crane requirements based on safety analysis and boom failure criteria. The 324 Building SARP, HNF-8705, does not address this issue, provide crane analysis criteria, or explain non-applicability.			
REQUIREMENT: N/A			
REFERENCE(s): N/A			
DISCUSSION: The 324 Building did not address mobile crane boom failure contingency in the SARP. The 200 Area ISA SAR does address mobile crane boom failure.			
Inspector: <u>Original Signature on File</u> D. L. Morgan		Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Safety Documents	CRA Number: CR-7 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-7-1

OBSERVATION:

The 324 Building SAR was non-compliant in format with DOE-STD-3009-94 and the requirements of 10 CFR 830, SubPart B.

REQUIREMENT:

Existing safety basis documentation not approved by RL as Rule-compliant on October 10, 2001 must be upgraded in accordance with this procedure and submitted to RL as Rule-compliant on or before April 10, 2003.

REFERENCE(s):

HNF-PRO-700, *Safety Basis Development*, Revision 4

DOE-STD-3009-94, Change Notice 2, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analysis*, April 2002.

10 CFR 830, SubPart B, *Nuclear Safety Management, Safety Basis Requirements*

DISCUSSION:

The 324 Building Safety Analysis Report is non-compliant to the Standard in format. It does, however, offer a cross walk to the required format to reconcile the differences.

The SAR states that it was not upgraded to the format requirements of the Standard to minimize the impact of implementing a revised SAR.

Inspector: <u>Original Signature on File</u> M. Haas	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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FORM 2
STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-13-1

OBSERVATION:

The team observed instances where industrial safety practices could have been improved. Some of the observed deficiencies noted included:

- Gates on the CHA platform were occasionally left open while personnel were present on the platform.
- Personnel walked to within 5 feet of the CHA platform without wearing a hard hat and activity on the platform taking place.
- There was initially an incomplete understanding of Fire Watch responsibilities.
- There was a 4 foot gap between the truck and dock creating a trip/fall hazard.
- Cleanliness and housekeeping of the 324 Building needs improvement (specifically in the CA)
- Tripping hazards (cords on the floor) existed in the 306 mockup area
- Fire extinguishers were not readily accessible at the initial welding mockup.
- An inadequate number of fire extinguishers were provided at the welding mockup.
- Unnecessary trash was allowed to accumulate around the trailer area.

REQUIREMENT:

The referenced clause requires the Contractor to have systems in place that adequately identify and control hazards.

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-13-1
REFERENCE(s): The DOE/FH Contract in the ISM section includes the DEAR 5233-1 requirement as implemented by clause I.99.			
DISCUSSION: The team observed instances where insufficient attention is given to industrial safety. These deficiencies were evident in the 324 Building environment and the Building 306 mockup area. These observations are consistent with those Radiological Control deficiencies identified in CR-13 Form 1.			
Inspector: <u>Original Signature on File</u> M. Haas	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>		

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STARTUP REVIEW FINDING FORM

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-13-2
OBSERVATION: The team observed a number of COO weaknesses during demonstrations, indicating the need for more effective COO practices.			
REQUIREMENT: Operations personnel demonstrate the principles of the COO requirements during the demonstrations of the 324 B-Cell Spent Fuel Packaging operations.			
REFERENCE(s): DOE Order 5480.19 OIA-2002-RA-003-IP, <i>Readiness Assessment Plan for 324 B-Cell Spent Fuel Packaging and Shipment Operations</i>			
DISCUSSION: Cask Preparations (Scene I): a. Pre-job briefing began without the QC representative, who arrived late. The QA representative was held after the meeting so the PIC could go over his individual responsibilities; however, the individual was not briefed on all aspects of the job. b. During the evolution, the HPT taking smears in the truck-lock remained in the truck-lock and relied upon communications between the operator and another HPT in the CHA for results from the smears. No repeat-backs were observed during the process. Transfer of Cask and Components into Airlock (Scene II):			

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a. Not all personnel involved in the performance of Scene II were involved in the pre-job briefing.

b. Some pieces of equipment needed for cask inspection (a flashlight, a small stepladder, and wooden wedges) were not pre-staged resulting in delays while personnel were sent to find them.

c. Four radiological area boundary violations were observed.

d. Communications lacked formality and professionalism.

Cask Loading (Scene III):

a. The PIC and involved personnel were asked what action would be taken if the Uni-Grapple failed while in the airlock with fuel attached and lowered into the cask. The PIC and involved personnel confirmed there was no established guidance or procedure to address this event.

Cask Load-out from Airlock (Scene IV):

a. When a HRA was declared, the sign posting this area was not properly placed, confusing the operators and rendering the sign ineffective.

b. The criticality safety representative violated PPE requirements by reaching inside his coveralls to obtain a pen. Once used, the pen was put back inside the coveralls. The HPT was alerted to the situation and took action.

c. The HPTs miscommunicated dose rate levels around the cask, causing a lower value dose rate to be recorded. Repeat-backs between these individuals were rarely observed.

Welding/Purge/Backfill Testing (Scene V):

a. During the pre-job brief:

- AJHA hazards covered were focused on the facility instead of the job.
- The brief of the RWP was not specifically related to the job to be performed.
- The RCT expected hoods to be used during the procedure but this was not itemized in the RWP.
- Dye penetrant test guidance was not covered in the pre-job concerning radiation exposure.

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-13-2
• In discussing required evacuation the HPT directed personnel to remove shoe covers when exiting the building. b. Radiation and contamination surveys were specified by the procedure. Neither survey was properly performed (perfunctory/no simulated or approximated levels/no record of readings made). As a result, observation of ALARA concepts and controls did not take place. c. No radiation or contamination postings existed at or around the mockup. d. The weld process will be performed on an elevated platform approximately 14' in the air. No practice or performance evaluation had taken place to evaluate the ability of the welders to climb up to the weld in proper PPE and outside air breathing. e. A stool or step was not used or provided for the welders in the mockup, yet plans are for use of a stool or step during actual performance of work. f. Plastic wrap was not used on hoses, welding leads, and other pieces of equipment to limit contamination of the equipment and help with surveys of the equipment out of the mockup simulated contaminated area. g. The PIC performed work at times instead of supervising work. h. One operator was not wearing a TLD; this would have been required during actual operations. i. HPT did not survey the welder's hood before the welder took it off and did not survey the welder's face after the hood came off. j. The boiler maker spent a lot of time leaning on the cask before and after welding operation, thereby increasing his exposure to ionizing radiation. k. There were tripping hazards around the platform with no attempt to identify and take action. Welding/Purge/Backfill Testing (Scene V) (second demonstration): a. One person was late to arrive to the pre-job brief. b. In-process radiation and contamination measurements taken to evaluate work place changes (not surveys) did not consistently exhibit sound technique in the mockup setting. c. Following a resumption of the mockup, a lack of formality existed around the support personnel			

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Functional Area: Operations	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-13-2
below the simulated platform. d. Communications informality existed at times and there were few repeat-backs by personnel other than the HPTs. e. Service personnel assigned to the project were not proficient in removing PPE. Cask Closure and Shipment (Scene VI): a. The minimization of exposure to ionizing radiation (ALARA) was not practiced when: - The entire work group entered the cask handling area (CHA) prior to preparation of the cask lid for use. As a result, the work group unnecessarily remained in the CHA for over 30 minutes while the cask lid was prepared for use. - When loading of the cask to the trailer was complete, one member lingered unnecessarily by the ISO container and beside the cask. This would have resulted in unnecessary exposure to ionizing radiation during an actual SNF transfer. - When removing the cask vertical lifting yoke from the cask with the cask in a horizontal position, no attention was given the increased exposure to personnel while in close proximity to the top and sides of the cask. - Following cask lid installation, the lid and cask were used as a desk while filling out paperwork. Increased exposure would have resulted from this action during an actual SNF transfer process. b. There was unnecessary trash accumulation in the trailer area. This was addressed and removed by resident HPTs. c. A survey of accessible areas of the ISO container lid and interior was not properly conducted. No readings obtained were recorded.			
Inspector: <u>Original Signature on File</u> J. Nuzum		Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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**FORM 2
STARTUP REVIEW FINDING FORM**

Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Radiological Controls	CRA Number: CR-13	Issue Designation: Observation	Issue Number: O-13-3
Date: August 8, 2002			

OBSERVATION:

The team observed a number of deficient radiological controls practices during the course of the RA.

REQUIREMENT:

N/A

REFERENCE(s) (Specific as possible, including section):

HNF-5173, *PHMC Radiological Control Manual*, Revision 1 (Various Sections)
3I-SOP-SNF-001, *Pre-staging the SNF Cask for Loading*, Revision/Change 2-C
3I-SOP-SNF-002; *SNF Cask Sealing and ISO Container Loading*, Revision/Change 2-C
3I-SOP-SNF-003; *PWR Fuel Assembly Packaging and Load-Out*, Revision/Change 3-0

DISCUSSION:

Areas where deficiencies were observed included: the failure to properly document some procedurally required survey results; poor survey performance during mockup operations; some poor practices such as touching the face, improperly reaching inside protective coveralls to retrieve a pen while in a contamination area, and failing to take action when one operator inadvertently stepped on the back of an overshoe pulling the heel of the overshoe off her foot in a contamination area; some confusion in the posting of radiation areas; and four instances of radiation area boundary violations (these occurred early in the review and were not repeated in later activities). The team did not observe one required neutron survey due to the inability of the project team to transport the neutron instrument (a snoopy) to the top of the elevated Work Platform due to its size and weight. No deficiencies were noted in

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Functional Area: Radiological Controls	CRA Number: CR-13 Date: August 8, 2002	Issue Designation: Observation	Issue Number: O-13-3
radiological controls performance during an emergency preparedness drill and during an actual airlock entry.			
Inspector: <u>Original Signature on File</u> W. S. Glover		Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>	

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Activity or Project:	324 Building B-Cell PWR SNF Packaging And Shipment Operations
Type of Review:	Readiness Assessment

Functional Area: Standards/Requirements Identification Documents (S/RID)	CRA Number: CR-14 Date: August 8, 2002	Issue Designation: [X] Observation	Issue Number: O-14-1

OBSERVATION:

Roles and responsibilities between SNF and CP, though defined in an interface agreement, are implemented informally and sometimes duplicated.

REQUIREMENT:

CRAD 14 Criterion 1, "A systematic review of the facility's conformance to applicable PA requirements for the 324 Building B-Cell Spent Fuel Packaging has been performed and documented."

REFERENCE(s):

CRAD 14, Criterion 1

Management Expectation Bullet, "A clear definition exists regarding roles and responsibilities for the packaging and shipment of the SNF between CP and the SNF project organization."

DISCUSSION:

Although a MOU exists between CP and SNF that defines in broad terms the roles and responsibilities of the two organizations, its implementation required improvement.

Discussions with involved persons from both organizations revealed that their roles were not clear and were not part of their job description. It was also apparent that the MOU was at times followed due to the lack of well defined job requirements.

Inspector: <u>Original Signature on File</u> J. Psaras	Approved: <u>Original Signature on File</u> W. Harding, Team Leader Date: <u>August 8, 2002</u>

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APPENDIX B

JOINT FLUOR HANFORD AND RICHLAND OPERATIONS OFFICE

IMPLEMENTATION PLAN

Fluor Hanford

READINESS ASSESSMENT

IMPLEMENTATION PLAN

FOR

324 Building B-Cell Spent Fuel Packaging
and Shipment Operations
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Original signed

Approved by (FH) Date

Original signed

Approved by (RL) Date

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ACRONYMS

COO	Conduct of Operations
CR	Core Requirements
CRAD	Criteria and Review Approach Document
DOE	U. S. Department of Energy
ES&H	Environment, Safety and Health
FH	Fluor Hanford
IP	Implementation Plan
ISA	Interim Storage Area
MSA	Management Self-Assessment
OCRWM	Office of Civilian Radioactive Waste Management
POA	Plan of Action
RA	Readiness Assessment
REC	Radiochemical Engineering Complex
RL	Richland Operations Office
RPM	Readiness to Proceed Memorandum
SNF	Spent Nuclear Fuel
SSC	Systems, Structures, and Components
S/RID	Standards/Requirements Identification Document
USQ	Unreviewed Safety Question
USQD	Unreviewed Safety Question Determination

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1.0 INTRODUCTION

1.1. General

This implementation plan (IP) has been prepared to comply with the requirements of U.S. Department of Energy (DOE) Order 425.1A, *Startup and Restart of Nuclear Facilities*, and DOE-STD-3006-2000, *Planning and Conduct of Operational Readiness Reviews (ORR)*. The breadth of the Readiness Assessment (RA) is described in the 324 Building B-Cell Spent Fuel Packaging Plan of Action (POA), which was prepared by River Corridor Project line management and approved by the DOE manager, Richland Operations Office (RL), on May 6, 2002. This IP was developed and approved by both the Fluor Hanford (FH) and RL RA team leaders.

The DOE manager, Richland Operations, is the designated restart authority.

This IP provides the overall approach and guidelines for the performance of the RA. Appendix 1 contains the Criteria and Review Approach Documents (CRAD), which define the review objectives and criteria as well as the approach for assessing each objective. Results will be provided in a report that is discussed in Section 9 of this IP.

1.2 324 Building B-Cell Spent Fuel Packaging

The spent nuclear fuel (SNF) is currently in storage at the 324 Building, and removal of the fuel from the 324 Building is part of the building deactivation process. Spent fuel assemblies and spent fuel pins will be placed into canisters for installation in Nuclear Assurance Corporation (NAC) spent fuel storage casks. The packaging operation includes fuel loading into the canister/cask assembly, canister closure welding, pressure testing, leak testing, cask loading onto transport vehicles, and shipment to the 200 Area Interim Storage Area (ISA), including transfer of documentation.

Empty canister/cask assemblies will be moved into the Radiochemical Engineering Complex (REC) airlock where the spent fuel will be loaded into the canister/cask assembly using remotely operated cranes. A shield plug with test port will be placed on the canister. The loaded cask will then be moved to the Cask Handling Area. The shield plug will be welded to the canister. The canister contents will have a vacuum drawn, will be backfilled with helium, and the test port will be welded closed. After leak checking the inner confinement enclosure, a cover plate will be welded over the test port. The cask lid will then be installed on the cask. The loaded cask will be moved to the truck lock and loaded into an International Standards Organization container. Transport vehicle/impact limiters will be installed. Shipment of the spent fuel will be covered by HNF-8705, *Onsite Safety Analysis Report for Packaging – NFS-4/NAC-1 Spent Fuel Shipping Cask*. After loading the cask onto the trailer, security tamper indicating devices will be installed and radiation surveys will be performed. Following completion of the required shipping documentation, the spent fuel will be shipped to the 200 Area ISA.

2.0 PURPOSE

This RA IP describes the criteria that FH and RL will apply to verify that River Corridor Project personnel have achieved an adequate state of readiness to safely commence 324 Building B-Cell Spent Fuel Packaging operation.

3.0 SCOPE

The RA will review, in detail, the state of readiness of River Corridor Project personnel to safely operate the 324 Building B-Cell Spent Fuel Packaging limited to PWR fuel as described in the POA. The scope for other supporting organizations and facilities (e. g., the fire department, medical services, and utilities) will be limited to the interface with the River Corridor Project programs and personnel. This review is limited in scope to those activities related to 324 Building B-Cell Spent Fuel Packaging.

3.1 Breadth of the RA

The following constitute the focus of the project activity and will be addressed in detail by the RA:

- B-Cell Cranes
- Airlock Cranes
- Cask Handling Area Crane
- Preparing Spent Fuel Assemblies for Packaging into Casks/Canisters
- Five PWR Fuel Assemblies
- Movement of Spent Fuel Storage Cask Into and Out of the REC Airlock
- Cask Preparation for Load Out
- Fuel Loading into the Canister/Cask Assembly
- Load Out of the Canister/Cask Assembly
- Canister/Cask Closure
- Loading of Cask Onto the Shipping Vehicle and Shipment

The breadth of the RA, as defined in the approved POA, includes the following Core Requirements (CR). The POA also includes additional discussion concerning the scope or focus intended for each CR. The individual CRADs have incorporated this additional specificity.

Guiding Principle #1 – Line Management is responsible for the protection of employees, the public, and the environment. Line management includes those contractor and subcontractor employees managing or supervising employees performing work.

(1) Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

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Guiding Principle #2 – Clear and unambiguous lines of authority and responsibility for ensuring Environmental, Safety & Health (ES&H) are established and maintained at all organizational levels.

(2) Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Guiding Principle #3 – Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.

(3) The selection, training and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers assures competence commensurate with responsibilities. (The training and qualification program encompasses the range of duties and activities required to be performed.)

(4) Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

(5) Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

Guiding Principle #4 – Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting employees, the public, and the environment is a priority whenever activities are planned and performed.

(6) There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Guiding Principle #5 – Before work is performed, the associated hazards are evaluated and an agreed upon set of standards and requirements are established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences.

(7) Facility safety documentation is in place and has been implemented that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design and is established.

(8) A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examinations of records of tests and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work.

(9) The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

Guiding Principle #6 – Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.

(10) There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

(11) A routine drill program and emergency operations drill program, including program records, have been established and implemented.

(12) An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators. The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations including any required restrictions and additional oversight.

(13) The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline.

Guiding Principle #7 – The conditions and requirements to be satisfied for operations to be initiated and conducted are established and agreed-upon by DOE and the contractor. These agreed-upon conditions and requirements are requirements of the contract and binding on the contractor. The extent of documentation and level of authority for agreement shall be tailored to the complexity and hazards associated with the work and shall be established in a Safety Management System.

(14) Formal agreements establishing requirements are in place between the operating contractor and DOE, via the contract or other enforceable mechanism, which govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place, and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE.

(15) A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

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3.2 Depth of the RA

Depth refers to the level of analysis, documentation, or action by which a particular CR is assessed. Variations in the depth are obtained by the number of criteria that are used to assess a given CR or by the intensity of the review approaches. The review approaches include documentation reviews, interviews, walkdowns, and observation of evolutions. Increased depth is attained by applying more of the review approaches for a given criterion or objective. The graded approach, as described in Appendix 1 of DOE-STD-3006-2000, is used to assist the team members in determining the appropriate assessment depth.

4.0 RA PREREQUISITES

The following prerequisites are established in the POA and specify the items that facility management will accomplish prior to declaring readiness to operate and inviting the independent RA team to proceed:

SNF Readiness Assessment Prerequisites

- Approval of the 324 Building SNF Packaging Plan of Action by RL and FH.
- Completion of the management self-assessment (MSA) activities by River Corridor Project line management and proper disposition of identified issues.
- A Readiness to Proceed Memorandum (RPM) will be formally provided from FH to RL declaring readiness of 324 Building to begin the RA. The RL mission element will obtain approval from the RA Approval Authority to commence the RA.
- Mock-up equipment necessary to establish operations performance demonstrations of all aspects of procedural compliance is in place.
- Operations personnel are trained and qualified to operational procedures for accomplishing movement of SNF from the 324 Building to the 200 Area ISA.
- Inspection/Preventive Maintenance of cell cranes to be utilized as part of SNF movement/packaging activities are complete.
- Expectations for declaration of readiness, defined in the plan of action, have all been met or are carried on an open items list (pre-start/post start).
- The readiness of the 200 Area ISA to receive the SNF is an integral part of the shipment of the SNF in the 324 Building. Confirmation will be made that the 200 Area ISA is ready to receive SNF from the 324 Building. If the ISA is not ready to receive SNF, this will be carried as a punch list post-start item.
- All necessary facility modifications to accomplish the movement of SNF from 324 Building to the 200 Area ISA have been completed.

5.0. OVERALL APPROACH

The RA will provide River Corridor Project senior management and RL senior management with an independent, objective measurement of the readiness to perform 324 Building B-Cell Spent Fuel Packaging. The RA will also be an indicator that 324 Building B-Cell Spent Fuel Packaging has a management team with a satisfactory level of proficiency to begin these activities. The following paragraphs outline the sequence of the RA.

5.1 River Corridor Project Line Management Readiness-to-Proceed Memorandum (RPM)

Upon completion of the 324 Building B-Cell Spent Fuel Packaging MSA, including resolution of all pre-start findings (with the exception of a manageable list of open pre-start findings that have a well defined schedule for closure), the 324 Building B-Cell Spent Fuel Packaging operations manager will issue a RPM. The FH RA will not begin until the 324 Building B-Cell Spent Fuel Packaging operations manager, has provided the RPM and authorization to commence is received from the Approval Authority.

5.2. Readiness Assessment

Both FH and RL RA team members will review documentation and procedures; inspect equipment, systems, and buildings; interview personnel; and observe simulated or actual evolutions as they are performed. Interviews will be conducted in parallel to minimize the impact on the facility personnel. The RL RA team members match up with his FH team counterpart during the field portion of the review in order to assess the adequacy of the contractor review. The reviews conducted by RA team members will be guided by a set of CRADs included as Appendix 1. For specific evolutions, the team members will review the records and procedures, observe the evolution, witness the execution of the procedure and the generation of the records, and then follow up on pertinent issues with interviews. For example, if a mistake is noted during an evolution, operators with similar qualifications may be questioned concerning their response to a similar situation. During the field portion of the review the RL team will be assessing the adequacy of the FH review activity and independently performing spot-checking of core requirements 1 through 15. The RL team will be solely responsible for the assessment of core requirements 16 and 17. Individual criteria and the associated review approaches are bounded by the stated management expectations as stipulated in the DOE approved Plan of Action.

The RA will place emphasis on reviewing samples of results or observing performance for adequacy. It will place less emphasis on systematic review of program structure and organization. However, if any portion of the review indicates a weak program, then further analysis of that program may be required.

The RA is conducted in two phases, the first being a review of documents associated with the implementation of prescribed programs, e.g., revised procedures, radiological control procedure implementation, and completed surveillances. These reviews will be evaluated against DOE and facility requirements. The second phase stresses evaluation of the operational proficiency developed in preparation for 324 Building B-Cell Spent Fuel Packaging. This phase evaluates the level of knowledge of operators and selected support personnel. Emphasis is placed on any areas of concern identified during operations to determine if problems noted are of a general nature or are unique to an individual. This manner of review

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provides the RA team with a focused picture of the readiness to begin 324 Building B-Cell Spent Fuel Packaging.

At the completion of the RA, a report will be prepared summarizing the review and commenting upon the readiness of River Corridor Project personnel to begin 324 Building B-Cell Spent Fuel Packaging.

Following the issue of the FH final report the RL team will review the report and evaluate the adequacy of the report in accurately stating the state of readiness of the 324 facility to package and transfer pressurized water reactor spent fuel assemblies. The RL team will issue their final report with a recommendation to the Startup/Approval Authority regarding the startup of the reviewed activity. The RL report will include any additional findings, concerns, or observations not captured by the contractor final report and will address in detail the assessment of core requirements 16 and 17.

5.3 Readiness Assessment Results Briefings

Both FH and RL teams will give briefings on the conduct and results of the RA to 324 Building B-Cell Spent Fuel Packaging management and, upon request, to River Corridor Project senior management or DOE management for their information and to help them form their decision regarding startup.

6.0 READINESS ASSESSMENT TEAM PREPARATIONS

Prior to commencement of on-site RA activities, training and familiarization for RA team members will be conducted. It will consist of site and facility familiarization, necessary radiological and safety training for facility access, and development of the RA IP and associated CRADs. Each team member has assessment experience or appropriate training. No team member has any connection with 324 Building B-Cell Spent Fuel Packaging activities that impact his independence to review assigned functional areas. By their selection, the team leader certifies that team members are technically competent, have appropriate assessment experience, are independent, and will become familiar with the facility through the familiarization process described above. Fluor Hanford team assignments and qualification summaries are contained in Appendix 2.

RL team member qualification summaries will be attached to the RL final report.

7.0 READINESS ASSESSMENT PROCESS

7.1 Combined FH and RL Assessment Process

Both FH and RL team leaders, assisted by team members, have developed the CRADs for this review. These CRADs provide defined bases for conducting the RA within the scope set forth by the CRs of DOE Order 425.1A. The team leaders will review the efforts of the team members to ensure that all objectives are thoroughly assessed. The CRADs are based on the combined expertise of the team members, DOE Orders and other requirements, and the potential hazards of operations. The POA expectations associated with a given core requirement have been added to Appendix 1 of this IP to ensure alignment between the POA and the IP in terms of the depth and breath of the review.

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8.0 ADMINISTRATION

The teams will meet daily during the on-site review. These meetings will permit the team members to discuss significant observations or problems identified during the day and will permit the team leader to identify any trends or areas in which more detailed information may be required. It will also allow potential schedule difficulties or possible information gaps to be identified in time to take corrective action.

Responsibility for the quality of the review process rests with the team leader and includes selection of all RA team members and daily on-site review of the findings of the team members.

The facility manager and selected members of his staff will receive a daily briefing by the RA team leader. This will be after the RA team meeting.

9.0 REPORTING AND RESOLUTIONS

9.1 Forms

During the conduct of the RA, documentation of findings and observations and the assembly of objective evidence of operational readiness will be the responsibility of the individual team members in accordance with specific directions given below. Two types of administrative forms will be used to accurately document on-site inspection activities, findings, and observations.

The Form 1 (Assessment Form) is used to document the results of each team member's review in a functional area. Each Form 1 lists the means the team member used to measure the site's performance relative to the objective provided in the CRADs. The form will be complete enough to allow an outside agency to follow the assessment logic and means used to verify the site's performance with respect to the objective and to thereby validate the RA completeness and adequacy. The write-up will clearly describe the approach taken to review the criterion. If for some reason the approach used does not match the approach described in the CRAD, the reason will be documented. The conclusion will specify if the criteria for the particular objective have been met.

The Form 2 (Deficiency Form) is used to document the issues revealed during the criteria evaluation process. A separate Form 2 should be generated for each issue related to a particular objective. For instance, in reviewing a CRAD or portion of a CRAD, a team member will generate a single Form 1 that describes the methods used in the investigation. If one distinct issue were discovered, the team member would then generate one Form 2 to detail the deficiency. A single Form 2 may be used to identify a generic problem for which a number of individual examples are listed. Clear communication is the objective, and the specific number of Forms 2 used to detail issues will necessarily be up to the discretion of the team member and team leader. A sample Form 1 and Form 2 is located in Appendix 3.

9.2 Finding Classification

A single issue or a group of related issues that have been documented on Forms 2 may constitute a finding. The team leader, in consultation with the team members, determines whether a finding is pre-start or post-start. Appendix 4 provides the criteria to be used to aid in this determination. The results of this

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determination are documented on the Form 2.

9.3 Lessons Learned

The team leader will report any problems or successes specific to the conduct of the RA as lessons learned to aid future RAs and will incorporate them into the final report. These will include lessons learned with respect to the RA process itself, technical issues relating to the safe operation of DOE facilities, and interfaces with DOE in the RA process.

9.4 Final Report

9.4.1 FH Final Report:

The team leader will develop a report to document the results of the RA. This report will identify findings and observations found in the review and will identify findings as pre-start or post-start.

Team members will be asked to sign the report, showing they concur with the report in the areas of their expertise. Dissenting opinions that have not been resolved will be appropriately addressed in the report. The team leader will transmit the RA report to the River Corridor Project manager.

The RA report will be written with this format as a guide:

TITLE PAGE - The title page is the report cover and will state the subject and dates of the RA.

SIGNATURE PAGE - This page will be for the signature of all RA team members and will be used by the team leader in the final version of this report.

TABLE OF CONTENTS - The table of contents will identify all sections and subsections of the report, illustrations, tables, charts, figures, and appendices.

EXECUTIVE SUMMARY - This is a brief summary of the review process, the major or pre-start findings, and the readiness determination with appropriate recommendation.

INTRODUCTION - The introduction will provide information regarding the facility reviewed, the reason for the shutdown, and the purpose and the scope of the RA. It will also contain a brief discussion of the overall objectives of the RA, the review process, and team composition.

RA EVALUATION - For each functional area, the report will discuss the objectives, the pre-start and post-start findings of that area, and provide conclusions as to readiness to commence operations.

LESSONS LEARNED - Problems or successes encountered during the review that could be applied to future RA, or to the construction, design or decommissioning of DOE facilities will be identified and documented in the report.

APPENDICES - Appropriate data will be provided as appendices to support the conclusions drawn in the

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report. These will include the following:

- a. Implementation Plan, including CRADs and the Team List and Qualification Summaries
- b. Forms 1 (Appraisal Forms)
- c. Forms 2 (Deficiency Forms)
- d. Dissenting Opinions (if applicable)

9.4.2 RL Final Report:

The RL team leader will issue a final report. The results of this report will be based mostly on the review and analysis of the FH Final Report. Included in the report will be any findings or observations generated by the RL team. The RL report will be structured similar to the FH final report with the recommendation to the Startup/Approval Authority regarding the startup of the reviewed activity. The RL report will also address responsibility of the closeout of pre-start findings.

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10.0 SCHEDULE

The FH RA is expected to begin approximately one week after line management declaration of readiness. The FH RA will require approximately two weeks to complete.

11.0 REFERENCES

DOE O 425.1A, *Startup and Restart of Facilities*, dated 12/28/1998

DOE-STD-3006-2000, *Planning and Conduct of Operational Readiness Reviews (ORR)*, dated June 2000

HNF-PRO-055, *Facilities Start-Up Readiness*, Revision 7

RIMS Facility Startup and Restart cross cutting procedure number 6, *Parallel Readiness Reviews*, dated June 2001.

12.0 APPENDICES

Appendix 1: Criteria and Review Approach Documents

Appendix 2: FH Team Assignments and Qualification Summaries (The RL team leader will issue via a Memo the RL team assignments and qualifications prior to the start of the review. The memo will be attached to the RL Final Report

Appendix 3: Readiness Assessment Appraisal and Deficiency Forms (Form 1 and Form 2)

Appendix 4: Finding Classification Criteria

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APPENDIX 1

Criteria and Review Approach Documents

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CORE REQUIREMENTS

Objective

CR-1 Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Maintenance

Transportation/Packaging and Shipping

Emergency Preparedness

Engineering

Radiological Controls

Environmental

Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)

Safety Analysis

Training

Fire Protection

Welding

Industrial Safety

Hoisting and Rigging

2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

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Approach

Record Review:

- Review program documentation to determine that management programs were developed/revised, as necessary, and implemented.
- Review safety-meeting records to evaluate participation.
- Determine if a safety suggestion program exists and how quickly safety issues are addressed.
- Review procedures to insure safety is adequately reflected in the operating and maintenance procedures.

Interviews:

- Interview managers to determine that management that the programs were developed/revised, as necessary, and implemented.
- Interview operations and support personnel to assess their understanding of ES&H policies and procedures and how they feel about management responsiveness to safety issues

Shift Performance:

- Observe the performance of activities to determine if the programs are implemented to support operations.
- Walk-down two safety systems, from design specification to the drawings, to the field components to verify the systems were built and installed to design.
- During observations evaluate the implementation of the following programs:

Maintenance

Transportation/Packaging and Shipping

Emergency Preparedness

Engineering

Radiological Controls

Environmental

Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)

Safety Analysis

Training

Fire Protection

Welding

Industrial Safety

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Hoisting and Rigging

- Observe workers in all demonstrations and drills to be sure they demonstrate awareness of requirements for safe operations.

Management Expectations

Sufficient work place surveillance exists to identify and track safety and health hazards to their manager for corrective action without fear of reprisal

The 324 Building staff can explain how the task(s) being performed as part of the RA fit(s) within the established guidelines and practices of the RCP ISMS.

The RCP Integrated Environment, Safety, and Health Management System (ISMS) is maintained current and aligned with the FH ISMS HNF-PRO-MP-003.

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Objective

CR-2 Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review:

- Review the facility safety basis documents, to determine if it adequately defines functions, assignments, responsibilities, and reporting relationships.
- Review Administrative Procedures to determine that roles and responsibilities are clearly defined and understood.

Interviews:

- Interview operations and support personnel to assess their understanding and implementation of the management structure in place.

Shift Performance:

- None.

Management Expectations

A clear management structure is established, approved, and in place for the packaging and shipment of SNF from the 324 Building to the 200 Area ISA. This management structure is implemented; and managers, operators, and operations support personnel involved in the packaging and shipment of SNF 200 Area ISA demonstrate knowledge of the structure. (This expectation applies to the RCP organization only).

324 Building senior management has overall responsibility for the content and effective conduct of safety program(s). The Director, 324 Building Deactivation Project, implements specific 324 Building plans as appropriate to ensure adequate management of safety programs

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Objective

- CR-3** The selection, training and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers assures competence commensurate with responsibilities. (The training and qualification program encompasses the range of duties and activities required to be performed.)

Criteria

1. The tasks required for competent 324 Building B-Cell Spent Fuel Packaging job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. Learning objectives are derived from the analysis. (DOE Order 5480.20A, Chapter I)
2. Requirements for 324 Building B-Cell Spent Fuel Packaging continuing training have been adequately defined and programs have been developed. Continuing training includes conduct of realistic drills, regarding the SNF handling operations, to maintain proficiency in responding to abnormal and accident situations, including those involving radiological hazards. (DOE Order 5480.20A, Chapter I)
3. Training programs for operations and maintenance personnel involved in 324 Building B-Cell Spent Fuel Packaging operations include training on the requirements contained in the approved operating basis for the facility. (DOE Order 5480.20A, Chapter I)
4. Training programs for 324 Building B-Cell Spent Fuel Packaging operations and maintenance personnel emphasize the importance of compliance with procedures and safety requirements. (DOE Order 5480.20A, Chapter I)
7. Technical and management qualification of operations, radiological control, maintenance, and engineering personnel are adequate to perform SNF operational activities. (DOE Order 425.1A)
8. Training and Qualification programs for personnel involved in the SNF program are based on the latest modifications to the facility caused by the SNF operational activities. (DOE Order 5480.20A)
9. Training has been completed and documented for the latest revisions of procedures performed by operations personnel, supervisors, and shift technical advisors involved in the SNF program. (DOE Order 5480.20A)
10. The qualification of the weld process is in compliance with the American Society of Mechanical Engineers codes.
11. Modifications to 324 Building B-Cell Spent Fuel Packaging project have been defined and reviewed for impacts to training and qualifications.

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Approach

Record Review:

- Review lesson plans for incorporation of safety and procedural requirements.
- Review trainee feedback forms, training evaluations of lessons learned from operating experiences, and formal training program reviews to verify feedback is addressed in a formal manner.
- Review the continuing training program plan to verify its adequacy to support safe operations.
- Review the systematic analysis of job requirements to provide a reasonable assurance the training program addresses all tasks that are essential to safe and efficient operation.
- Review to ensure that subject matter experts (SME), line management, and training staff develop and maintain a valid facility-specific task list as the basis for the training program. The facility-specific list of tasks selected for training is reviewed periodically and updated as necessary by changes in procedures, facility systems/equipment, job scope, and advances in technology. DOE and other appropriate training guidelines are used as a guide for selecting, sequencing, and verifying training program structure and content.
- Verify that the current facility safety documentation, operating procedures, technical and professional references, and facility/industry operating experience are used to identify facility specific training content and information for use in developing training materials.
- Review the degree to which on-the-job training and hands-on evaluations for operations and maintenance personnel are used to reinforce classroom activities.
- Review examinations (both written and oral) and performance evaluations to verify that they are based on learning objectives, are reviewed by SMEs, are changed frequently enough to avoid compromise, and are formally controlled.
- Review documentation to ensure technical and management qualifications are defined.
- Review records that demonstrate that incumbents meet the defined technical and management qualifications.
- Review the process used to evaluate changes to operations and maintenance personnel training needs.
- Review lesson plans and supporting examinations to determine if lesson plans accurately reflect recent facility and/or procedure changes.

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Interviews:

- Interview personnel as necessary to ensure the 324 Building B-Cell Spent Fuel Packaging training program is established, documented, and implemented.
- Interview training personnel to determine their involvement with facility and/or procedure changes affecting lesson plans.

Shift Performance:

- Evaluate a continuing training classroom lecture or field training activity for technical and administrative adequacy.

Management Expectations

The training program for spent nuclear fuel packaging and shipment, for operators and support personnel, adequately addresses job functions and safety training for the packaging and shipment of the 324 Building spent nuclear fuel activities.

Documentation for training associated with these activities (spent nuclear fuel packaging and shipment) will be available and a review of the training records identifies no deficiencies

The qualification of the weld process shall be reviewed. The review will confirm compliance to the ASME codes and qualification of the process.

Personnel directly involved in the spent nuclear fuel handling and transfer activities demonstrate appropriate responses to mitigate upset conditions associated with the 324 Building spent nuclear fuel packaging tasks.

Nuclear Chemical Operators, Operations Specialists, Operating Engineers, Radiological Control Technicians, and other support personnel to the 324 Building spent nuclear fuel packaging and shipment project follow procedure compliance requirements.

RCP Quality Assurance has performed a review of the welder qualifications of those personnel assigned to perform the weld closure of the spent nuclear fuel canisters.

Training/review is provided for procedure changes for the 324 Building spent nuclear fuel packaging activities prior to placing a revised procedure into use.

All training issues associated with spent nuclear fuel packaging activities identified in ISMS verification (application of training procedures) and the FEB assessment have been reviewed and will not affect the safe start up of operations.

Modifications in support of the removal, handling, and packaging of the spent nuclear fuel have been defined.

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Any modifications will be reviewed for impacts to training and qualification of personnel.

Training and qualification of personnel on modifications has been completed and deemed adequate.

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Objective

CR-4 Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review:

- Review examinations to determine if they adequately test the operators' understanding of technical fundamentals, facility systems, and operating procedures.
- Review examinations to determine if they adequately test management and support personnel's understanding of technical fundamentals, facility systems, and procedures.

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Interviews:

- Interview 324 Building B-Cell Spent Fuel Packaging operators and their supervisors to assess their understanding of facility processes and procedures.
- Interview 324 Building B-Cell Spent Fuel Packaging support personnel to assess their understanding of their actions when responding to abnormal and emergency conditions and facility hazards, as well as their understanding of how these actions relate to the safety basis for operations. Determine if these personnel have an adequate knowledge of health, safety, and environmental protection issues.

Shift Performance:

- Observe 324 Building B-Cell Spent Fuel Packaging drills, routine evolutions, and normal operations to assess technical understanding and ability of the operators and supervisors to conduct their duties and to safely operate systems and components in accordance with approved plant procedures.

Management Expectations

Operations and operations support personnel demonstrate an adequate level of knowledge based on review of performance demonstration results and selected interviews and drills.

During interviews personnel demonstrate their responsibilities regarding procedure compliance and their "stop work" authority.

Operation routines and control area activities that are associated with the packaging operation (e.g. opening and closing of the airlock door) will be evaluated during interviews.

Observation will be performed during the dry run/mockup activities. Personnel actions and demonstrated knowledge will be evaluated and verified to be at an acceptable level.

Management and Technical Support (OCRWM) personnel associated with the packaging activities of the 324 Building spent nuclear fuel transfer project have sufficient education and experience to enable them to oversee the safety and environmental protection aspects of the project activities.

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Objective

CR-5 Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

Criteria

The criteria for this Core Requirement will be assessed under Core requirement 3

Objective

CR-6 There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach

Applicable programs

Maintenance

Transportation/Packaging and Shipping

Emergency Preparedness (Covered under CR-11)

Engineering

Radiological Controls

Environmental

Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)

Safety Analysis (Covered under CR-7)

Training (Covered under CR-3)

Fire Protection

Welding

Industrial Safety

Hoisting and Rigging

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Record Review:

- Review the safety basis documents for staffing requirements. Compare with personnel records to assess the ability of the facility to field the required personnel.

Interviews:

- Interview supervisors to ensure they understand the minimum staffing requirements for all phases of facility operations.

Shift Performance:

- Assess staffing levels while observing drills and routine evolutions to determine if they are adequate and satisfy administrative and safety basis requirements.

Management Expectations

The maintenance organization is established and functioning to support the packaging and shipment of spent nuclear fuel from the 324 Building to the ISA. Personnel to support maintenance activities associated with packaging activities are available and are familiar with the equipment. Equipment and instrumentation that support spent nuclear fuel packaging activities are available, operable, and in calibration.

The Hazardous Material Packaging and Shipping program is established and functioning to support the shipment of spent nuclear fuel from the 324 Building to the 200 Area. Responsibilities are clearly defined, and the organization is adequately staffed with trained personnel to support packaging and shipment of spent nuclear fuel.

The 324 Building Project Emergency Preparedness program has been updated to support packaging and shipment of spent nuclear fuel. The Emergency Preparedness organization (designated SNF handling BEDs) is familiar with the packaging process.

- There are an approved emergency plan and supporting documents in place. The plan encompasses the packaging and shipment of spent nuclear fuel and new equipment supporting the project.
- An engineering organization is established and functioning to support packaging and shipment of spent nuclear fuel from the 324 Building to the 200 Area ISA. The organization is adequately staffed, and engineering personnel assigned to the spent nuclear fuel packaging work are knowledgeable of the packaging process.
- The Health Physics Organization is established, and there are sufficient personnel available to support packaging and shipment activities. Personnel are knowledgeable of the hazards and potential for exposure resulting from the packaging operation.
- The Environmental Safety and Health Organization is familiar with the packaging process and

reviewed the hazards associated with the packaging process including critical lifts.

- Environmental requirements have been reviewed, and applicable permits and requirements have been determined to be in place and approved with respect to the 324 Building spent nuclear fuel packaging and shipment activities.
- Fire Protection has reviewed welding activities, and the associated hot work permits are in place.
- Infrastructure services, equipment, and materials are available to support the facility in support of the packaging and shipment of the spent nuclear fuel.
- Quality Assurance has performed a review of SNF procurement packages, and the packages meet the requirements of RCP Quality Assurance plan. OCRWM QA requirements established per Section 1.7 are complied with.
- A staffing plan is established to specify the minimum numbers of qualified personnel required to support safe operations for the packaging and shipment of spent nuclear fuel to the 200 Area ISA.
- Training records from Core Requirement 3 associated with the packaging and shipment of spent nuclear fuel will be evaluated as part of this review. An analysis defines the minimum required personnel. The minimum number of personnel are qualified and/or certified to perform this work.
- A review will be conducted to ensure all applicable OCRWM requirements have been implemented
- Hoisting and rigging requirements specified by DOE-RL-92-36, and associated with SNF hoisting and rigging activities are met.

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Objective

CR-7 Facility safety documentation is in place and has been implemented that describes the “safety envelope” of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design and is established.

Criteria

1. The safety documentation addresses appropriate hazards/risks associated with 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.23, paragraph 8, Attachment 1, Sections 3 and 4)
2. A safety basis has been prepared and approved by DOE. (DOE Order 5480.23, paragraph 8)
3. Administrative controls are in place to ensure that 324 Building B-Cell Spent Fuel Packaging equipment repairs (or modifications) are adequately analyzed to identify system degradation and to ensure that design changes are documented and approved prior to implementation. (DOE-STD-1073-93, Chapter 1.3)
4. An adequate process has been implemented to ensure that documentation for 324 Building B-Cell Spent Fuel Packaging systems critical to the safety exist and is kept current, as appropriate for their safety functions, and that documentation is available to the 324 Building B-Cell Spent Fuel Packaging operators. (DOE-STD-1073-93, Chapter 1.3)
5. Drawings and other documentation relied upon for operations and maintenance associated with SNF activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)
6. The NAC-1 Cask SARP has been approved
7. An unreviewed safety question process is in place to ensure that procedure changes applicable to 324 Building B-Cell Spent Fuel Packaging project is covered by the safety basis and the evaluations resulted in no positive USQ.

Approach

Record Review:

- Review safety documents, including the NAC-1 SARP, to verify they are approved by DOE
- Review any changes to the safety basis documentation to assess whether the safety basis includes appropriate hazards/risks.
- Review recent design changes and modifications to ensure they have been reflected in drawings and

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documents available to operators and maintenance personnel.

- Review the listing of safety systems and components to ensure it is consistent with the safety basis.
- Review the configuration management process to ensure it will maintain up-to-date plant configurations.
- Review dispositioned Unreviewed Safety Question (USQ)/Unreviewed Safety Question Determination (USQD) for design changes, special procedures and tests, and other proposed changes.
- Review initial USQ screenings and supporting USQ safety evaluations.
- Determine the status of all ongoing USQs and USQDs and evaluate their implications on operations.
- Review records for temporary modifications and verify required analysis is conducted and any required actions are implemented during the period the temporary modification is in place.

Interviews:

- Interview personnel associated with the 324 Building B-Cell Spent Fuel Packaging configuration management program to assess their understanding of program requirements and responsibilities.
- Interview engineering personnel responsible for developing, reviewing, and approving 324 Building B-Cell Spent Fuel Packaging USQD and supporting safety analyses for proposed facility activities to assess their understanding of the program, individual responsibilities, and safety basis documents.

Shift Performance:

- Observe routine operations and drills (these may be simulated) to assess whether any hazards or risks exist that have not been addressed by the facilities safety documentation.
- Perform a system walk-down to determine whether there are uncontrolled modifications to safety systems. This walk-down should evaluate the accuracy of drawings and other documentation for plant operation and maintenance. At least one recently completed modification should be walked down and changes verified, including changes to operating procedures, if applicable.
- Observe in-progress work control for compliance with administrative requirements such as currency of drawings and procedures, USQ reviews, non-conformance report dispositions, Radiological Work Permit implementation, and other requirements.
- Walk down a temporary modification, if one is in effect, and evaluate the accuracy of the temporary modification records and drawings.

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Management Expectations

- An unreviewed safety question (USQ) process is in place to ensure that procedural changes applicable to the handling, transfer, and packaging of the spent nuclear fuel is covered by the safety basis. The USQ evaluation(s) of procedures applicable to the spent nuclear fuel handling, transfer, and packaging of the spent nuclear fuel have been completed with no positive findings.
- Credited controls and mitigating measures have been incorporated, as appropriate, into procedures applicable to the handling, transfer, and packaging of the spent nuclear fuel to address identified hazards/risks.
- Safety documentation addresses hazards and risks associated with SNF Transfer, and provides appropriate controls.

The NAC-1 Cask Safety Analysis Report for Packaging (SARP) has been approved. Requirements have been incorporated as appropriate into procedures.

Objective

CR-8 A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examinations of records of tests and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work.

Criteria

1. Confirmation of continued compliance with 324 Building B-Cell Spent Fuel Packaging safety requirements, including clearly defined surveillance intervals and periodic self-assessments, is required by procedures. (DOE Order 425.1A)
2. Adequate 324 Building B-Cell Spent Fuel Packaging surveillance test procedures and acceptance criteria have been established to support safe operation and are consistent with the approved operating basis. (DOE Order 5480.22, paragraphs 9, 10, Attachment 1, Background; DOE Order 5480.23, paragraph 8, Attachment 1, Section 4)
3. Completed 324 Building B-Cell Spent Fuel Packaging surveillances and tests are reviewed and follow up actions are documented. (DOE Order 5480.22, paragraph 9.e; DOE Order 5480.19, Chapters I and II)
4. Approved 324 Building B-Cell Spent Fuel Packaging test procedures are based on safety analysis report requirements and have been used to establish and verify operability of safety systems. (DOE Order 5480.22, paragraph 9.3; DOE Order 5480.23, paragraph 8, Attachment 1, Section 4)
5. The maintenance program defines program requirements for corrective maintenance, preventive maintenance and post-maintenance testing of systems required for the 324 Building B-Cell Spent Fuel Packaging Project
6. The preventive maintenance backlog for systems important to the 324 Building B-Cell Spent Fuel Packaging Project is defined in the preventive maintenance recall list, with no overdue preventive maintenance item that impact operation.

Approach

Record Review:

- Review the surveillance test tacking system to assess the mechanisms used for scheduling, performing, reporting results, and dispositioning test deficiencies.
- Review the surveillance test program to determine that each safety requirement has a corresponding surveillance test.
- Review surveillance tests to determine if acceptance criteria are established and met during the

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performance of periodic system testing.

- Verify that surveillance procedures are technically correct and implement the requirements of the Operational Safety Requirements and the safety basis documents.
- Review a listing of outstanding safety system deficiencies identified through the corrective maintenance program, preventive maintenance program, surveillance test program, or other reporting process to assess the condition of facility systems to support safe operations.
- Review the maintenance program to determine that it defines requirements for corrective maintenance, preventive maintenance and post-maintenance testing systems required for the 324 Building B-Cell Spent Fuel Packaging Project
- Review the preventative maintenance backlog to determine there are no overdue items that impact the 324 Building B-Cell Spent Fuel Packaging Project

Interviews:

- Interview personnel associated with the USQ surveillance test program to assess their understanding of program requirements and responsibilities.

Shift Performance:

- Observe the performance of safety system surveillance tests.
- Walk down a safety-related system to assess operability and condition, and verify that the status is consistent with the condition specified.

Management Expectations

- Adequate surveillance and test procedures and acceptance criteria have been established to support safe operation of the spent nuclear fuel packaging equipment.
- The maintenance program (job control system) defines program requirements for corrective maintenance, preventive maintenance (PM), and post-maintenance testing of systems required for the packaging of the spent nuclear fuel.
- The preventive maintenance backlog for systems important to the packaging and shipment operations is defined in the PM recall list, and there are no overdue PMs that impact operation.
- The applicable criticality prevention specification, and operational safety requirements are incorporated into applicable procedures.

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Objective

CR-9 The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

Criteria

1. Documentation for system modifications related to 324 Building B-Cell Spent Fuel Packaging exist and is kept current. (DOE-STD-1073-93, Chapter 1.3)
2. Drawings and other documentation relied upon for 324 Building B-Cell Spent Fuel Packaging operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

Approach

Record Review:

- Review 324 Building B-Cell Spent Fuel Packaging essential drawings to ensure modifications are incorporated.

Interviews:

- None

Shift Performance:

- Select at least one safety system and walk it down to compare the as-found configuration to the current safety documentation, operating procedures, and controlled drawings. Include in the walk-down any portions of the system that has recently been modified.

Management Expectations

All SNF Transfer Project required modifications to facility SSCs were implemented in accordance with the FH/RCP/324 Building procedures controlling facility modifications.

Drawings and other documentation relied upon for SNF operations and maintenance activities are consistent with the facility/project configuration.

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Objective

CR-10 There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

Criteria

1. Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e.; DOE Order 5480.19, Chapter XVI)
2. The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)
5. 324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A Criterion 5)
6. Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility
7. An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.
8. An automated job hazard analysis of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.
9. Administrative procedures as defined in the POA, Appendix A, are prepared, approved and implemented.

Approach

Record Review:

- Select two safety requirements and determine if associated operating, test, and maintenance procedures implement the limiting conditions for operation.
- Review the surveillance test tracking system to determine if test intervals are provided.
- Review procedures for implementation of safety envelope requirements.
- Assess the adequacy of the review and approval process for procedures.
- Assess the currency of procedures and verify current configuration of safety systems is reflected in operations, maintenance, and surveillance procedures.

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Interviews:

- Interview operators and supervisors to assess their understanding of the procedure change process, and how they verify the latest approved revision of a procedure.
- Interview operators and supervisors to assess their understanding of the site procedure compliance policy.

Shift Performance:

- Observe the performance of surveillance tests and operator rounds to determine if safety system parameters used to verify compliance with safety requirements are accurately verified.
- While observing evolutions and drill response, determine if the facility procedures are adequate in content, level of detail, and acceptance criteria, and properly implement safety requirements.
- If procedure changes are necessary, assess the steps taken in the review and approval process.
- Verify procedures used by the operators are properly controlled to ensure only the latest revision is used.
- Verify that operators are following the procedure compliance policy.
- Walkdown at least two facility modifications to verify the modifications were reflected in procedures, as applicable.

Management Expectations

- All SNF Transfer Project required modifications to facility SSCs were implemented in accordance with the FH/RCP/324 Building procedures controlling facility modifications.
- Drawings and other documentation relied upon for SNF operations and maintenance activities are consistent with the facility/project configuration.
- An automated job hazard analysis (AJHA) of the 324 Building Spent Nuclear Fuel Packaging and shipment work scope activities has been completed. Each new or revised operating procedure will have an AJHA review conducted.
- Appropriate controls for criticality have been incorporated into the spent nuclear fuel handling, transfer, and packaging procedures and are reviewed and approved by the 324 Building criticality safety representative.

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- Controls are established and implemented that ensure only current and accurate procedures are available for distribution and use by plant personnel.
- A program is in place that ensures validation and approval of new procedures and procedure changes.
- Preventive maintenance (PM) procedures for the equipment supporting the packaging of the spent nuclear fuel is prepared, validated, and implemented.
- Administrative procedures as defined in Appendix A of the 324 Building SNF Project Startup Plan of Action are prepared, approved, and implemented.

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Objective

CR-11 A routine drill program and emergency operations drill program, including program records, have been established and implemented.

Criteria

1. An effective emergency preparedness program, which reflects specific SNF activity-based drills, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 151.1; DOE Order 5480.20A, Chapter I)
2. An effective routine operations drill program, reflecting SNF activities, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 425.1A)
3. Approved emergency plan and supporting documents are in place and the plan encompasses the 324 Building B-Cell Spent Fuel Packaging Project and new equipment.

Approach

Record Review:

- Review the 324 Building B-Cell Spent Fuel Packaging records that describe the recent emergency preparedness drills and review the results from each. Determine if the drill scenarios were adequate and if the necessary numbers of drills have been conducted to fully verify and test compliance with the approved authorization bases of the facility. Determine if lessons learned from drills are factored into following drills and training.
- Review the 324 Building B-Cell Spent Fuel Packaging Project shipment hazard assessment to ensure that facility and site emergency activities have been addressed.

Interviews:

- Interview 324 Building B-Cell Spent Fuel Packaging personnel responsible for the development and conduct of emergency drills to evaluate their understanding of the purpose of the drill program and their ability to execute it.
- Interview the 324 Building B-Cell Spent Fuel Packaging personnel involved with the emergency preparedness program to determine whether adequate support is being provided for safe facility operations.

Shift Performance:

- Observe at least one pre-drill briefing, conduct, and post-drill critique of an emergency preparedness drill.

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- Observe a Table Top drill seminar.

Management Expectations

- An evaluation of a tabletop drill designed to test the crew's (i.e.; core SNF handling team) anticipated response to upset conditions shall be conducted.
- An evaluation of a drill designed to test the crew's (i.e.; core SNF handling team) anticipated response to upset conditions, utilizing mockups to simulate actual working conditions, shall be conducted.
- The person-in-charge, assigned spent nuclear fuel-handling personnel, and facility management satisfactorily respond to the upset condition.
- The Emergency Preparedness drill program incorporates scenarios that reflect packaging of spent nuclear fuel in the 324 Building.

The 324 Building Emergency Response Organization has reviewed the spent nuclear fuel packaging shipment hazard assessment, and facility and site emergency activities have been addressed.

- The 324 Building Emergency Response organization demonstrates acceptable performance to a simulated SNF related drill.

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Objective

CR-12 An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators. The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations including any required restrictions and additional oversight.

Criteria

1. The startup plan to operations for the 324 Building B-Cell Spent Fuel Packaging includes all activities required to transition from the RA through operations for PWR Fuel and is being implemented. Specific hazards and evaluations that cannot be addressed prior to commencement of operations are included. (DOE Order 425.1A)
2. Factory acceptance and operational acceptance tests have been completed with no findings that impact the safe operations of equipment for the 324 Building B-Cell Spent Fuel Packaging Project

Approach

Record Review:

- Evaluate the status of actions under the plan. Assure a phased approach to normal operations and inclusion of procedures, operator qualification and equipment startup testing, as required. Verify the plan includes mechanisms to deal with specific hazards.
- Review documentation of test results (Factory Acceptance and Operational Acceptance tests) and resolution of open items for at least three tests of systems and/or components.
- For two systems, review test plans and test records to determine if testing has been adequate to demonstrate operability over the full range of required operations.

Interviews:

- None

Shift Performance:

- None

Management Expectations

- A plan or method for tracking and closure of open items is in place.
- Prerequisite actions to mock-up disassembly are tracked to ensure completion as a part of the Startup

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Plan to Operations

- Factory acceptance test plans (ATPs) have been completed, witnessed, and signed off as appropriate for equipment procured and/or modified to support the packaging and shipment of spent nuclear fuel.
- Operational tests of the equipment supporting the spent nuclear fuel packaging and movement have been completed, and there are no findings that will impact the safe operation of the equipment.
- An adequate Startup Plan to Operations exists describing the process to transition from readiness to proceed and closure of pre-start open items, to equipment transfer and setup, to startup of SNF transfer operations.

The Startup Plan to Operations will confirm that authorization has been given by the SNF Project for the 200 Area ISA to receive 324 SNF material.

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Objective

CR-13 The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline.

Criteria

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
6. Personnel understand their roles and responsibilities

Approach

Record Review:

- Review recently completed operations logs, shift turnover documents, and other plant records of note to assess compliance with COO principles.
- Review identified weaknesses in COO and compensatory actions.
- Review the facility training records to determine that personnel have been trained to COO principles.

Interviews:

- Interview operators and supervisors to assess their understanding of the COO principles in the performance of their duties.
- If these orders are not fully implemented, interview management personnel to ensure they are aware of the non-compliance(s) and action necessary to fully implement the order requirements, as well as current compensatory measures in the interim.

Shift Performance:

- Observe at least one cycle of SNF mockup/walk through evolution to determine if the facility is effectively implementing the COO requirements.

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- Attend shift turnovers, and pre-job briefings and observe control area activities, operator rounds, panel walk-downs, procedure use, communications, response to alarms, control of system status, and lockout/tagout activities.
- Observe the implementation of any specified compensatory measures within the facility to determine their effectiveness.
- Observe casualty/off normal drills to verify operations personnel are able to properly respond to casualty situations.

Management Expectations

- Personnel understand their roles and responsibilities. During the dry run, personnel demonstrate ability to communicate and work together. The personnel are knowledgeable of emergency action responses.
- Good housekeeping is evident throughout the REC area.
- Verification has been made that conduct of operations is implemented in accordance with an approved applicability matrix.

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Objective

CR-14 Formal agreements establishing requirements are in place between the operating contractor and DOE, via the contract or other enforceable mechanism, which govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place, and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE.

Criteria

1. A systematic review of the facility's conformance to applicable Programmatic Agreement requirements for the 324 Building B-Cell Spent Fuel Packaging has been performed and documented.
2. Applicable Programmatic Agreement requirements not completed have been identified and schedules for gaining compliance have been defined, in writing and formally approved.

Approach

Record Review:

- Review the facility's conformance to applicable Programmatic Agreement requirements for the 324 Building B-Cell Spent Fuel Packaging and verify any revisions required due to 324 Building B-Cell Spent Fuel Packaging have been incorporated.

Interviews:

- Interview management personnel to ensure they are aware of any Programmatic Agreement non-compliances and action necessary to fully implement the order requirements, as well as any interim compensatory measures.

Shift Performance:

- Where appropriate, observe the implementation of any specified compensatory measures within the facility to determine their effectiveness.

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Management Expectations

- A detailed list of applicable Programmatic Agreement requirements relevant to the scope of the activity has been compiled and verified to be accurate.
- A systematic review of the facility's conformance to applicable Programmatic Agreement requirements has been performed and documented.
- Documented evidence exists that ensures the SNF program has provided all applicable requirements to the RCP.
- Applicable Programmatic Agreement requirements not completed have been identified and schedules for gaining compliance have been defined in writing and formally approved by the Director, 324 Building Deactivation Project.
- A clear definition exists regarding roles and responsibilities for the packaging and shipment of the spent nuclear fuel between RCP and the SNF project organization.
- A clear definition exists regarding roles and responsibilities for the packaging and shipment of the spent nuclear fuel between RCP and the site shipping organization.
- Compliance with the spent nuclear fuel packaging criteria (SNF-4894, *Spent Nuclear Fuel Project Acceptance for Light Water Reactor Spent Nuclear Fuel Storage System*, latest revision) is demonstrated.

Objective

CR-15 A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Record Review:

- Review 324 Building B-Cell Spent Fuel Packaging open and closed issues, selecting a representative sample to determine the adequacy of tracking and closure. Assess the backlog and prioritization system for reducing it.
- Review the process used to evaluate individual issues and groups of issues to ensure they have no impact on safe operation.

Interviews:

- Interview appropriate managers to determine if they are aware of all of the items remaining to be completed before startup.
- Determine if there is a single list of outstanding items to be completed before startup.

Shift Performance:

- Verify adequate closure of selected deficiencies, with emphasis on Test Deficiency Reports and findings from recent Integrated Safety Management System verifications.

Management Expectations

- 324 Building spent nuclear fuel packaging pre/post-start actions/issues have been tracked by facility management prior to declaration of operational readiness.
- Documentation is available to demonstrate pre-start actions/issues have been closed and operational readiness of equipment and supporting services is adequate to commence 324 Building spent nuclear fuel packaging.

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324 B-Cell Spent Fuel Packaging Readiness Assessment, RL only Core Requirements

Objective

CR-16 The technical and managerial qualifications of those personnel at the DOE field organization and at DOE Headquarters who have been assigned responsibilities for providing direction and guidance to the contractor, including the Facility Representatives, are adequate (DOE Readiness Review only).

Criteria

1. The mission element program engineers have completed the RL Technical Qualification Program, and have a minimum of three years of experience in overview of 324 Building operations and program activities.
2. The Director, Facility Transition Division, has certified the acceptable performance of all mission element program engineers to be able to effectively overview the 324 Building operations and activities as demonstrated by past experience.
3. The 324 Building Facility Representatives have completed certification by the Manager, RL, and are fully qualified as 324 Building facility representatives.

Approach

Record Review:

- RL Technical Qualifications for the 324 Building Project documents the qualifications of the mission element program engineers and facility representatives
- RL Transition Division evaluations of mission element program engineers reflect satisfactory performance in the overview of the 324 Building Project

Interviews

- None

Shift Performance

- During demonstrations, observe mission element performance

Management Expectations

- The mission element program engineers have completed the RL Technical Qualification Program, and have a minimum of 3 years of experience in overview of 324 Building operations and program activities.

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- The Director, Facility Transition Division, has certified the acceptable performance of all mission element program engineers to be able to effectively overview the 324 Building operations and activities as demonstrated by past experience.

The 324 Building Facility Representatives have completed certification by the Manager, RL, and are fully qualified as 324 Building facility representatives.

Objective

CR-17 The breadth, depth, and results of the responsible contractor Readiness Review are adequate to verify the readiness of hardware, personnel, and management programs for operations (DOE Operational Readiness Review only).

Criterion

1. The contractor final report accurately reflects the state readiness of the 324 Building B-Cell Spent Fuel Packaging Project

Approach

Record Review

- Review the contractor RA final report to determine the adequacy of the report

Interviews

- The RL team member will attend the interviews with his or her FH team counterpart to assess the adequacy of the interviews in the determination of facility readiness. The FH team member will be the lead interviewer.

FH team evaluation

- During the field portion of the review the RL team matched up with their FH team counterpart will assess the adequacy of the FH team to perform the review per the POA and the IP.

Shift Performance

- Observe various demonstrations to determine the accuracy of the report

Management Expectations

- The RL RA team leader has conducted a closeout meeting with the RL mission elements and the Vice President and Project Director, River Corridor Project.
- The RL RA team leader has verified the closeout of all RL pre-start findings.
- The RL RA team has submitted its final report to the RL Approval Authority

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APPENDIX 2

FH Team Assignments and Qualification Summaries

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TEAM ASSIGNMENTS

<u>NAME</u>	<u>AREA (S)</u>
Harding	Management
Nuzum	Operations
Glover	Maintenance
Haas	Safety Documentation
Glover	Radiological Controls
Haas*/Psaras	Engineering/Start-up Testing
Psaras	Quality Assurance/OCRWM
Haas	Emergency Preparedness/Operations Drills
Glover	Training
Psaras	Transportation/Packaging and Shipping
Ranade	Environmental
Psaras	Fire Protection
Haas/Psaras*	Welding
Haas	Industrial Safety
Morgan	Hoisting and Rigging

*Denotes lead evaluator in this functional area

CORE REQUIREMENT TO FUNCTIONAL AREA CROSS-WALK															
Core Requirement	CR-1	CR-2	CR-3	CR-4	CR-5	CR-6	CR-7	CR-8	CR-9	CR-10	CR-11	CR-12	CR-13	CR-14	CR-15
Functional Area															
Management	L	L	X	X		L									X
Operations	X	X		X		X			L	L	X		L		X
Maintenance	X	X		X		X		L	X	X			X		X
Safety	X	X		X	X	X	L		X	X					X
Documents															
S/RID		X		X						X				L	X
Engineering/ Start-up Testing	X	X		X	X	X			X	X		L			X
Radiological Control	X	X		X		X			X		X		X		X
Quality Assurance	X	X		X		X				X	L				L
Emergency Preparedness	X	X		X		X							X		X
Training	X	X	L	L	L	X									X
Transportation &Shipping	X	X		X		X							X		X
Environmental	X	X		X		X									X
Fire Protection	X	X		X		X									X
Welding	X	X		X		X							X		X
Industrial Safety	X	X		X		X									X
Hoisting & Rigging	X	X		X		X							X		X

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TEAM LEADER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: Wynn Harding

AREA ASSIGNED: TEAM LEADER

SUMMARY OF TECHNICAL QUALIFICATIONS:

- MS in National Security Strategy
- MBA in Business Management
- BS in Naval Engineering.
- Executive level expert in conduct of operations, facility management, ESH&Q and engineering while working for DOE.
- Over 40 years experience in operations evaluation, technical assessment and deficiency correction.

SUMMARY OF ASSESSMENT/RA/INSPECTION QUALIFICATIONS:

- DOE Independent Oversight Group Manager / VP.
- Nuclear Propulsion Examination Board senior member and certifying official.
- Managed ORR / RA processes at Rocky Flats Environmental Technology Site (RFETS) covering ISMS, B371, Medical Facility, Site SAR Implementation, B771 and B776.

SUMMARY OF FACILITY FAMILIARIZATION:

Completed orientation training.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Independent Consultant, EnergX LLC

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TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: Jennifer L. Nuzum

AREA ASSIGNED: Operations

SUMMARY OF TECHNICAL QUALIFICATIONS:

- B.S., Chemistry, Whitworth College
- Work experience 9 years at 222-S Laboratory and WSCF:
 - Scientist
 - Shift Manager in nuclear and radiological facilities
 - Operations Lead
 - Operations Manager
 - Facility Manger

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Internal FH assessment programs
- Management sponsor of Requirement Reduction Review at WSCF

SUMMARY OF FACILITY FAMILIARIZATION:

Completed facility orientation.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Ms. Nuzum is an employee of Fluor Hanford, Hanford Site Operations and has no line management responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER

Team Leader

Date

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TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: William Glover

AREA ASSIGNED: Maintenance, Training and Radiological Controls

SUMMARY OF TECHNICAL QUALIFICATIONS [Relevant to assigned areas(s)]:

- B. A. Chemistry, University of Rochester
- M. S. Nuclear Engineering (Equivalent from Navy Senior Officer Nuclear Power Training Course)
- Executive level manager and operational expert in nuclear facility operations, training, testing, quality assurance and assessment.
- Over 30 years experience in nuclear facility management and operations.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Led two DOE sponsored ORRS at Rocky Flats Environmental Technology Site (RFETS), including B371 PuSPS certification and operational restart in B707.
- Led QA Evaluation teams at RFETS.
- Member BNFL Safety and ALARA Review Team.

SUMMARY OF FACILITY FAMILIARIZATION:

Completed Facility Orientation Training.

BASIS FOR ACCEPTABLE INDEPENDENCE:

President/General Manager, TENERA Federal Services, LLC, with no responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER (Team leader sign):

Team Leader

Date

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TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: Milton Haas

AREA ASSIGNED: Safety Analysis, Industrial Safety, Emergency Preparedness,
Engineering

SUMMARY OF TECHNICAL QUALIFICATIONS [Relevant to assigned areas(s)]:

- B.S. Chemical Engineering, University of Colorado
- Executive level manager who has worked for DOE and as an independent contractor, with expertise in risk management, ES&H, nuclear operations and maintenance, and ISM.
- Over 40 years experience in nuclear operations.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Led two Criticality Safety Assessments for DOE at Y-12.
- Deputy Project Lead for HEU vulnerability assessment for DOE.
- Member of the Plutonium vulnerability assessment for DOE.

SUMMARY OF FACILITY FAMILIARIZATION:

Completed Facility Orientation Training.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Independent Consultant, SMI, Inc., with no responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER (Team leader sign):

Team Leader

Date

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: John Psaras

AREA ASSIGNED: Transportation/Packaging and Shipping, Quality Assurance,
Engineering, Fire Protection

SUMMARY OF TECHNICAL QUALIFICATIONS [Relevant to assigned areas(s)]:

- M.S. Heat Transfer, Imperial College of Science and Technology
- B.S. Mechanical Engineering, Imperial College of Science and Technology
- Executive level expert in safety analysis, nuclear materials management, nuclear materials packaging and transport of nuclear material while working for DOE.
- Over 40 years experience in operations evaluation, technical assessment and deficiency correction.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- DOE Independent Oversight Assessment Team Member.
- Led various DOE assessments at RFETS, INEEL, and BNFL Sellafield UK.
- Led DOE design criteria teams: at SRS; and West Valley vitrification facility

SUMMARY OF FACILITY FAMILIARIZATION:

Completed Facility Orientation Training.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Independent Consultant, SMI, Inc., with no responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER (Team leader sign):

Team Leader

Date

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: D. G. Ranade

AREA ASSIGNED: ENVIRONMENTAL

SUMMARY OF TECHNICAL QUALIFICATIONS:

- MS Have three master degrees.
- Over 25 years experience in managing and developing environmental programs.
 - Ten years as a Director of Environmental Programs.
 - Experience in setting and implementing environmental policies.
 - Managed RI/FS and negotiations with EPA to obtain favorable conditions.
 - Two years as a Technical Director of an environmental consulting firm.
 - Experience in conducting due diligence audits and environmental audits for a variety of clients.
 - Two years as a Fluor Program Manager for Effluent and Environmental Monitoring program.
 - Managed a construction project related to the effluent monitoring systems.
 - Two years as a member of the Facility Evaluation Board.
 - Five years as a lead environmental auditor at Hanford site.
 - Focused on federal regulations such as CAA, EPCRA, NEPA, NESHAP, RCRA, TSCA, OSHA, Washington State regulations and DOE Orders.
 - Conducted due diligence audit at 3000 Area.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Conducted several assessments at Hanford as a member of ES&H assessment group and Facility Evaluation Board.
- Certified as a Registered Environmental Auditor by Registrar Accreditation Board.
 - Holds Certified Hazardous Materials Manger (CHMM) Certification.

SUMMARY OF FACILITY FAMILIARIZATION:

Completed Facility Orientation Training.

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324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

BASIS FOR ACCEPTABLE INDEPENDENCE:

Mr. Ranade is an employee of Fluor Hanford, ESH&Q, and has no line management responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER

Team Leader

Date

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

STARTUP REVIEW TEAM MEMBER QUALIFICATION SUMMARY FORM

Team Member's Name: Dana L Morgan

Functional Area Assigned: Hoisting & Rigging

SUMMARY OF TECHNICAL QUALIFICATIONS [Relevant to assigned areas(s)]:

- Twenty one years in analysis, design, development, implementation and management of Hoisting & Rigging programs in support of craft, management and engineering
- Implementation of OSHA, ASME/ANSI, NFPA and DOE industrial safety, maintenance and conduct of operations standards and requirements in hoisting & rigging environments
- Member of DOE Hanford Hoisting & Rigging Committee 1990-present
- Chairman of Hanford Hoisting & Rigging Committee 2001 - present
- Washington State certified Vocational instructor
- OSHA 500 certified
- Member of Washington Crane Safety Association
- Develop & provide DOE Construction Safety Program for DOE HQ
- Team Lead Project Support Training Westinghouse Hanford
- Team Lead Industrial Safety & Health, Westinghouse Hanford
- Qualified Hoisting & Rigging Evaluator/ forklifts, overhead cranes, mobile cranes, rigging, aerial lifts, scaffolding

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Readiness Assessment team member for 200 Area Interim Storage Area
- Development and implementation of design, analysis and evaluation methods and tools for training programs Westinghouse Hanford/Fluor
- Management Self Assessment & Project Management Training
- Evaluation & Comparison of NAVFAC P-307 & DOE-RL-92-36 Hanford Hoisting & Rigging Manual for DNSFB/SNF Drop Cask Scenario
- Team lead Management Assessment of SNF Production Training Program
- Team member DOE Class B Accident investigation
- Certified Wire Rope & Rigging Hardware Inspection
- Certified Mobile Crane Inspection

SUMMARY OF FACILITY FAMILIARIZATION:

Completed Facility Orientation Training.

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

BASIS FOR ACCEPTABLE INDEPENDENCE:

Mr. Morgan is an employee of Fluor Hanford, Hanford Site Operations, Site Crane & Rigging and has no line management responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER (Team leader sign):

Team Leader

Date

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

APPENDIX 3

Readiness Assessment Appraisal and Deficiency Forms

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324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

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324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

FORM 1
START-UP REVIEW APPRAISAL FORM

Activity or Project

Type of Review

Core Requirement/ Functional Area:	CRA No./Title: Date:	Criteria Met: [] Yes [] No

OBJECTIVE:

Criteria:

1.

Approach:

Records Review:

•

Interviews:

•

Observations:

•

REVIEW

Records Reviewed:

•

Personnel/Positions Interviewed:

•

Evolutions/Operations/Shift Performance:

•

Spaces Visited:

•

Discussion of Results:

1.

CONCLUSION:

Issue(s):

Inspector: _____	Approved: _____ Team Leader Date: _____

A-6002-568 (12/98)

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

FORM 2
START-UP REVIEW FINDING FORM

Activity or Project _____

Type of Review _____

Core Requirement/ Functional Area:	CRA No./Title:	Issue Designation ☐ Finding ☐ Pre-start	Issue No.:
	Date:	☐ Observation ☐ Post-start	

ISSUE (The identified finding or observation):

REQUIREMENT (Requirement statement from reference):

REFERENCE (S) (Specific as possible, including section):

DISCUSSION:

Inspector: _____	Approved: _____ Team Leader
	Date: _____

A-6002-569 (12/98)

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

APPENDIX 4

Finding Classification Criteria

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324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

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324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

Finding Classification Criteria

The RA team will use this checklist to determine whether a deficiency must be corrected prior to startup.

A. Initial Screening

1. Does this issue involve a safety system?
2. Does this issue involve processes, functions or components identified in the Technical Safety Requirements/Operational Safety Requirements or nuclear safety control procedures?
3. Does this issue involve potential adverse environmental impact exceeding regulatory or site specific release limits?
4. Does this issue impact non-safety processes, functions or components, which could adversely impact safety related processes, functions or components?
5. Does this issue indicate a lack of adequate procedures or administrative systems?
6. Does this issue indicate operational or administrative non-compliance with procedures or policy?
7. Has this issue occurred with a frequency that indicates past corrective actions have been lacking or ineffective?
8. Does this issue require operator training not specified in existing facility training requirements?
9. Does the issue involve a previously unknown risk to worker or public safety and health or a previously unknown threat of environmental insult or release?

If the response to any of the above is yes, further evaluation, in accordance with the issue impact criteria below is required. If the response to all of the above is no, the issue may be resolved after restart.

B. Issue Impact

1. Does the loss of operability of the item prevent safe shutdown, or cause the loss of essential monitoring?
2. Does the loss of operability of the item require operator action in less than ten (10) minutes to prevent or mitigate the consequences of events described in the Safety Analysis?
3. Does the loss of operability of the item cause operation outside the TSR/OSRs or Safety Analysis?
4. Does the loss of operability of the item result in a reduction of the margin of safety as described in the Safety Analysis?

OIA-2002-RA-003-IP
324 Building B-Cell Spent Fuel Packaging
and Shipment Operations

5. Does the issue indicate a lack of control which can have a near term impact on the operability or functionality of safety related systems?
6. Does the issue involve a violation or potential violation of worker safety or environmental protection regulatory requirements, which poses a significant danger to workers, the public, or of environmental insult or release?

If the response to any of the above questions is yes, the item should be considered a startup item.

APPENDIX C
RL READINESS REVIEW APPRAISAL FORMS

Form 2 Functional Area Abbreviations

- Emergency Preparedness and Operational Drills - EP
- Engineering and Startup Testing - ET
- Environmental - EN
- Fire Protection - FP
- Hoisting and Rigging - HR
- Industrial Safety - IS
- Maintenance - MN
- Management - MG
- Operations - OP
- Radiological Controls - RC
- S/RIDS - SR
- Safety Documentation - SD
- Training - TR
- Transportation, Packaging, and Shipping - TS
- Welding – WL.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Maintenance
Transportation/Packaging and Shipping
Emergency Preparedness
Engineering
Radiological Controls
Environmental
Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)
Safety Analysis
Training
Fire Protection
Welding
Industrial Safety
Hoisting and Rigging
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Approach**Records Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Records Review

- 324 Facility Operations Standard Operating Procedure “*Pre-Staging the SNF Cask for Loading, 3I-SOP-SNF-001*”, Revision 2, Change C, July 18, 2002.
- 324 Facility Operations Standard Operating Procedure “*SNF Cask Sealing and ISO Container Loading, 3I-SOP-SNF-002*”, Revision 2, Change C, July 18, 2002.
- 324 Facility Operations Standard Operating Procedure “*PWR Fuel Assembly Packaging and Load-Out (OCRWM), 3I-SOP-SNF-003*”, Revision 3, Change 0, July 18, 2002.
- 324 Facility Safety Log
- Hanford Management Plan “*Integrated Environment, Safety and Health Management System Description, HNF-MP-003*”, Revision 6, July 2002.

Interviews Conducted

- Nuclear/Chemical Operators
- Operations Specialist

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

- Pre job briefing for Scene 2
- Scene 2, Preparing the NAC Cask
- Pre job briefing for Scene 4
- Scene 4, Removing the Cask from the Airlock
- Pre job briefing for Scene 6
- Scene 6, Removing the NAC Cask from Building 324 and Loading onto Trailer
- Pre job briefing for the Emergency Preparedness Drill
- Pre job briefing for Airlock entry
- Emergency Preparedness Drill (Fire)

Discussion of Results

Criterion 1: *Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)*

Maintenance

Transportation/Packaging and Shipping

Emergency Preparedness

Engineering

Radiological Controls

Environmental

Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)

Safety Analysis

Training

Fire Protection

Welding

Industrial Safety

Hoisting and Rigging

Information for this criterion is provided in other functional areas.

Criterion 2: *Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.*

Safety steps are included throughout the operational procedures. Personnel have been trained on performing operations in a safe manner and know the consequences if they fail to do so. Personnel provide input regarding safety during the development of the procedures. During the scenes observed there were occasions when safety infractions did occur, but I would consider them minor and easy to minimize. Examples of these infractions are personnel losing rubber booties, scratching their faces with possible contaminated gloves or clothing, and failing to close the safety gates when working on the cask work platform.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

The FH RA Team identified several safety issues in Scene 4, Removing the Cask. These issues were:

- The posting of the HRA was misleading (location of sign)
- The PIC walked within 5 feet of the work platform 3 times during work activities on the platform (without a hard hat)
- The Criticality Safety Reps PPE was open and he reached inside to get his pen and then replaced the pen back into his pocket
- The gates on the work platform were open while employees were on the platform. The supervisor was notified and the gates were closed immediately.

Criterion 3: *Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.*

The Manager, Hot Cell Operations was present in the Cask handling Area for every evolution that was observed by this inspector. It is not known if this is routine or if this was done for the benefit of the RA. The manager reminded personnel on numerous occasions that they must wear a hard hat if they are working or observing within a 5-foot radius of the work platform when personnel were working on the platform and brought up safety issues as they occurred.

Criterion 4: *Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.*

Safety issues that personnel have are documented in a couple of ways. First there is the 324 Facility Safety Log located in the 324 Building lobby. Personnel can write down their safety concern and what they believe is the corrective action. The 324 Building Deactivation Project Director reviews the log every morning and initials that he has done so. The corrective action is then assigned to the appropriate discipline for resolution. Once the action is completed to the satisfaction of all parties (including the initiator) a completion date is entered into the logbook. A second method is for personnel to bring up safety issues at their daily turnover meetings. A form can be filled out and the action assigned for completion. The status of these items is discussed at every daily turnover meeting.

Criterion 5: *Management takes an active part in encouraging a strong safety culture.*

An evaluation of the information for this criterion is detailed in the Industrial Safety functional area.

Note: The pre job briefings were thorough but were apparent to be boring to some operations personnel. Some briefings were conducted, or at least started, without key participants present. The Quality representative was late for the meetings most of the time. As required by the

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

procedures, a separate briefing was given to those personnel that were late or missed the pre job briefing.

Conclusions:

324 Building personnel, including management, are active participants in the safety programs. Performing activities in a safe manner is a high priority for all personnel. The project has a sound management policy for recognizing and incorporating good safety practices. With some minor exceptions, operational activities were performed in a safe manner.

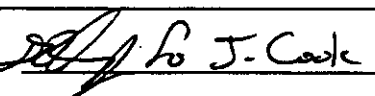
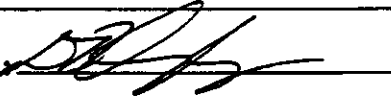
The facility meets core requirement #1 for Operations.

Issue(s)**Findings:**

None

Observations:

None

Inspector: <u></u> Jim Cook	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for the Operations functional area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-IP-1264, *324/327 Facilities Stabilization Projects Administrative Manual*, Section 1.9, "Minimum Staffing Requirements," Rev. 0, January 26, 2001
- 324 Building Deactivation Project Organization Chart, July 23, 2002

Interviews Conducted

- Operations Specialist.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Observations

Not applicable.

Discussion of Results

Criterion 1: *A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)*

The Administrative Manual defines the roles and responsibilities of personnel for the various disciplines. The project organization chart provides details on the chain of command and reporting responsibilities.

Criterion 2: *324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).*

The 324 Building Deactivation Project Director has the responsibility for the safety programs and takes an active role with daily readings of the safety log and ensuring actions are taken to resolve the safety issues.

Conclusion

Roles and responsibilities for the project are well defined.

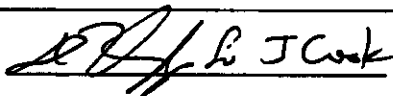
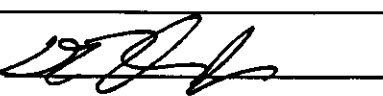
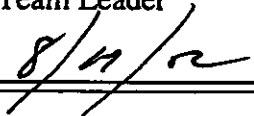
The facility meets Core Requirement #2 for Operations.

Issue(s)**Findings**

None.

Observations

None.

Inspector:  Jim Cook	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: N/A
CORE REQUIREMENT-9	DATE: August 14, 2002

OBJECTIVE

The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

Criteria

1. Documentation for system modifications related to 324 Building B-Cell Spent Fuel Packaging exists and is kept current. (DOE-STD-1073-93, Chapter 1.3)
2. Drawings and other documentation relied upon for 324 Building B-Cell Spent Fuel Packaging operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

Approach

Records Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Not applicable.

Records Reviewed

Not applicable.

Interviews Conducted

Not applicable.

Evolutions/Operations Observed:

Not applicable.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: N/A
CORE REQUIREMENT-9	DATE: August 14, 2002

Discussion of Results

Criterion 1: Documentation for system modifications related to 324 Building B-Cell Spent Fuel Packaging exists and is kept current. (DOE-STD-1073-93, Chapter 1.3)

There have been no modifications to the facility relating to the 324 Building B-Cell Spent Fuel Packaging.

Criterion 2: Drawings and other documentation relied upon for 324 Building B-Cell Spent Fuel Packaging operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

An evaluation of the information for this criterion is detailed in the Maintenance functional area.

Conclusion

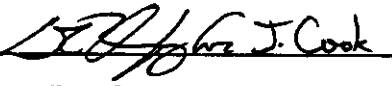
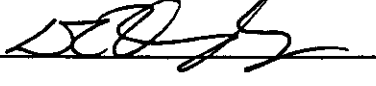
Not applicable.

Issue(s)**Findings:**

None.

Observations:

None.

Inspector: <u></u> Jim Cook	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-10	DATE: August 14, 2002

OBJECTIVE

There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

Criteria

1. Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e.; DOE Order 5480.19, Chapter XVI)
2. The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)
3. 324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A Criterion 5)
4. Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility
5. An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.
6. An automated job hazard analysis of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.
7. Administrative procedures as defined in the POA, Appendix A, are prepared, approved and implemented.

Approach**Records Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Records Review

- 324 Facility Operations Standard Operating Procedure "*Pre-Staging the SNF Cask for Loading, 3I-SOP-SNF-001*", Revision 2, Change C, July 18, 2002.
- 324 Facility Operations Standard Operating Procedure "*SNF Cask Sealing and ISO Container Loading, 3I-SOP-SNF-002*", Revision 2, Change C, July 18, 2002.
- 324 Facility Operations Standard Operating Procedure "*PWR Fuel Assembly Packaging and Load-Out (OCRWM), 3I-SOP-SNF-003*", Revision 3, Change 0, July 18, 2002
- HNF-IP-1264, *324/327 Facilities Stabilization Projects Administrative Manual*
- Job Control System (JCS) work package 3I-02-255

Interviews Conducted

- Nuclear Chemical Operators
- Operations Specialist
- ALARA Specialist

Observations

- Pre-job briefing for Scene 2
- Scene 2, Preparing the NAC Cask
- Pre job briefing for Scene 4
- Scene 4, Removing the Cask from the Airlock
- Pre job briefing for Scene 6
- Scene 6, Removing the NAC Cask from Building 324 and Loading onto Trailer
- Pre job briefing for the Emergency Preparedness Drill
- Pre job briefing for Airlock entry
- Emergency Preparedness Drill (Fire)

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

Discussion of Results

Criterion 1: *Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e.; DOE Order 5480.19, Chapter XVI)*

The procedures and related documents used for the CHA and B-Cell fuel transfers implement all required operational safety elements.

Criterion 2: *The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)*

The safety elements can be verified by the facility use of radiological control zones, step off pads, hardhat areas, anti-C removal areas, and personal survey monitors.

Criterion 3: *324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A Criterion 5)*

Copies of the procedures used for this project are available in the Cask Handling Area as well being available on line for reading. During operational activities in the CHA the PIC or Supervisor keep a copy at the desk adjacent to the roped off control area.

Criterion 4: *Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility*

The 324 facility has not been modified since the early to mid 90's. All procedures currently in use or being developed reflect the latest modifications.

Criterion 5: *An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.*

Formal ALARA reviews have been completed for both the cask loading and cask sealing tasks. The formal review checklists are included in the Job Control System (JCS) work package 3I-02-255. Also completed and included in the JCS work package are radiological dose assessments for the 2 tasks.

Criterion 6: *An automated job hazard analysis of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.*

An automated job hazard analysis (AJHJ) is prepared for every procedure. A copy of the AJHJ(s) is kept with the job package. A separate review copy is kept in the AJHJ manual.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-10	DATE: August 14, 2002

Criterion 7: *Administrative procedures as defined in the POA, Appendix A, are prepared, approved and implemented.*

An Administrative Manual containing a number of Standing Directives has been approved and implemented. The Standing Directives are living documents and revised when necessary.

In addition to the issues raised by the FH RA team and additional issue concerning the USQ the RL RA team leader raised review of revision 2 to 31-SOP-SNF-002. The revision 2 portion that inserted the mobile critical lift section did not have a USQ review as required by HNF-IP-1264, Section 2.3.5.2.5.13 (CR-10-O-01). Upon notification of this issue to the facility a USQ review including a USQ evaluation was performed. This resulted in a negative USQ evaluation.

Conclusions

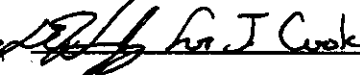
The facility meets core requirement #10 for Operations.

Issue(s)**Findings**

The revision 2 portion that inserted the mobile critical lift section did not have a USQ review as required by HNF-IP-1264, Section 2.3.5.2.5.13 (CR-10-O-01)

Observations:

None.

Inspector: <u></u> Jim Cook	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

OBJECTIVE

The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline

Criteria

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
5. Personnel understand their roles and responsibilities

Approach**Records Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Records Review

- HNF-IP-1264, *324/327 Facilities Stabilization Projects Administrative Manual*
- River Corridor Project Performance Improvement Plan
- 324 Building Revised Conduct of Operations Applicability Matrix

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

- 324 Facility Operations Standard Operating Procedure “*Pre-Staging the SNF Cask for Loading, 3I-SOP-SNF-001*”, Revision 2, Change C, July 18, 2002.
- 324 Facility Operations Standard Operating Procedure “*SNF Cask Sealing and ISO Container Loading, 3I-SOP-SNF-002*”, Revision 2, Change C, July 18, 2002.
- 324 Facility Operations Standard Operating Procedure “*PWR Fuel Assembly Packaging and Load-Out (OCRWM), 3I-SOP-SNF-003*”, Revision 3, Change 0, July 18, 2002

Interviews Conducted

- Nuclear Chemical Operators
- Operations Specialist
- 324 Building Deactivation Project Manager
- Project Scheduling and Control Manager

Observations

- Pre job briefing for Scene 2
- Scene 2, Preparing the NAC Cask
- Pre job briefing for Scene 4
- Scene 4, Removing the Cask from the Airlock
- Pre job briefing for Scene 6
- Scene 6, Removing the NAC Cask from Building 324 and Loading onto Trailer
- Pre job briefing for the Emergency Preparedness Drill
- Pre job briefing for Airlock entry
- Emergency Preparedness Drill (Fire)

Discussion of Results

Criterion 1: *Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)*

The programmatic elements of Conduct of Operations are in place. The elements are outlined in the company 1264 Administrative Manual. Not all COO elements of DOE Order 5480.19 apply to the facility. An applicability matrix was prepared to show which elements applied to the facility.

Criterion 2: *Personnel have been trained in key COO principles. (DOE Order 5480.19)*

The River Corridor Project has prepared a Conduct of Operations Performance Improvement Plan. In this plan they have identified the key elements that personnel should be trained to improve their COO performance. Management met with the various groups to better understand their functions and how they could improve COO. This was also intended to make support groups aware of control areas or other issues they were not familiar with.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

Criterion 3: *When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)*

The facility maintains a Sustain and Maintain log to identify weaknesses in the COO program. As weaknesses are identified training is given to personnel to bring them up to date on the new or changing conditions.

Criterion 4: *Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)*

During the dry run demonstrations some violations of safe work habits did occur, some were in the radiological area and some while working on the work platform adjacent to the spent fuel cask. The violations were for such items as losing rubber boots, passing items over a control zone barrier, not wearing a hard hat at the proper time, and not closing the safety railing gate on the work platform.

In addition, undue exposure was given operations personnel as well as observing personnel during Scene 6 while the cask lid was prepared for use (replacing o-rings and decontaminating).

The FH RA team has issued a finding for not having a contingency plan to recover from a failure of the grapple in the airlock (Finding No.)

Criterion 5: *Personnel understand their roles and responsibilities*

The roles and responsibilities for the COO program are outlined in the company 1264 Administrative Manual. All personnel are trained to their role and responsibility.

Conclusion:

The 324 Facility meets Core Requirement #13 for Operations.

Issue(s)

Findings

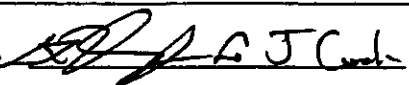
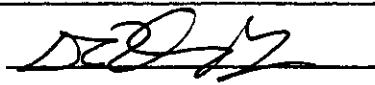
None

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

Observations

None

Inspector: <u></u> Jim Cook	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Records Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Records Review

- 324 SNF Action Item Tracking, July 25, 2002
- 324 SNF Startup Readiness Pre-and Critical Post-Start Open Items, July 25, 2002

Interviews Conducted

- Project Scheduling and Control Manager
- Project Management and Integration Manager
- Hot Cell Operations Manager

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Operations	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-15	DATE: August 14, 2002

Observations

Not applicable.

Discussion of Results

Criterion 1: *Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)*

Facility management has reviewed and prepared a list of pre-start issues. The list is reviewed every afternoon by Management and Operations personnel to status each issue. At the writing of this report there are approximately 15 pre-start issues on the list, none of which have been completed.

Criterion 2: *Facility management has reviewed and tracked post start issues.*

Facility management has reviewed and prepared a post-start issue list in conjunction with the pre-start issues. The list is reviewed every afternoon by Management and Operations personnel to status each issue. At the writing of this report there are approximately 3 post-start issues on the list.

Conclusion:

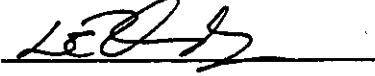
The Facility meets Core Requirement #15 for Operations.

Issue(s)**Findings:**

None.

Observations:

None.

Inspector: <u></u> Jim Cook	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [☐] Yes [☒] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Maintenance

Transportation/Packaging and Shipping

Emergency Preparedness

Engineering

Radiological Controls

Environmental

Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)

Safety Analysis

Training

Fire Protection

Welding

Industrial Safety

Hoisting and Rigging

2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-1	DATE: August 14, 2002

member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements (OSR)*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- *Safety Evaluation Report for 324 Building – Supplement 1, September 2000*
- *Safety Evaluation Report for 324 Building, January 2001*
- *Safety Evaluation Report for the River Corridor Project 324 Facility, Update to the Safety Analysis Report to Incorporate the Justification for Continued Operation, HNF-SD-SPJ-SAR-001, Rev 3A, February 2002*
- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load Out (OCRWM)*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-1.9, *Minimum Staffing Requirements*
- HNF-IP-1264-2.2, *Administrative Procedure Development and Control*
- HNF-IP-1264-2.3, *Technical Procedure Development and Control*
- HNF-IP-1264-2.9, *Standing Instructions and Management Directives*
- HNF-IP-1264-2.14, *Lessons Learned*
- HNF-IP-1264-4.1, *Job Control System Implementation*
- HNF-IP-1264-5.1, *Operations Organization and Administration*
- HNF-IP-1264-9.1, *Spent Nuclear Fuel Transfer Project Administrative Procedure Control (OCRWM)*
- HNF-IP-1264-9.2, *Spent Nuclear Fuel Transfer Project Records Management and File Control (OCRWM)*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications (OCRWM)*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training (OCRWM)*
- HNF-IP-1264-9.5, *Spent Nuclear Fuel Transfer Project Design Control (OCRWM)*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-1	DATE: August 14, 2002

- HNF-IP-1264-9.6, *Spent Nuclear Fuel Transfer Project Material Control (OCRWM)*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading (OCRWM)*
- HNF-IP-1264-9.8, *Spent Nuclear Fuel Transfer Project Peer Reviews (OCRWM)*
- HNF-IP-1264-9.9, *Spent Nuclear Fuel Transfer Project Management Assessment*
- HNF-IP-1264-9.11, *Spent Nuclear Fuel Transfer Project Non-Conformance Control (OCRWM)*
- HNF-IP-1264-9.12, *Spent Nuclear Fuel Transfer Project Work Control (OCRWM)*
- HNF-IP-1264-9.13, *Spent Nuclear Fuel Transfer Project Technical Procedure Development and Control (OCRWM)*
- HNF-IP-1264-9.14, *Continuous Fissionable Material Inventory for SNF Transfer*
- SI-324 Bldg-001, *Automated Job Hazard Analysis (AJHA)*
- SI-324 Bldg-005, *Management and Control of Procurements*
- SI-324 Bldg-024, *Conduct of Work Expectations*
- SI-324 Bldg-025, *Readiness Determination Process*
- SI-324 Bldg-030, *Establishment of the Senior Supervisory Watch*
- SI-324 Bldg-032, *Identification of OCRWM Personnel Who Support the 324 Building Spent Nuclear Fuel Transfer Project*
- SI-324 Bldg-034, *Procedure Compliance*
- SI-324 Bldg-036, *Spent Nuclear Fuel Transfer Technical Authorities*
- *324 Building Deactivation Project Organizational Chart*
- *Central Plateau Remediation Project (CP) Organizational Chart*
- *324 Building Safety Log Book*
- *E-mail messages on feedback to originators of Safety Log Book entries*
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*
- RCP-PRO-007, *Enhanced ALARA Committee/Subcommittee*
- RCP-MD-001, *River Corridor Project Roles, Responsibilities, and Functions*
- Letter, D.T. Evans, RL to H.E. Bilson, RL, *Mission Element Verification Review of 324 B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging Readiness Assessment*, dated July 18, 2002
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE Order 425.1A, *Startup and Restart of Nuclear Facilities*
- HNF-MP-003, *Integrated Environment, Safety and Health Management System Description*
- HNF-MD-4821, *Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontractors*
- Memorandum, Peggy McCarthy to B.L. Hopkins, *NDE Request*, dated July 17, 2002
- Email, Leasa Hetzer to Blaine L. Hopkins, *ISMS Related to NDE Services*
- HNF-PRO-055, *Startup Readiness*
- *324 SNF Project, PWR Transfer Operations Minimum Staffing Plan (Rev. 5, 7-1-02)*
- *324 Building Activity Readiness Package Key Sections*
- *324 Building Activity Readiness Checklist*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-1	DATE: August 14, 2002

- *Readiness Self Assessment 1-2ISMS*
- *Readiness Self Assessment 1-3ISMS*
- *Startup Plan to Operations, 324 Building, Spent Nuclear Fuel Transfer Project*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations, Management Self Assessment, July 2002*
- *324 Facility Disposition of MSA Findings and Observations (Two 3-Ring Binders for Form 1 and Form 2 Issues)*
- *324 SNF Startup Readiness Pre-and Critical Post-Start Open Items, dated 7/23/02*
- *CP-MD-018, Central Plateau Remediation Project Technical Authorities*
- *CP-MD-003, Central Plateau Remediation Project Integrated Environmental, Safety and Health Management System Description*
- *HNF-PRO-1623, Radiological Work Planning Process*
- *AJHA ID: 3I-640 Rev 1, AJHA Report*
- *AJHA ID: 3I-642 Rev 1, AJHA Report*
- *AJHA ID: 3I-662 Rev 1, AJHA Report*
- *AJHA ID: 3I-813 Rev 0, AJHA Report*
- *AJHA ID: 3I-814, Rev 0, AJHA Report*
- *HNF-PRO-079, Job Hazard Analysis*
- *HNF-5173, PHMC Radiological Control Manual*
- *HNF-067, Managing Lessons Learned*
- *RCP-PRO-016, Processing Lessons Learned Documents*
- *River Corridor Project CY-2002 Incoming Lessons Learned Log*
- *2002-RL-HNF-0010, Project Hanford Lessons Learned*
- *FY 2002 River Corridor Project – Office of Civilian Radioactive Waste Management (OCRWM) Assessment Program – Schedule*
- *Cogema-SVPT-PRC-005, Rev 1, Liquid Penetrant Examination Procedure, 9/1/99*
- *Cogema-SVLT-PRC-003, Rev 0, Leak Test Examination Procedure, 10/21/98*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment, April 19, 2002*
- *OIA-2002-RA-003, Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- *Letter FH-0105153, R.P. Heck II, FHI to S.J. Veitenheimer, RL, Programmatic Agreement on the Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *FH-0105153, Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *MSW-02-033, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement*
- *Letter, MSW-02-033, from M.S. Wright, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement, dated August 1, 2002*

Interviews Conducted

- 324 Building Deactivation Project Director

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-1	DATE: August 14, 2002

- Surveillance Operations Manager
- Engineering Manager
- Hot Cell Operations Manager
- Project Management & Integration Manager
- Central Plateau Technical Support Director
- Readiness Assessment Coach
- Operations Specialist (2)
- QA Engineer
- Health Physicist
- QC Inspector
- Safety Engineer
- Planner
- Cogema Engineer
- Nuclear Chemical Operator (2)

Observations

- O650 Daily Management Meeting
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*

Discussion of Results

Criterion 1: *Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)*

Maintenance

Transportation/Packaging and Shipping

Emergency Preparedness

Engineering

Radiological Controls

Environmental

Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)

Safety Analysis

Training

Fire Protection

Welding

Industrial Safety

Hoisting and Rigging

Several issues were found regarding the failure to comply with administrative procedures. Examples are as follows: (1) An Activity Readiness Package (ARP) was not prepared per the specific requirements stated in SI-324Bldg-025. (2) The Activity Readiness Checklist, part of

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-1	DATE: August 14, 2002

the ARP, was not properly completed and was missing four signatures that should have been signed prior to declaring readiness. (3) HNF-IP-1264 required a means to identify OCRWM personnel who support the 324 Building SNF Transfer Project. The 324 Building accomplished this through use of a Standing Instruction, SI-324Bldg-032. The listing of OCRWM personnel provided to the team was not up to date. These examples are documented as observations in the FH RA report as well as a generic finding on the failure to comply with administrative procedures.

Criterion 2: *Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.*

Programs were in place to have workers actively involved in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities. AJHAs were prepared for each of the three operating procedures with participation from the workers. However, although AJHA ID 3I-662 identified hazards and controls for the testing of the seal to be performed by Cogema, there was no one from Cogema involved with the AJHA preparation. Additionally, there was no objective evidence that the Cogema procedures for the helium leak check and liquid penetrant test incorporated any necessary controls after the AJHA was completed. There was no documentation on the two Cogema procedures that indicated an AJHA was performed. An AJHA is required for all work documents other than pre-approved J-3 work and 324 Tickle File work items per SI-324Bldg-001. This issue, although not to this level of detail, has been captured in the FH RA report in two post start findings related to ISMS flow down and AJHA processing.

Criterion 3: *Management takes an active part in encouraging a strong safety culture.*

Management takes an active part in encouraging a strong safety culture. Based on interviews, safety concerns are taken very seriously by senior management and first line supervisors. If there is a safety concern, then management is on top of it according to interview responses. Each work group has a monthly safety meeting and a monthly all-hands meeting is held by the 324 Director. Zero Accident Council also exists and meets on a regular basis. It was evident that safety is a top priority of the 324 Director.

Criterion 4: *Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.*

Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.

There was a Safety Log book in the lobby of 324 Building where any individual can write a safety concern. The 324 Building Director initiated this system, regularly reviews this logbook, and takes great pride and ownership in it. A review of the safety logbook indicates that issues

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-1	DATE: August 14, 2002

were tracked and corrected. Feedback was given to the initiator through e-mail and by responding in the logbook. Additionally, safety concerns were brought up verbally during pre-job briefs or during work activities without the fear of reprisal.

The 324 Director was actively involved with observing work activities in the field. A Senior Supervisory Watch Program was established via SI-324Bldg-030, and significant issues have been reported to the 324 Director during past operations.

Criterion 5: River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

ISMS was understood and practiced by management and operational personnel in Building 324. However, weaknesses were noted in service and support personnel as discussed in the FH RA report. Additionally, the contractual flow down of ISM to subcontractor Cogema was not performed as required. HNF-MP-003, requires flow down of ISM requirements to subcontractors performing work under FH direction. HNF-MD-4821, *Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontractors*, describes the process and roles and responsibilities for determining appropriate flow down of ISMS requirements to lower tier subcontractors. HNF-PRO-186 is referenced for contracts where a Statement of Work is used. However, there is no guidance on ISMS flow down when using a letter of instruction to a subcontractor, which was the method used to hire Cogema. FH should determine if a process problem exists that led to the failure of ISM flow down to Cogema since a letter of instruction was used rather than a statement of work. This issue, although not to this level of detail, has been documented in the FH RA report as a post-start finding.

Conclusion

Based on the discussion above and in the FH RA report, the core requirement has not been met.

Issue(s)

Findings

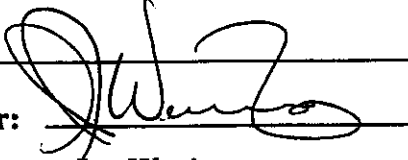
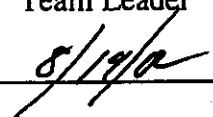
None.

Observations

None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements (OSR)
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- Safety Evaluation Report for 324 Building – Supplement 1, September 2000
- Safety Evaluation Report for 324 Building, January 2001
- Safety Evaluation Report for the River Corridor Project 324 Facility, Update to the Safety Analysis Report to Incorporate the Justification for Continued Operation, HNF-SD-SPJ-SAR-001, Rev 3A, February 2002

FORM 1 -- READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 14, 2002

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load Out (OCRWM)*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-1.9, *Minimum Staffing Requirements*
- HNF-IP-1264-2.2, *Administrative Procedure Development and Control*
- HNF-IP-1264-2.3, *Technical Procedure Development and Control*
- HNF-IP-1264-2.9, *Standing Instructions and Management Directives*
- HNF-IP-1264-2.14, *Lessons Learned*
- HNF-IP-1264-4.1, *Job Control System Implementation*
- HNF-IP-1264-5.1, *Operations Organization and Administration*
- HNF-IP-1264-9.1, *Spent Nuclear Fuel Transfer Project Administrative Procedure Control (OCRWM)*
- HNF-IP-1264-9.2, *Spent Nuclear Fuel Transfer Project Records Management and File Control (OCRWM)*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications (OCRWM)*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training (OCRWM)*
- HNF-IP-1264-9.5, *Spent Nuclear Fuel Transfer Project Design Control (OCRWM)*
- HNF-IP-1264-9.6, *Spent Nuclear Fuel Transfer Project Material Control (OCRWM)*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading (OCRWM)*
- HNF-IP-1264-9.8, *Spent Nuclear Fuel Transfer Project Peer Reviews (OCRWM)*
- HNF-IP-1264-9.9, *Spent Nuclear Fuel Transfer Project Management Assessment*
- HNF-IP-1264-9.11, *Spent Nuclear Fuel Transfer Project Non-Conformance Control (OCRWM)*
- HNF-IP-1264-9.12, *Spent Nuclear Fuel Transfer Project Work Control (OCRWM)*
- HNF-IP-1264-9.13, *Spent Nuclear Fuel Transfer Project Technical Procedure Development and Control (OCRWM)*
- HNF-IP-1264-9.14, *Continuous Fissionable Material Inventory for SNF Transfer*
- SI-324 Bldg-001, *Automated Job Hazard Analysis (AJHA)*
- SI-324 Bldg-005, *Management and Control of Procurements*
- SI-324 Bldg-024, *Conduct of Work Expectations*
- SI-324 Bldg-025, *Readiness Determination Process*
- SI-324 Bldg-030, *Establishment of the Senior Supervisory Watch*
- SI-324 Bldg-032, *Identification of OCRWM Personnel Who Support the 324 Building Spent Nuclear Fuel Transfer Project*
- SI-324 Bldg-034, *Procedure Compliance*
- SI-324 Bldg-036, *Spent Nuclear Fuel Transfer Technical Authorities*
- *324 Building Deactivation Project Organizational Chart*
- *Central Plateau Remediation Project (CP) Organizational Chart*
- *324 Building Safety Log Book*
- *E-mail messages on feedback to originators of Safety Log Book entries*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*
- RCP-PRO-007, *Enhanced ALARA Committee/Subcommittee*
- RCP-MD-001, *River Corridor Project Roles, Responsibilities, and Functions*
- Letter, D.T. Evans, RL to H.E. Bilson, RL, *Mission Element Verification Review of 324 B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging Readiness Assessment*, dated July 18, 2002
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE Order 425.1A, *Startup and Restart of Nuclear Facilities*
- HNF-MP-003, *Integrated Environment, Safety and Health Management System Description*
- HNF-MD-4821, *Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontractors*
- Memorandum, Peggy McCarthy to B.L. Hopkins, *NDE Request*, dated July 17, 2002
- Email, Leasa Hetzer to Blaine L. Hopkins, *ISMS Related to NDE Services*
- HNF-PRO-055, *Startup Readiness*
- *324 SNF Project, PWR Transfer Operations Minimum Staffing Plan (Rev. 5, 7-1-02)*
- *324 Building Activity Readiness Package Key Sections*
- *324 Building Activity Readiness Checklist*
- *Readiness Self Assessment 1-2ISMS*
- *Readiness Self Assessment 1-3ISMS*
- *Startup Plan to Operations, 324 Building, Spent Nuclear Fuel Transfer Project*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations, Management Self Assessment, July 2002*
- *324 Facility Disposition of MSA Findings and Observations (Two 3-Ring Binders for Form 1 and Form 2 Issues)*
- *324 SNF Startup Readiness Pre-and Critical Post-Start Open Items*, dated 7/23/02
- CP-MD-018, *Central Plateau Remediation Project Technical Authorities*
- CP-MD-003, *Central Plateau Remediation Project Integrated Environmental, Safety and Health Management System Description*
- HNF-PRO-1623, *Radiological Work Planning Process*
- AJHA ID: 3I-640 Rev 1, *AJHA Report*
- AJHA ID: 3I-642 Rev 1, *AJHA Report*
- AJHA ID: 3I-662 Rev 1, *AJHA Report*
- AJHA ID: 3I-813 Rev 0, *AJHA Report*
- AJHA ID: 3I-814, Rev 0, *AJHA Report*
- HNF-PRO-079, *Job Hazard Analysis*
- HNF-5173, *PHMC Radiological Control Manual*
- HNF-067, *Managing Lessons Learned*
- RCP-PRO-016, *Processing Lessons Learned Documents*
- *River Corridor Project CY-2002 Incoming Lessons Learned Log*
- 2002-RL-HNF-0010, *Project Hanford Lessons Learned*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 14, 2002

- *FY 2002 River Corridor Project – Office of Civilian Radioactive Waste Management (OCRWM) Assessment Program – Schedule*
- *Cogema-SVPT-PRC-005, Rev 1, Liquid Penetrant Examination Procedure, 9/1/99*
- *Cogema-SVLT-PRC-003, Rev 0, Leak Test Examination Procedure, 10/21/98*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment, April 19, 2002*
- *OIA-2002-RA-003, Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- *Letter FH-0105153, R.P. Heck II, FHI to S.J. Veitenheimer, RL, Programmatic Agreement on the Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *FH-0105153, Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *MSW-02-033, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement*
- *Letter, MSW-02-033, from M.S. Wright, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement, dated August 1, 2002*

Interviews Conducted

- 324 Building Deactivation Project Director
- Surveillance Operations Manager
- Engineering Manager
- Hot Cell Operations Manager
- Project Management & Integration Manager
- Central Plateau Technical Support Director
- Readiness Assessment Coach
- Operations Specialist (2)
- QA Engineer
- Health Physicist
- QC Inspector
- Safety Engineer
- Planner
- Cogema Engineer
- Nuclear Chemical Operator (2)

Observations

- 0650 Daily Management Meeting
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*

Discussion of Results

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Criterion 1: *A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)*

Roles and responsibilities are delineated in RCP-MD-001, HNF-IP-1264, Section 2.2, and individual job descriptions. HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*, Section 5.1, briefly describes the organization structure and key management positions governing the 324 Building. Based on interviews, roles, responsibilities, and the management structure were understood by operations personnel, but weaknesses in this understanding were evident by support personnel.

Criterion 2: *324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).*

Based on interviews, it is evident that 324 Building senior management has overall responsibility for content and effective conduct of safety programs.

Conclusion

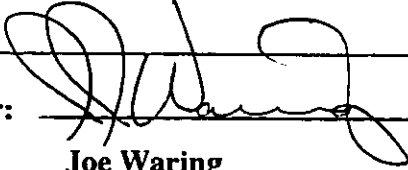
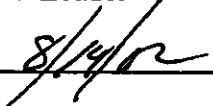
Based on the discussion above, the core requirement has been met.

Issue(s)**Findings**

None.

Observations

None.

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements (OSR)*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- *Safety Evaluation Report for 324 Building – Supplement 1, September 2000*
- *Safety Evaluation Report for 324 Building, January 2001*
- *Safety Evaluation Report for the River Corridor Project 324 Facility, Update to the Safety Analysis Report to Incorporate the Justification for Continued Operation, HNF-SD-SPJ-SAR-001, Rev 3A, February 2002*
- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load Out (OCRWM)*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-1.9, *Minimum Staffing Requirements*
- HNF-IP-1264-2.2, *Administrative Procedure Development and Control*
- HNF-IP-1264-2.3, *Technical Procedure Development and Control*
- HNF-IP-1264-2.9, *Standing Instructions and Management Directives*
- HNF-IP-1264-2.14, *Lessons Learned*
- HNF-IP-1264-4.1, *Job Control System Implementation*
- HNF-IP-1264-5.1, *Operations Organization and Administration*
- HNF-IP-1264-9.1, *Spent Nuclear Fuel Transfer Project Administrative Procedure Control (OCRWM)*
- HNF-IP-1264-9.2, *Spent Nuclear Fuel Transfer Project Records Management and File Control (OCRWM)*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications (OCRWM)*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training (OCRWM)*
- HNF-IP-1264-9.5, *Spent Nuclear Fuel Transfer Project Design Control (OCRWM)*
- HNF-IP-1264-9.6, *Spent Nuclear Fuel Transfer Project Material Control (OCRWM)*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading (OCRWM)*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

- HNF-IP-1264-9.8, *Spent Nuclear Fuel Transfer Project Peer Reviews (OCRWM)*
- HNF-IP-1264-9.9, *Spent Nuclear Fuel Transfer Project Management Assessment*
- HNF-IP-1264-9.11, *Spent Nuclear Fuel Transfer Project Non-Conformance Control (OCRWM)*
- HNF-IP-1264-9.12, *Spent Nuclear Fuel Transfer Project Work Control (OCRWM)*
- HNF-IP-1264-9.13, *Spent Nuclear Fuel Transfer Project Technical Procedure Development and Control (OCRWM)*
- HNF-IP-1264-9.14, *Continuous Fissionable Material Inventory for SNF Transfer*
- SI-324 Bldg-001, *Automated Job Hazard Analysis (AJHA)*
- SI-324 Bldg-005, *Management and Control of Procurements*
- SI-324 Bldg-024, *Conduct of Work Expectations*
- SI-324 Bldg-025, *Readiness Determination Process*
- SI-324 Bldg-030, *Establishment of the Senior Supervisory Watch*
- SI-324 Bldg-032, *Identification of OCRWM Personnel Who Support the 324 Building Spent Nuclear Fuel Transfer Project*
- SI-324 Bldg-034, *Procedure Compliance*
- SI-324 Bldg-036, *Spent Nuclear Fuel Transfer Technical Authorities*
- *324 Building Deactivation Project Organizational Chart*
- *Central Plateau Remediation Project (CP) Organizational Chart*
- *324 Building Safety Log Book*
- *E-mail messages on feedback to originators of Safety Log Book entries*
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*
- RCP-PRO-007, *Enhanced ALARA Committee/Subcommittee*
- RCP-MD-001, *River Corridor Project Roles, Responsibilities, and Functions*
- Letter, D.T. Evans, RL to H.E. Bilson, RL, *Mission Element Verification Review of 324 B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging Readiness Assessment*, dated July 18, 2002
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE Order 425.1A, *Startup and Restart of Nuclear Facilities*
- HNF-MP-003, *Integrated Environment, Safety and Health Management System Description*
- HNF-MD-4821, *Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontractors*
- Memorandum, Peggy McCarthy to B.L. Hopkins, *NDE Request*, dated July 17, 2002
- Email, Leasa Hetzer to Blaine L. Hopkins, *ISMS Related to NDE Services*
- HNF-PRO-055, *Startup Readiness*
- *324 SNF Project, PWR Transfer Operations Minimum Staffing Plan (Rev. 5, 7-1-02)*
- *324 Building Activity Readiness Package Key Sections*
- *324 Building Activity Readiness Checklist*
- *Readiness Self Assessment Affidavit 1-2ISMS*
- *Readiness Self Assessment Affidavit 1-3ISMS*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

- *Startup Plan to Operations, 324 Building, Spent Nuclear Fuel Transfer Project*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations, Management Self Assessment, July 2002*
- *324 Facility Disposition of MSA Findings and Observations (Two 3-Ring Binders for Form 1 and Form 2 Issues)*
- *324 SNF Startup Readiness Pre-and Critical Post-Start Open Items, dated 7/23/02*
- *CP-MD-018, Central Plateau Remediation Project Technical Authorities*
- *CP-MD-003, Central Plateau Remediation Project Integrated Environmental, Safety and Health Management System Description*
- *HNF-PRO-1623, Radiological Work Planning Process*
- *AJHA ID: 3I-640 Rev 1, AJHA Report*
- *AJHA ID: 3I-642 Rev 1, AJHA Report*
- *AJHA ID: 3I-662 Rev 1, AJHA Report*
- *AJHA ID: 3I-813 Rev 0, AJHA Report*
- *AJHA ID: 3I-814, Rev 0, AJHA Report*
- *HNF-PRO-079, Job Hazard Analysis*
- *HNF-5173, PHMC Radiological Control Manual*
- *HNF-067, Managing Lessons Learned*
- *RCP-PRO-016, Processing Lessons Learned Documents*
- *River Corridor Project CY-2002 Incoming Lessons Learned Log*
- *2002-RL-HNF-0010, Project Hanford Lessons Learned*
- *FY 2002 River Corridor Project – Office of Civilian Radioactive Waste Management (OCRWM) Assessment Program – Schedule*
- *Cogema-SVPT-PRC-005, Rev 1, Liquid Penetrant Examination Procedure, 9/1/99*
- *Cogema-SVLT-PRC-003, Rev 0, Leak Test Examination Procedure, 10/21/98*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment, April 19, 2002*
- *OIA-2002-RA-003, Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- *Letter FH-0105153, R.P. Heck II, FHI to S.J. Veitenheimer, RL, Programmatic Agreement on the Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *FH-0105153, Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *MSW-02-033, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement*
- *Letter, MSW-02-033, from M.S. Wright, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement, dated August 1, 2002*

Interviews Conducted

- *324 Building Deactivation Project Director*
- *Surveillance Operations Manager*
- *Engineering Manager*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

- Hot Cell Operations Manager
- Project Management & Integration Manager
- Central Plateau Technical Support Director
- Readiness Assessment Coach
- Operations Specialist (2)
- QA Engineer
- Health Physicist
- QC Inspector
- Safety Engineer
- Planner
- Cogema Engineer
- Nuclear Chemical Operator (2)

Observations

- O650 Daily Management Meeting
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*

Discussion of Results

Criteria 1-5: Refer to CR-4, Operations, Training, Radiological Control, and Maintenance Functional Areas.

Criterion 6: *324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)*

Based on interviews with facility management and technical support personnel, the level knowledge of their area of responsibility was adequate. Some weaknesses, most notably in the QA support organization were noted, which are detailed in FHI's RA report under CR-4, Training Functional Area.

Criterion 7: *324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.*

Based on interviews with 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) all understood their responsibilities toward procedure compliance and "stop work" authority.

Conclusion

Based on the discussion above, the core requirement has been met.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

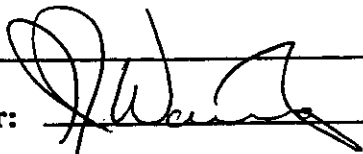
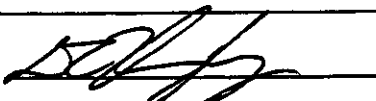
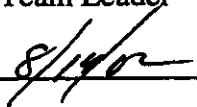
Issue(s)

Findings

None

Observations

None

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements (OSR)*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- *Safety Evaluation Report for 324 Building – Supplement 1, September 2000*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

- *Safety Evaluation Report for 324 Building, January 2001*
- *Safety Evaluation Report for the River Corridor Project 324 Facility, Update to the Safety Analysis Report to Incorporate the Justification for Continued Operation, HNF-SD-SPJ-SAR-001, Rev 3A, February 2002*
- *31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading*
- *31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)*
- *31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load Out (OCRWM)*
- *HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- *HNF-IP-1264-1.9, Minimum Staffing Requirements*
- *HNF-IP-1264-2.2, Administrative Procedure Development and Control*
- *HNF-IP-1264-2.3, Technical Procedure Development and Control*
- *HNF-IP-1264-2.9, Standing Instructions and Management Directives*
- *HNF-IP-1264-2.14, Lessons Learned*
- *HNF-IP-1264-4.1, Job Control System Implementation*
- *HNF-IP-1264-5.1, Operations Organization and Administration*
- *HNF-IP-1264-9.1, Spent Nuclear Fuel Transfer Project Administrative Procedure Control (OCRWM)*
- *HNF-IP-1264-9.2, Spent Nuclear Fuel Transfer Project Records Management and File Control (OCRWM)*
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- *HNF-IP-1264-9.5, Spent Nuclear Fuel Transfer Project Design Control (OCRWM)*
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- *HNF-IP-1264-9.14, Continuous Fissionable Material Inventory for SNF Transfer*
- *SI-324 Bldg-001, Automated Job Hazard Analysis (AJHA)*
- *SI-324 Bldg-005, Management and Control of Procurements*
- *SI-324 Bldg-024, Conduct of Work Expectations*
- *SI-324 Bldg-025, Readiness Determination Process*
- *SI-324 Bldg-030, Establishment of the Senior Supervisory Watch*
- *SI-324 Bldg-032, Identification of OCRWM Personnel Who Support the 324 Building Spent Nuclear Fuel Transfer Project*
- *SI-324 Bldg-034, Procedure Compliance*
- *SI-324 Bldg-036, Spent Nuclear Fuel Transfer Technical Authorities*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

- *324 Building Deactivation Project Organizational Chart*
- *Central Plateau Remediation Project (CP) Organizational Chart*
- *324 Building Safety Log Book*
- *E-mail messages on feedback to originators of Safety Log Book entries*
- *Drill Number CP-Fire-001, Central Plateau Drill Package, Fire at 324*
- *Drill Number ACCT-001, 324 Facility Drill Package, Test Accountability*
- *RCP-PRO-007, Enhanced ALARA Committee/Subcommittee*
- *RCP-MD-001, River Corridor Project Roles, Responsibilities, and Functions*
- *Letter, D.T. Evans, RL to H.E. Bilson, RL, Mission Element Verification Review of 324 B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging Readiness Assessment, dated July 18, 2002*
- *DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities*
- *DOE Order 425.1A, Startup and Restart of Nuclear Facilities*
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- *HNF-MD-4821, Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontractors*
- *Memorandum, Peggy McCarthy to B.L. Hopkins, NDE Request, dated July 17, 2002*
- *Email, Leasa Hetzer to Blaine L. Hopkins, ISMS Related to NDE Services*
- *HNF-PRO-055, Startup Readiness*
- *324 SNF Project, PWR Transfer Operations Minimum Staffing Plan (Rev. 5, 7-1-02)*
- *324 Building Activity Readiness Package Key Sections*
- *324 Building Activity Readiness Checklist*
- *Readiness Self Assessment 1-2ISMS*
- *Readiness Self Assessment 1-3ISMS*
- *Startup Plan to Operations, 324 Building, Spent Nuclear Fuel Transfer Project*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations, Management Self Assessment, July 2002*
- *324 Facility Disposition of MSA Findings and Observations (Two 3-Ring Binders for Form 1 and Form 2 Issues)*
- *324 SNF Startup Readiness Pre-and Critical Post-Start Open Items, dated 7/23/02*
- *CP-MD-018, Central Plateau Remediation Project Technical Authorities*
- *CP-MD-003, Central Plateau Remediation Project Integrated Environmental, Safety and Health Management System Description*
- *HNF-PRO-1623, Radiological Work Planning Process*
- *AJHA ID: 3I-640 Rev 1, AJHA Report*
- *AJHA ID: 3I-642 Rev 1, AJHA Report*
- *AJHA ID: 3I-662 Rev 1, AJHA Report*
- *AJHA ID: 3I-813 Rev 0, AJHA Report*
- *AJHA ID: 3I-814, Rev 0, AJHA Report*
- *HNF-PRO-079, Job Hazard Analysis*
- *HNF-5173, PHMC Radiological Control Manual*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

- HNF-067, *Managing Lessons Learned*
- RCP-PRO-016, *Processing Lessons Learned Documents*
- *River Corridor Project CY-2002 Incoming Lessons Learned Log*
- 2002-RL-HNF-0010, *Project Hanford Lessons Learned*
- *FY 2002 River Corridor Project – Office of Civilian Radioactive Waste Management (OCRWM) Assessment Program – Schedule*
- Cogema-SVPT-PRC-005, Rev 1, *Liquid Penetrant Examination Procedure*, 9/1/99
- Cogema-SVLT-PRC-003, Rev 0, *Leak Test Examination Procedure*, 10/21/98
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*, April 19, 2002
- OIA-2002-RA-003, *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- Letter FH-0105153, R.P. Heck II, FHI to S.J. Veitenheimer, RL, *Programmatic Agreement on the Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- FH-0105153, *Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- MSW-02-033, *Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement*
- Letter, MSW-02-033, from M.S. Wright, *Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement*, dated August 1, 2002

Interviews Conducted

- 324 Building Deactivation Project Director
- Surveillance Operations Manager
- Engineering Manager
- Hot Cell Operations Manager
- Project Management & Integration Manager
- Central Plateau Technical Support Director
- Readiness Assessment Coach
- Operations Specialist (2)
- QA Engineer
- Health Physicist
- QC Inspector
- Safety Engineer
- Planner
- Cogema Engineer
- Nuclear Chemical Operator (2)

Observations

- O650 Daily Management Meeting
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

- Drill Number ACCT-001, 324 Facility Drill Package, Test Accountability

Discussion of Results

Criterion 1: *Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)*

Minimum staffing levels are stipulated in HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements (OSR), Administrative Control 5.1.4, which is applicable at all times. Based on interviews with the Surveillance Operations Manager, these minimum staffing levels are met and the manager's understanding of the minimum staffing requirements for all phases of facility operations was adequate.

Criterion 2: *Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)*

Based on interviews and document reviews, sufficient numbers of qualified personnel are available to carry out SNF operations. A staffing plan is established, 324 SNF Project, PWR Transfer Operations Minimum Staffing Plan (Rev. 5, 7-1-02), which describes the organization of operations and operations support groups that will perform and directly support the packaging and shipment of PWR SNF. This document specifies the number of trained personnel required to perform each activity, and the number of personnel that are actually trained to perform those tasks.

Conclusion

Based on the discussion above, the core requirement has been met.

Issue(s)**Findings**

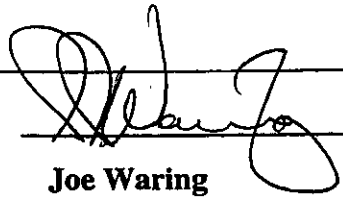
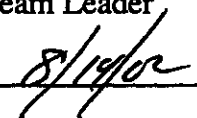
None

Observations

None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements (OSR)
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- Safety Evaluation Report for 324 Building – Supplement 1, September 2000
- Safety Evaluation Report for 324 Building, January 2001
- Safety Evaluation Report for the River Corridor Project 324 Facility, Update to the Safety Analysis Report to Incorporate the Justification for Continued Operation, HNF-SD-SPJ-SAR-001, Rev 3A, February 2002

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-15	DATE: August 14, 2002

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load Out (OCRWM)*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-1.9, *Minimum Staffing Requirements*
- HNF-IP-1264-2.2, *Administrative Procedure Development and Control*
- HNF-IP-1264-2.3, *Technical Procedure Development and Control*
- HNF-IP-1264-2.9, *Standing Instructions and Management Directives*
- HNF-IP-1264-2.14, *Lessons Learned*
- HNF-IP-1264-4.1, *Job Control System Implementation*
- HNF-IP-1264-5.1, *Operations Organization and Administration*
- HNF-IP-1264-9.1, *Spent Nuclear Fuel Transfer Project Administrative Procedure Control (OCRWM)*
- HNF-IP-1264-9.2, *Spent Nuclear Fuel Transfer Project Records Management and File Control (OCRWM)*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications (OCRWM)*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training (OCRWM)*
- HNF-IP-1264-9.5, *Spent Nuclear Fuel Transfer Project Design Control (OCRWM)*
- HNF-IP-1264-9.6, *Spent Nuclear Fuel Transfer Project Material Control (OCRWM)*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading (OCRWM)*
- HNF-IP-1264-9.8, *Spent Nuclear Fuel Transfer Project Peer Reviews (OCRWM)*
- HNF-IP-1264-9.9, *Spent Nuclear Fuel Transfer Project Management Assessment*
- HNF-IP-1264-9.11, *Spent Nuclear Fuel Transfer Project Non-Conformance Control (OCRWM)*
- HNF-IP-1264-9.12, *Spent Nuclear Fuel Transfer Project Work Control (OCRWM)*
- HNF-IP-1264-9.13, *Spent Nuclear Fuel Transfer Project Technical Procedure Development and Control (OCRWM)*
- HNF-IP-1264-9.14, *Continuous Fissionable Material Inventory for SNF Transfer*
- SI-324 Bldg-001, *Automated Job Hazard Analysis (AJHA)*
- SI-324 Bldg-005, *Management and Control of Procurements*
- SI-324 Bldg-024, *Conduct of Work Expectations*
- SI-324 Bldg-025, *Readiness Determination Process*
- SI-324 Bldg-030, *Establishment of the Senior Supervisory Watch*
- SI-324 Bldg-032, *Identification of OCRWM Personnel Who Support the 324 Building Spent Nuclear Fuel Transfer Project*
- SI-324 Bldg-034, *Procedure Compliance*
- SI-324 Bldg-036, *Spent Nuclear Fuel Transfer Technical Authorities*
- *324 Building Deactivation Project Organizational Chart*
- *Central Plateau Remediation Project (CP) Organizational Chart*
- *324 Building Safety Log Book*
- *E-mail messages on feedback to originators of Safety Log Book entries*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-15	DATE: August 14, 2002

- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*
- RCP-PRO-007, *Enhanced ALARA Committee/Subcommittee*
- RCP-MD-001, *River Corridor Project Roles, Responsibilities, and Functions*
- Letter, D.T. Evans, RL to H.E. Bilson, RL, *Mission Element Verification Review of 324 B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging Readiness Assessment*, dated July 18, 2002
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE Order 425.1A, *Startup and Restart of Nuclear Facilities*
- HNF-MP-003, *Integrated Environment, Safety and Health Management System Description*
- HNF-MD-4821, *Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontractors*
- Memorandum, Peggy McCarthy to B.L. Hopkins, *NDE Request*, dated July 17, 2002
- Email, Leasa Hetzer to Blaine L. Hopkins, *ISMS Related to NDE Services*
- HNF-PRO-055, *Startup Readiness*
- *324 SNF Project, PWR Transfer Operations Minimum Staffing Plan (Rev. 5, 7-1-02)*
- *324 Building Activity Readiness Package Key Sections*
- *324 Building Activity Readiness Checklist*
- *Readiness Self Assessment Affidavit 1-2ISMS*
- *Readiness Self Assessment Affidavit 1-3ISMS*
- *Startup Plan to Operations, 324 Building, Spent Nuclear Fuel Transfer Project.*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations, Management Self Assessment*, July 2002
- *324 Facility Disposition of MSA Findings and Observations (Two 3-Ring Binders for Form 1 and Form 2 Issues)*
- *324 SNF Startup Readiness Pre-and Critical Post-Start Open Items*, dated 7/23/02
- CP-MD-018, *Central Plateau Remediation Project Technical Authorities*
- CP-MD-003, *Central Plateau Remediation Project Integrated Environmental, Safety and Health Management System Description*
- HNF-PRO-1623, *Radiological Work Planning Process*
- AJHA ID: 3I-640 Rev 1, *AJHA Report*
- AJHA ID: 3I-642 Rev 1, *AJHA Report*
- AJHA ID: 3I-662 Rev 1, *AJHA Report*
- AJHA ID: 3I-813 Rev 0, *AJHA Report*
- AJHA ID: 3I-814, Rev 0, *AJHA Report*
- HNF-PRO-079, *Job Hazard Analysis*
- HNF-5173, *PHMC Radiological Control Manual*
- HNF-067, *Managing Lessons Learned*
- RCP-PRO-016, *Processing Lessons Learned Documents*
- *River Corridor Project CY-2002 Incoming Lessons Learned Log*
- 2002-RL-HNF-0010, *Project Hanford Lessons Learned*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-15	DATE: August 14, 2002

- *FY 2002 River Corridor Project – Office of Civilian Radioactive Waste Management (OCRWM) Assessment Program – Schedule*
- *Cogema-SVPT-PRC-005, Rev 1, Liquid Penetrant Examination Procedure, 9/1/99*
- *Cogema-SVLT-PRC-003, Rev 0, Leak Test Examination Procedure, 10/21/98*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment, April 19, 2002*
- *OIA-2002-RA-003, Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- *Letter FH-0105153, R.P. Heck II, FHI to S.J. Veitenheimer, RL, Programmatic Agreement on the Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *FH-0105153, Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *MSW-02-033, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement*
- *Letter, MSW-02-033, from M.S. Wright, Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement, dated August 1, 2002*

Interviews Conducted

- 324 Building Deactivation Project Director
- Surveillance Operations Manager
- Engineering Manager
- Hot Cell Operations Manager
- Project Management & Integration Manager
- Central Plateau Technical Support Director
- Readiness Assessment Coach
- Operations Specialist (2)
- QA Engineer
- Health Physicist
- QC Inspector
- Safety Engineer
- Planner
- Cogema Engineer
- Nuclear Chemical Operator (2)

Observations

- O650 Daily Management Meeting
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Discussion of Results

Criterion 1: *Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)*

Facility management has reviewed and tracked pre-start issues. A list of *324 SNF Startup Readiness Pre-and Post-Start Open Items* exists and is maintained by facility management. This list is compliant with HNF-PRO-055. At the time of this review, not all pre-start issues had been resolved, but those items have estimated completion dates associated with them.

One issue not identified by the FHI RA Team was the lack of thoroughness by the 324 Facility to address the areas for improvement noted in the *324 Readiness Self-Assessment Affidavit B1-2ISMS*. These areas for improvement dealt with enhancements in effective supervisor implementation of pre-job and post-job communications in support of maintaining an effective ISMS culture. There were three specific actions recommended for tracking in the Non-Deficiency Tracking System (NDTS) in support of the SNF RA. The contractor could not find if these items had been entered into the NDTS system. One of the three actions was discussed in some type of meeting forum (no attendance roster could be found), but the other two actions had either not been completed or it was vague as to the adequacy of completion. (CR-15-MG-O-1)

An additional opportunity for improvement not identified by the FHI RA Team was that improvements could be made to the *324 Building SNF Transfer Project Startup Plan to Operations* (CR-15-MG-O-2)

Criterion 2: *Facility management has reviewed and tracked post start issues.*

Facility management has reviewed and tracked post-start issues. One post-start issue is identified on the list of *324 SNF Startup Readiness Pre-and Post-Start Open Items*.

Conclusion

Based on the discussion above and in the FH RA report, the core requirement has not been met.

Issue(s)**Findings**

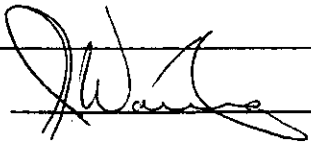
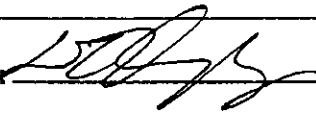
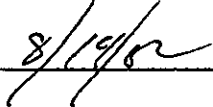
None.

Observations

- Areas for improvement noted in the *324 Readiness Self-Assessment Affidavit B1-2ISMS* were not completed prior to declaration of readiness. (CR-15-MG-O-1)
- Improvements could be made to HNF-10996, *324 Building SNF Transfer Project Startup Plan to Operations*, Appendix 1. (CR-15-MG-O-2)

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Management	CRITERIA MET: [] Yes [X] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE:

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

CRITERIA:

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Maintenance
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging maintenance activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Maintenance Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for the Maintenance Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations:

N/A

REVIEW:**Records Reviewed:**

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards
Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360
RWP M-02-364
Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs
Facility systems qualification training files
Facility systems course materials for HVAC, electrical, piping systems
OJT evaluations and OJT instructor evaluations
Training delinquency reports

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Individual training plans
Facility and Equipment Operability Checklist JCS
Maintenance package for Calibration of PCM-1B
Maintenance package for Fire Suppression System in B Cell
HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations
Transfer of Cask and Components into Airlock (mockup)
Cask Loading (mockup)
Cask Loadout from Airlock (mockup)
Cask Closure and Shipment (mockup)
Facility Drill involving a fire and contaminated individuals
Airlock Entry and Radcon Survey
Facility Drill testing accountability
Fuel Canister Vacuum Testing and Helium Backfill
AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work.

The mockup operations and drill observed went very well. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately. One instance of a safety hazard was noted which was immediately corrected (gate left open on the platform).

Criterion 1. Procedures and documentation were reviewed to ensure that the 324 spent nuclear fuel transfer project were adequate. The operations are similar to the solid waste disposal box operations in the recent past. Calculations show that the expected dose rates from the casks are less than those experienced from the solid wasted disposal boxes and the contaminations levels

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

may be similar. The procedures to be used show that the various organizations have developed adequate preparations for the expected conditions. Management has developed and implemented a mockup training program to ensure that personnel are very familiar with the operations involved with the fuel transfer.

Criterion 2. The specific training for the personnel has built on the existing knowledge of personnel in handling the solid waste disposal boxes which had higher dose rates than those expected for the casks and similar expected contamination rates. Adequate training is evident. Mockups of the conditions were observed to be as realistic as possible. Personnel were trained and knew each step of the evolution. The procedure for each evolution was read line by line and each hold point and inspection/survey result was announced for the benefit of all present.

Criterion 3. The personnel immediately corrected any discrepancies found. It was evident that they were looking out for each other.

Criterion 4. On several occasions, personnel noted contamination control and safety discrepancies and corrected them immediately. There were a few contamination control situations which occurred but they were isolated and did not indicate any breakdown in the overall contamination control program.

Criterion 5. Interviews showed that some personnel were weak in ISMS terminology but were actively engaged in carrying out the principles.

CONCLUSIONS:

The facility meets core requirement #1 for maintenance.

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 -- READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE:

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

CRITERIA:

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for the Operations functional area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW:

Records Reviewed:

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Fluor Hanford Inc. Radiological Controls Project Assessment Cards
Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
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HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
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324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPI-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPI-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
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HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360
RWP M-02-364
Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs
Facility systems qualification training files
Facility systems course materials for HVAC, electrical, piping systems
OJT evaluations and OJT instructor evaluations
Training delinquency reports
Individual training plans
Facility and Equipment Operability Checklist JCS
Maintenance package for Calibration of PCM-1B
Maintenance package for Fire Suppression System in B Cell
HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations

Transfer of Cask and Components into Airlock (mockup)

Cask Loading (mockup)

Cask Loadout from Airlock (mockup)

Cask Closure and Shipment (mockup)

Facility Drill involving a fire and contaminated individuals

Airlock Entry and Radcon Survey

Facility Drill testing accountability

Fuel Canister Vacuum Testing and Helium Backfill

AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer.

The mockup operations and drill observed went very well. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately. One instance of a safety hazard was noted which was immediately corrected (gate left open on the platform).

Personnel seemed to be well practiced on the mockups of the fuel transfer operations observed. The personnel had performed similar operations for the solid waste disposal boxes which had higher dose rates and similar contamination levels. The use of mockups not only trained the personnel but it allowed management to determine where improvements were needed in procedures.

Criterion 1. The pre-job briefing establishes the lines of control in the particular task at hand. Personnel are given their specific assignments and are given the opportunity to ask questions and clarify anything of concern.

Criterion 2. The senior management has taken the approach that safety is of such importance that each step of the process has been extensively mocked up to ensure that each part of the procedure can function properly.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

CONCLUSIONS:

The facility meets core requirement #2 for maintenance.

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE:

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

CRITERIA:

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW:**Records Reviewed:**

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards
Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-4	DATE: August 14, 2002

RWP M-02-364

Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs

Facility systems qualification training files

Facility systems course materials for HVAC, electrical, piping systems

OJT evaluations and OJT instructor evaluations

Training delinquency reports

Individual training plans

Facility and Equipment Operability Checklist JCS

Maintenance package for Calibration of PCM-1B

Maintenance package for Fire Suppression System in B Cell

HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications

HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training

HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading

324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002

Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations

Transfer of Cask and Components into Airlock (mockup)

Cask Loading (mockup)

Cask Loadout from Airlock (mockup)

Cask Closure and Shipment (mockup)

Facility Drill involving a fire and contaminated individuals

Airlock Entry and Radcon Survey

Facility Drill testing accountability

Fuel Canister Vacuum Testing and Helium Backfill

AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

From observation of the mockups, personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the controls necessary to perform the work. The operations personnel were some of those who caught the improper wearing of protective clothing and helped personnel correct their errors.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

The mockup operations and drill observed went very well. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately. One instance of a safety hazard was noted which was immediately corrected (gate left open on the platform).

Criterion 1. The operators have sufficient knowledge of the spent fuel operations. They have demonstrated this during past heavy and high radiation and high radioactive contamination shipments of the solid waste disposal boxes. The double bagging technique with tear-away outer bag as the cask comes out of the airlock technique has worked well in the past and appeared to go well in the mockup. This technique shows the knowledge of the operators and their understanding for the need to control contamination using special techniques.

Criterion 2. The use of double bagging with a tear-away outer bag is evidence of a practical solution to the contamination problem developed by the cooperative efforts of the various groups of personnel.

Criterion 3. The use of mockups showed that the operators and RCTs are able to perform the normal operations. Abnormal events were handled by introducing simulated readings during mockup training to determine what the response of personnel would be. The drill simulated a fire causing the evacuation of the building with some personnel contaminated. The spent fuel operations were performed adequately.

Criterion 4. Operations personnel were aware of the safety class structures and the associated HVAC.

Criterion 5. The use of mockups showed that the operators and RCTs are able to perform the normal operations. Abnormal events were handled by introducing simulated readings during mockup training to determine what the response of personnel would be. The drill simulated a fire causing the evacuation of the building with some personnel contaminated. The spent fuel operations were performed adequately.

The successful performance of the mockup training and the drill showed that personnel are primed and ready for the real transfer of the fuel, using procedures which have been tested.

Criterion 6. The technical support personnel have performed calculations to determine the maximum dose rates for gammas and neutrons expected on the outside of the cask, so that all personnel will be prepared for the worst case. Contamination levels have been successfully handled on the solid waste disposal boxes by the use of a double bag system with the outer bag as a tear-away. The management and technical support have thought the process through and so have demonstrated adequate knowledge of the process.

Criterion 7. Procedure compliance was tested by the mockup sessions. The crew read the procedures line-by-line to ensure that nothing was missed. There was sufficient emphasis on the stop work authority at the pre-job brief.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [☒] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

CONCLUSIONS:

The facility meets core requirement #4 for maintenance.

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE:

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

CRITERIA:

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW:**Records Reviewed:**

The following records have been reviewed:

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards
Flour Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360
RWP M-02-364
Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs
Facility systems qualification training files
Facility systems course materials for HVAC, electrical, piping systems
OJT evaluations and OJT instructor evaluations
Training delinquency reports
Individual training plans
Facility and Equipment Operability Checklist JCS-
Maintenance package for Calibration of PCM-1B
Maintenance package for Fire Suppression System in B Cell
HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations

Transfer of Cask and Components into Airlock (mockup)

Cask Loading (mockup)

Cask Loadout from Airlock (mockup)

Cask Closure and Shipment (mockup)

Facility Drill involving a fire and contaminated individuals

Airlock Entry and Radcon Survey

Facility Drill testing accountability

Fuel Canister Vacuum Testing and Helium Backfill

AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

The mockup operations and drill observed went very well. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately.

Personnel in the mockup situations frequently did not write down the measurements which were taken, including, in some instances, actual contamination on the cask lid. During the real fuel transfers, the measurements would be real and must be recorded. In order to accomplish the task, it may be necessary to add another person just to be a recorder to leave the existing personnel available for performing the operations expeditiously so as not to delay the fuel transfer operations. Adequate numbers of personnel are available to perform these functions but an extra person may be needed backside.

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work.

Criterion 1. The facility has sufficient personnel to staff the upcoming operations. The observations of the mockups showed that perhaps an additional person might be needed just to record measurements and read the procedure.

Criterion 2. The staffing of the facility is sufficient for the upcoming operations as evidenced by the observations of the mockups.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

CONCLUSIONS:

The facility meets core requirement #6 for maintenance.

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-8	DATE: August 13, 2002

OBJECTIVE:

A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examinations of records of tests and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work.

CRITERIA:

1. Confirmation of continued compliance with 324 Building B-Cell Spent Fuel Packaging safety requirements, including clearly defined surveillance intervals and periodic self-assessments, is required by procedures. (DOE Order 425.1A)
2. Adequate 324 Building B-Cell Spent Fuel Packaging surveillance test procedures and acceptance criteria have been established to support safe operation and are consistent with the approved operating basis. (DOE Order 5480.22, paragraphs 9, 10, Attachment 1, Background; DOE Order 5480.23, paragraph 8, Attachment 1, Section 4)
3. Completed 324 Building B-Cell Spent Fuel Packaging surveillances and tests are reviewed and follow up actions are documented. (DOE Order 5480.22, paragraph 9.e; DOE Order 5480.19, Chapters I and II)
4. Approved 324 Building B-Cell Spent Fuel Packaging test procedures are based on safety analysis report requirements and have been used to establish and verify operability of safety systems. (DOE Order 5480.22, paragraph 9.3; DOE Order 5480.23, paragraph 8, Attachment 1, Section 4)
5. The maintenance program defines program requirements for corrective maintenance, preventive maintenance and post-maintenance testing of systems required for the 324 Building B-Cell Spent Fuel Packaging Project
6. The preventive maintenance backlog for systems important to the 324 Building B-Cell Spent Fuel Packaging Project is defined in the preventive maintenance recall list, with no overdue preventive maintenance item that impact operation.

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-8	DATE: August 13, 2002

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW:**Records Reviewed:**

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards
Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-8	DATE: August 13, 2002

RWP M-02-360

RWP M-02-364

Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs

Facility systems qualification training files

Facility systems course materials for HVAC, electrical, piping systems

OJT evaluations and OJT instructor evaluations

Training delinquency reports

Individual training plans

Facility and Equipment Operability Checklist JCS

Maintenance package for Calibration of PCM-1B

Maintenance package for Fire Suppression System in B Cell

HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications

HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training

HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading

324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002

Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations

Transfer of Cask and Components into Airlock (mockup)

Cask Loading (mockup)

Cask Loadout from Airlock (mockup)

Cask Closure and Shipment (mockup)

Facility Drill involving a fire and contaminated individuals

Airlock Entry and Radcon Survey

Facility Drill testing accountability

Fuel Canister Vacuum Testing and Helium Backfill

AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

Criterion 1. Review of the maintenance packages for the calibration of the PCM-1B and the fire suppression systems showed that periodic maintenance is being performed on the systems as required.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-8	DATE: August 13, 2002

Criterion 2. The spent fuel transfer procedures have surveillance hold points for QC, radcon, and nuclear safety. The hold points have specific acceptance criteria. The mockup testing operations showed that personnel were adhering to these hold points.

Criterion 3. The hold point surveillances are reviewed and signed off by the SMEs before the operations can proceed.

Criterion 4. The procedural hold points are based on SAR requirements, for example, to prevent excessive radiolysis of water generating hydrogen pressure in the canister.

Criterion 5. The maintenance program defines program requirements for corrective maintenance, preventive maintenance and post-maintenance testing of systems required for the 324 Building B-Cell Spent Fuel Packaging Project

Criterion 6. The preventive maintenance backlog for systems important to the 324 Building B-Cell Spent Fuel Packaging Project is defined in the preventive maintenance recall list, with no overdue preventive maintenance item that impact operation.

CONCLUSIONS:

The facility meets core requirement #8 for maintenance.

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/17/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-9	DATE: August 14, 2002

OBJECTIVE:

The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

CRITERIA:

1. Documentation for system modifications related to 324 Building B-Cell Spent Fuel Packaging exists and is kept current. (DOE-STD-1073-93, Chapter 1.3)
2. Drawings and other documentation relied upon for 324 Building B-Cell Spent Fuel Packaging operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW:

Records Reviewed:

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection
Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-9	DATE: August 14, 2002

Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360
RWP M-02-364
Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs
Facility systems qualification training files
Facility systems course materials for HVAC, electrical, piping systems
OJT evaluations and OJT instructor evaluations
Training delinquency reports
Individual training plans
Facility and Equipment Operability Checklist JCS
Maintenance package for Calibration of PCM-1B
Maintenance package for Fire Suppression System in B Cell
HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-9	DATE: August 14, 2002

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations

Transfer of Cask and Components into Airlock (mockup)

Cask Loading (mockup)

Cask Loadout from Airlock (mockup)

Cask Closure and Shipment (mockup)

Facility Drill involving a fire and contaminated individuals

Airlock Entry and Radcon Survey

Facility Drill testing accountability

Fuel Canister Vacuum Testing and Helium Backfill

AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the controls necessary to perform the work. The mockup operations, drill and airlock entry observed went very well. Procedures were followed as continuous use procedures. There was a procedure reader separate from the Person In Charge. The documentation for the fuel transfer is in place and has been appropriately updated.

Criterion 1. Documentation necessary for the spent fuel transfer is kept current as evidenced by the new RWP and the 3 new procedures for the fuel transfer operations. New maintenance requirements are minimal.

Criterion 2. The documentation is according to the as built conditions of the facility. For example, this was checked to ensure that the cask would fit into the door of the airlock and a mockup of the doorway was made for purposes of the mockup. Maintenance documents such as the maintenance packages for the calibration of the personnel contamination monitors and work on the fire suppression system were reviewed and found to be up-to-date.

CONCLUSIONS:

The facility meets core requirement #9 for maintenance.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-9	DATE: August 14, 2002

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u><i>FM Roddy</i></u> Frank Roddy	Approved: <u><i>[Signature]</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-10	DATE: August 14, 2002

OBJECTIVE:

There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

CRITERIA:

1. Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e.; DOE Order 5480.19, Chapter XVI)
2. The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)
5. 324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A Criterion 5)
6. Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility
7. An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.
8. An automated job hazard analysis of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.
9. Administrative procedures as defined in the POA, Appendix A, are prepared, approved and implemented.

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW:**Records Reviewed:**

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards
Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

RWP M-02-364

Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs

Facility systems qualification training files

Facility systems course materials for HVAC, electrical, piping systems

OJT evaluations and OJT instructor evaluations

Training delinquency reports

Individual training plans

Facility and Equipment Operability Checklist JCS

Maintenance package for Calibration of PCM-1B

Maintenance package for Fire Suppression System in B Cell

HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications

HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training

HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading

324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002

Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations

Transfer of Cask and Components into Airlock (mockup)

Cask Loading (mockup)

Cask Loadout from Airlock (mockup)

Cask Closure and Shipment (mockup)

Facility Drill involving a fire and contaminated individuals

Airlock Entry and Radcon Survey

Facility Drill testing accountability

Fuel Canister Vacuum Testing and Helium Backfill

AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

Criterion 1. The 3 new procedures for fuel transfer incorporate the safety requirements for the facility. The maintenance procedures reviewed for the calibration of the personnel contamination monitors and the maintenance of the fire suppression system in B cell incorporate the safety precautions necessary.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

Criterion 2. The parameters of the safety requirements were complied with by the facility during observations of the mockup operations and by review of the maintenance packages for the calibration of the personnel contamination monitors and the maintenance of the fire suppression system for B cell. For example, 10CFR835 requires that the maintenance records for the personnel contamination monitors be maintained as a permanent record. The maintenance records of 324 in this regard are superior to those of other facilities on site.

Criterion 5. The procedures for the fuel transfer are in continuous use as was observed in the mockup operations. The abnormal conditions procedures were followed in the situations where the personnel responded to an alarming electronic dosimeter, a radio failure on a person inside the airlock and a torn outer PPE suit on a person inside the airlock. For maintenance procedures, when a personnel contamination monitor failed, it was repaired and recalibrated according to the procedures.

Criterion 6. The procedures used for the fuel transfer are up-to-date and are in continuous use in the mockup operations so it is immediately obvious if the procedures would not work or if corrections are needed. Maintenance procedures are not significantly affected by the movement of fuel.

Criterion 7. An ALARA review of the operations has been performed and, as a consequence, a shield ring was added so that the welders exposures would be minimized. The operations in general were tested during the movement of highly radioactive material in the shipment of the solid waste disposal boxes and the procedures were refined based on that project to ensure that ALARA requirements were being adequately addressed.

Criterion 8. An AJHA for the fuel transfer has been completed. An AJHA meeting for the facility and equipment operability checklist JCS was observed. This AJHA was for movement of tools and materials from building 306 (where they were being used for mockup training) down to building 324 where they will be used for the actual fuel transfer and for the testing, calibration and maintenance on that equipment.

Criterion 9. The 3 new procedures for the spent fuel transfer are in continuous use as observed in the mockup operations. These procedures were developed based on procedures used for the successful operations in moving the waste material in the solid waste disposal boxes and have been refined in the process of the mockup operations.

CONCLUSIONS:

The facility meets core requirement #10 for maintenance.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u><i>FM Roddy</i></u> Frank Roddy	Approved: <u><i>DCH</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

OBJECTIVE:

The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline

CRITERIA:

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
6. Personnel understand their roles and responsibilities

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-13	DATE: August 14, 2002

REVIEW:**Records Reviewed:**

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards
Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360
RWP M-02-364
Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs
Facility systems qualification training files
Facility systems course materials for HVAC, electrical, piping systems
OJT evaluations and OJT instructor evaluations
Training delinquency reports
Individual training plans
Facility and Equipment Operability Checklist JCS
Maintenance package for Calibration of PCM-1B

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

Maintenance package for Fire Suppression System in B Cell
HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations
Transfer of Cask and Components into Airlock (mockup)
Cask Loading (mockup)
Cask Loadout from Airlock (mockup)
Cask Closure and Shipment (mockup)
Facility Drill involving a fire and contaminated individuals
Airlock Entry and Radcon Survey
Facility Drill testing accountability
Fuel Canister Vacuum Testing and Helium Backfill
AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

The conduct of operations was generally very good. Personnel repeated back the information to ensure that it was understood and recorded correctly. There was only one instance where the information was not correctly recorded and that was due to the originator not correcting the incorrect repeat-back.

Criterion 1. The conduct of operations is good. The continual use procedures are being followed and hold points are announced. There is a separate reader for the procedures other than the Person In Charge.

Criterion 2. Personnel have been trained in procedures since they are following a continuous use procedure and are using repeat-backs properly.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-13	DATE: August 14, 2002

Criterion 3. Weaknesses in the conduct of operations were corrected when identified. For example, when personnel had a tendency to step over the high contamination area boundary due to crowding, the chain boundary was moved to provide more space.

Criterion 4. Operations in the mockup runs and the airlock entry demonstrated that procedures were being followed.

Criterion 6. Personnel understood their roles and responsibilities as demonstrated in the mockup sessions and airlock entry.

CONCLUSIONS:

The facility meets core requirement #13 for maintenance.

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>DCH</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE:

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

CRITERIA:

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW:**Records Reviewed:**

The following records have been reviewed:

HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection
Workplace Air Monitoring
Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
HNF-1232, PHMC Performance Objectives and Criteria
Fluor Hanford Inc. Radiological Controls Project Assessment Cards

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Fluor Hanford Inc. Radiological Controls Program Assessment Cards
Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
HNF-4610, 324 Building Safety Equipment List
324 Maintenance Procedures Table of Contents
324 Hot Cell Procedure Index
HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
324 Test Accountability, ACCT-001, Drill Package
RWP M-02-360
RWP M-02-364
Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs
Facility systems qualification training files
Facility systems course materials for HVAC, electrical, piping systems
OJT evaluations and OJT instructor evaluations
Training delinquency reports
Individual training plans
Facility and Equipment Operability Checklist JCS
Maintenance package for Calibration of PCM-1B
Maintenance package for Fire Suppression System in B Cell
HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Positions Interviewed:

Maintenance supervisor

Evolutions/Operations Observed:

The following evolutions/ operations were observed:

Cask Preparations

Transfer of Cask and Components into Airlock (mockup)

Cask Loading (mockup)

Cask Loadout from Airlock (mockup)

Cask Closure and Shipment (mockup)

Facility Drill involving a fire and contaminated individuals

Airlock Entry and Radcon Survey

Facility Drill testing accountability

Fuel Canister Vacuum Testing and Helium Backfill

AJHA Meeting on Facility and Equipment Operability Checklist JCS

DISCUSSION OF RESULTS:

Feedback of an informal nature was good among the personnel. When it became known that the cramped areas along the boundaries of the high contamination area chains were leading to potential violations of the boundaries by personnel, the RCTs made a straight line across the cask handling area giving the operations personnel more room for the activities.

Criterion 1. There are no facility pre-start maintenance issues.

Criterion 2. There are no facility post-start maintenance issues.

CONCLUSIONS:

The facility meets core requirement #15 for maintenance.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Maintenance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-15	DATE: August 14, 2002

ISSUES (FINDINGS/OBSERVATIONS):

No issues were noted.

Inspector: <u><i>FM Roddy</i></u> Frank Roddy	Approved: <u><i>DH</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Radiological Controls

2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach**Record Review**

Determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
- 324 Hot Cell Procedure Index
- 324 Maintenance *Procedures* Table of Contents
- 324 *Test Accountability, ACCT-001, Drill Package*
- *AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360*
- *AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662*
- *AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642*
- CP-FIRE-001, *Central Plateau Project Drill Package, Fire at 324*
- ED-062, *324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment*
- Facility and Equipment Operability Checklist JCS
- Facility systems course materials for heating, ventilation, and air conditioning (HVAC), electrical, piping systems
- Facility systems qualification training files
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003*
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*
- HNF-1232, *PHMC Performance Objectives and Criteria*
- HNF-4610, *324 Building Safety Equipment List*
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading*
- HNF-IP-1277, *River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- Individual training plans
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*
- Maintenance package for Calibration of PCM-1B

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

- Maintenance package for Fire Suppression System in B cell
- On-the-Job (OJT) evaluations and OJT instructor evaluations
- RWP M-02-360
- RWP M-02-364
- Standard Operating Procedure 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- Standard Operating Procedure 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- Standard Operating Procedure 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*
- Training delinquency reports
- Training qualification record files for persons in charge, crane operators, Nuclear Chemical Operator, Radiological Control Technicians (RCT).

Interviews Conducted

- RCTs
- Operations personnel.

Observations

- Airlock entry and radcon survey
- Automated Job Hazard Analysis meeting on facility and equipment operability checklist Job Control System
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask loadout from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion Of Results

Interviews with two RCTs showed that they were aware of the 10CFR835 annual limits but not the administrative limits in HNF-5173, *Fluor Hanford Radiological Controls Manual*. They were aware of their current doses and their current dose extension levels. Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work.

The mockup operations and drill observed went very well for radiological controls activities. A few instances of contamination control errors were noted but most were also noted by the facility

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

personnel. The proper corrective actions were taken immediately. One instance of a safety hazard was noted which was immediately corrected (gate left open on the platform).

Criterion 1: Procedures and documentation were reviewed to ensure that the 324 spent nuclear fuel transfer project were adequate for radiological operations. The radiological operations are similar to the solid waste disposal box operations in the recent past. Calculations show that the expected dose rates from the casks are less than those experienced from the solid wasted disposal boxes and the contaminations levels may be similar. The procedures to be used show that the radiological control organization has developed adequate preparations for the expected conditions. Management has developed and implemented a mockup training program to ensure that personnel are very familiar with the operations involved with the fuel transfer.

Criterion 2: The specific training for the personnel has built on the existing knowledge of personnel in handling the solid waste disposal boxes, which had higher dose rates than those expected for the casks and similar expected contamination rates. Adequate training in contamination control techniques is evident. Mockups of the conditions were observed to be as realistic as possible. Personnel were trained and knew each step of the evolution. The procedure for each evolution was read line by line and each hold point and inspection/survey result was announced for the benefit of all present.

Criterion 3: The personnel immediately corrected any discrepancies found. It was evident that they were looking out for each other.

Criterion 4: On several occasions, RCT and operations personnel noted contamination control and safety discrepancies and corrected them immediately. There were a few contamination control situations which occurred but they were isolated and did not indicate any breakdown in the overall contamination control program.

Criterion 5: Interviews showed that some personnel were weak in ISMS terminology but were actively engaged in carrying out the principles.

Conclusion

The facility meets core requirement -1 for radiological controls.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

Issue(s)

Findings

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for the Operations functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control CORE REQUIREMENT-2	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002*
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- 324 Test Accountability, ACCT-001, Drill Package
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- CP-FIRE-001, *Central Plateau Project Drill Package, Fire at 324*
- ED-062, *324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment*
- Facility and Equipment Operability Checklist JCS
- Facility systems course materials for HVAC, electrical, piping systems
- Facility systems qualification training files
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations
- HNF-1232, *PHMC Performance Objectives and Criteria*
- HNF-4610, *324 Building Safety Equipment List*
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading*
- HNF-IP-1277, *River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- Individual training plans
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*
- OIA-2002-RA-003, *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- OJT evaluations and OJT instructor evaluations
- RWP M-02-360
- RWP M-02-364
- Training delinquency reports
- Training qualification record files for persons in charge, crane operators, NCOs, and Radiological Control Technicians.

FORM 1 -- READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Interviews Conducted

- Radiological Control Technicians
- Operations personnel.

Observations

- Cask preparations
- Transfer of cask and components into airlock (mockup)
- Cask loading (mockup)
- Cask load out from airlock (mockup)
- Cask closure and shipment (mockup)
- Facility drill involving a fire and contaminated individuals
- Fuel canister vacuum testing and helium backfill
- Airlock entry and radcon survey
- Fuel canister vacuum testing and helium backfill
- AJHA meeting on facility and equipment operability checklist JCS.

Discussion of Results

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work.

The mockup operations and drill observed went very well for radiological controls activities. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately. One instance of a safety hazard was noted which was immediately corrected (gate left open on the platform).

Personnel seemed to be well practiced on the mockups of the fuel transfer operations observed. The personnel had performed similar operations for the solid waste disposal boxes, which had higher dose rates and similar contamination levels. The use of mockups not only trained the personnel but allowed management to determine where improvements were needed in procedures.

Criterion 1: The pre-job briefing establishes the lines of control in the particular task at hand. Personnel are given their specific assignments and are given the opportunity to ask questions and clarify anything of concern.

Criterion 2: The senior management has taken the approach that safety is of such importance that each step of the process has been extensively mocked up to ensure that each part of the procedure can function properly.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Conclusion

The 324 SNF Project meets core requirement-2 for radiological controls.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach**Record Review**

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002*
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- *AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360*
- *AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662*
- *AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642*
- CP-FIRE-001, Central Plateau Project Drill Package, Fire at 324
- ED-062, *324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment Facility and Equipment Operability Checklist JCS*
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*
- HNF-1232, *PHMC Performance Objectives and Criteria*
- HNF-4610, *324 Building Safety Equipment List*
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading*
- HNF-IP-1277, *River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*
- *OIA-2002-RA-003, Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations.*

Interviews Conducted

- Radiological Control Technicians (RCT)
- Operations personnel.

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask load out from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion Of Results

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work. The operations personnel included those who caught the improper wearing of protective clothing and helped personnel correct their errors.

The mockup operations and drill observed went very well for radiological controls activities. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately. One instance of a safety hazard was noted that was immediately corrected (gate left open on the platform).

Criterion 1: The operators have sufficient knowledge of radiological controls. They have demonstrated this during past heavy and high radiation and high-radioactive contamination shipments of the solid waste disposal boxes. The double-bagging technique with tear-away outer bag as the cask comes out of the airlock technique has worked well in the past and appeared to go well in the mockup. This technique shows the knowledge of the operators and their understanding for the need to control contamination using special techniques.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Criterion 2: The use of double bagging with a tear-away outer bag is evidence of a practical solution to the contamination problem developed by the cooperative efforts of the various groups of personnel.

Criterion 3: The use of mockups showed that the operators and Radiological Control Technicians are able to perform normal operations. Abnormal events were handled by introducing simulated readings during mockup training to determine what the response of personnel would be. The drill simulated a fire causing the evacuation of the building with some personnel contaminated. The radiological activities were performed adequately.

Criterion 4: Operations personnel were aware of the safety class structures and the associated HVAC.

Criterion 5: The use of mockups showed that the operators and RCTs are able to perform the normal operations. Abnormal events were handled by introducing simulated readings during mockup training to determine what the response of personnel would be. The drill simulated a fire causing the evacuation of the building with some personnel contaminated. The radiological activities were performed adequately.

The successful performance of the mockup training and the drill showed that personnel are primed and ready for the real transfer of the fuel, using procedures that have been tested.

Criterion 6: Technical support personnel have performed calculations to determine the maximum dose rates for gammas and neutrons expected on the outside of the cask, so that all personnel will be prepared for the worst case. Contamination levels have been successfully handled on the solid waste disposal boxes by the use of a double bag system with the outer bag as a tear-away. Management and technical support have thought the process through and have demonstrated adequate knowledge of the process.

Criterion 7: Procedure compliance was tested by the mockup sessions. The crew read the procedures line by line to ensure that nothing was missed. There was sufficient emphasis on the stop work authority at the pre-job brief.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Conclusion

The 324 Building SNF Project meets core requirement-4 for radiological controls.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Not applicable.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

Record Review

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM).*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002*
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- *AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360*
- *AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662*
- *AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642*
- *Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001*
- *ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment*
- *Facility and Equipment Operability Checklist JCS*
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*
- *HNF-1232, PHMC Performance Objectives and Criteria*
- *HNF-4610, 324 Building Safety Equipment List*
- *HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- *HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- *HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- *HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training*
- *HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading*
- *HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- *HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements*
- *HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*
- *OIA-2002-RA-003, Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*

Interviews Conducted

- Radiological Control Technicians (RCT)
- Operations personnel.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control CORE REQUIREMENT-6	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask load out from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion Of Results

The mockup operations and drill observed went very well for radiological controls activities. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately.

RCTs in the mockup situations frequently did not write down the measurements that were taken, including in some instances, actual contamination on the cask lid. During the real fuel transfers, the radiation levels and contamination levels would be real and must be recorded. To accomplish the task, it may be necessary to add another RCT just to be a recorder to leave the existing RCTs available for performing the surveys expeditiously so as not to delay the fuel transfer operations. Adequate numbers of RCT personnel are available to perform these functions but an extra person may be needed on the backside.

Interviews with two RCTs indicated they were aware of 10CFR835 annual limits but not the limits in HNF-5173, *Fluor Hanford Radiological Controls Manual*. They were aware of their current doses and current dose extension levels. Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work.

Criterion 1: The facility has sufficient RCT and operations personnel to staff the upcoming operations. The observations of the mockups showed that perhaps an additional RCT might be needed to record the results of the radiation level surveys and counts on contamination samples.

Criterion 2: Facility staffing is sufficient for the upcoming operations as evidenced by the observations of the mockups.

Conclusion

The 324 Building SNF Project meets core requirement-6 for radiological controls.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>Frank Roddy</u> Frank Roddy	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-9	DATE: August 14, 2002

OBJECTIVE

The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

Criteria

1. Documentation for system modifications related to 324 Building B-Cell Spent Fuel Packaging exists and is kept current. (DOE-STD-1073-93, Chapter 1.3)
2. Drawings and other documentation relied upon for 324 Building B-Cell Spent Fuel Packaging operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Not applicable.

Record Review

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002*
- 324 Hot Cell Procedure Index

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-9	DATE: August 14, 2002

- 324 Maintenance Procedures Table of Contents
- *AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360*
- *AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662*
- *AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642*
- *CP-FIRE-001, Central Plateau Project Drill Package, Fire at 324*
- *ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment*
- Facility and Equipment Operability Checklist JCS
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*
- *HNF-1232, PHMC Performance Objectives and Criteria*
- *HNF-4610, 324 Building Safety Equipment List*
- *HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- *HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- *HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- *HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training*
- *HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading*
- *HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- *HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements*
- *HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*
- *OIA-2002-RA-003, Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations.*

Interviews Conducted

- Radiological Control Technicians
- Operations personnel.

Observations

- Airlock entry and survey of airlock
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask load out from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-9	DATE: August 14, 2002

- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion Of Results

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work.

The mockup operations, drill and airlock entry observed went very well for radiological controls activities. A few instances of contamination control errors during the mockup operations were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately. One instance of a safety hazard was noted that was immediately corrected (gate left open on the platform). Procedures were followed for the alarming electronic dosimeter and the torn personnel protective equipment (PPE) for the airlock entry.

Procedures were followed as continuous-use procedures. There was a procedure reader separate from the person in charge.

A job-specific Radiological Work Permit (RWP) was developed for the airlock entry and survey, which was performed. The robot was intended to be moved to B cell but the job was stopped because a hole in the outer layer of the PPE was discovered by the RCT while performing the survey. The RCT's radio had also just failed.

The documentation for the fuel transfer is in place and has been appropriately updated.

Criterion 1: Documentation necessary for the spent fuel transfer is kept current as evidenced by the new RWP.

Criterion 2: The documentation is according to the as-built conditions of the facility. For example, this was checked to ensure the cask would fit into the door of the airlock and a mockup of the doorway was made for purposes of the mockup.

Conclusion

The 324 Building SNF Project meets core requirement - 9 for radiological controls.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-9	DATE: August 14, 2002

Issue(s)

Findings

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-11	DATE: August 14, 2002

OBJECTIVE

A routine drill program and emergency operations drill program, including program records, have been established and implemented.

Criteria

1. An effective emergency preparedness program, which reflects specific SNF activity-based drills, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 151.1; DOE Order 5480.20A, Chapter I)
2. An effective routine operations drill program, reflecting SNF activities, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 425.1A)
3. Approved emergency plan and supporting documents are in place and the plan encompasses the 324 Building B-Cell Spent Fuel Packaging Project and new equipment.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-11	DATE: August 14, 2002

Record Review

- 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002*
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- CP-FIRE-001, Central Plateau Project Drill Package, Fire at 324
- ED-062, *324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment Facility and Equipment Operability Checklist JCS*
- Fluor Hanford, Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford, Inc. Radiological Controls Project Assessment Cards
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*
- HNF-1232, PHMC Performance Objectives and Criteria
- HNF-4610, *324 Building Safety Equipment List*
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading*
- HNF-IP-1277, *River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
- OIA-2002-RA-003, *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM).

Interviews Conducted

- Radiological Control Technicians
- Operations personnel

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-11	DATE: August 14, 2002

Observations

- Cask Preparations
- Transfer of Cask and Components into Airlock (mockup)
- Cask Loading (mockup)
- Cask Loadout from Airlock (mockup)
- Cask Closure and Shipment (mockup)
- Facility Drill involving a fire and contaminated individuals
- Airlock Entry and Radcon Survey
- Fuel Canister Vacuum Testing and Helium Backfill
- AJHA Meeting on Facility and Equipment Operability Checklist JCS

Discussion of Results

The mockup operations, the drill and the airlock entry were handled well. Three actual incidents occurred in the course of the airlock entry and all responses were appropriate. There was a failure of an electronic dosimeter. The person with the failed dosimeter was required to leave the area due to a pegged high dosimeter and obtain another dosimeter. Other personnel in the same location did not have any noticeable change in their dosimeters so it was a dosimeter failure rather than an overexposure condition. Next, the radio on the person inside the airlock failed and a relay of information was being set up since that person was near the doorway. Immediately after that, the person inside the airlock noticed that there was a tear in his outer PPE. At that point the Person In Charge ended the entry. The person inside the airlock was cut out of his outer layer and was found not to be contaminated. No contamination was found outside the airlock. The responses to the actual incidents were more instructive as to the abilities of the personnel to handle unexpected and emergency situations than a planned drill.

Criterion 1: The emergency preparedness program is satisfactory as evidenced by the adequate radiological controls shown during the drill, mockups and the actual incidents during the airlock entry.

Criterion 2: The handling of the three incidents during the airlock entry showed that the personnel are well trained in the routine operations and associated incidents.

Criterion 3: The spent fuel-packaging project will involve airlock entries similar to the one observed and similar to those for the removal of the solid waste disposal boxes. The existing emergency plan and supporting documents will support the fuel movement as shown by the mockup training according to the procedures.

Conclusion

The facility meets core requirement -11 for radiological controls.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-11	DATE: August 14, 2002

Issue(s)**Findings**

None

Observations

None

Inspector: <u>FRM Roddy</u> Frank Roddy	Approved: <u>SDH</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control CORE REQUIREMENT-13	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

OBJECTIVE

The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline

Criteria

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
6. Personnel understand their roles and responsibilities

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-13	DATE: August 14, 2002

Record Review

- 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002*
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- *AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360*
- *AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662*
- *AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642*
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- ED-062, *324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment*
- Facility and Equipment Operability Checklist JCS
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations.*
- HNF-1232, *PHMC Performance Objectives and Criteria*
- HNF-4610, *324 Building Safety Equipment List*
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading*
- HNF-IP-1277, *River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*
- OIA-2002-RA-003, *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*

Interviews Conducted

- Radiological Control Technicians
- Operations personnel.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS.
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask loadout from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup)

Discussion Of Results

The conduct of operations was generally very good. Personnel repeated back the information to ensure that it was understood and recorded correctly. There was only one instance where the information was not correctly recorded and that was due to the originator not correcting the incorrect repeat-back.

Criterion 1: The conduct of operations is good. The continual use procedures are being followed and hold points are announced. There is a separate reader for the procedures other than the person in charge.

Criterion 2: Personnel have been trained in procedures, as they are following a continuous-use procedure and are using repeat-backs properly.

Criterion 3: Weaknesses in the conduct of operations were corrected when identified. For example, when personnel had a tendency to step over the high-contamination area boundary due to crowding, the chain boundary was moved to provide more space.

Criterion 4: Operations in the mockup runs and the airlock entry demonstrated that procedures were being followed.

Criterion 6: Personnel understood their roles and responsibilities as demonstrated in the mockup sessions and airlock entry.

Other: The contractor Readiness Assessment does not have a functional area for radiological controls (CR-13-RC-O-01). The contractor readiness assessment report has a paragraph in the executive summary section and a few sentences buried in various Form 1 sections of the core requirements, but no thorough statement covering the radiological control aspects. There is one Form 2 for the functional area of radiological controls but it needs to have the corresponding Form 1s there for the appropriate core requirements to form the technical bases for the Form 2. The contractor did indeed perform a radiological controls assessment of the proposed operations

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

but did not treat it as a separate functional area so that no pass/fail recommendation was made except in the executive summary.

Conclusion

The facility meets core requirement - 13 for radiological controls.

Issue(s)**Findings**

None.

Observations

- The contractor Readiness Assessment does not have a functional area for radiological controls (CR-13-RC-O-01)

Inspector: <u>Frank Roddy</u> Frank Roddy	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*
- 324 *Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report*, July 2002
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

- 324 Test Accountability, ACCT-001, Drill Package
- AJHA ID: 31-360, *AJHA Report for Procedure 31-SOP-SNF-001*
- AJHA ID: 31-642, *AJHA Report for Procedure 31-SOP-SNF-003*
- AJHA ID: 31-662, *AJHA Report for Procedure 31-SOP-SNF-002*
- CP-FIRE-001, *Central Plateau Project Drill Package, Fire at 324*
- ED-062, *324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment*
- Facility and Equipment Operability Checklist JCS
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*
- Fluor Hanford, Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford, Inc. Radiological Controls Project Assessment Cards
- HNF-1232, *PHMC Performance Objectives and Criteria*
- HNF-4610, *324 Building Safety Equipment List*
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading*
- HNF-IP-1277, *River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*
- OIA-2002-RA-003, *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- RWP M-02-360
- RWP M-02-364.

Interviews Conducted

- Radiological Control Technicians
- Operations personnel.

Observations

- Airlock entry and Radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask loadout from airlock (mockup)
- Cask preparations

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Radiological Control	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion Of Results

Feedback of an informal nature was good among the RCTs. When it became known that the cramped areas along the boundaries of the high contamination area chains were leading to potential violations of the boundaries by personnel, the RCTs made a straight line across the cask handling area, giving the operations personnel more room for the activities.

Criterion 1: There are no facility pre-start radiological issues.

Criterion 2: There are no facility post-start radiological issues.

Conclusions**Issue(s)****Findings**

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Training

2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

- Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*
- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*
- *324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002*
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- 324 Test Accountability, ACCT-001, Drill Package
- *AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360*
- *AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662*
- *AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642*
- CP-FIRE-001, *Central Plateau Project Drill Package, Fire at 324*
- ED-062, *324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment*
- Facility and Equipment Operability Checklist JCS
- Facility systems course materials for HVAC, electrical, piping systems
- Facility systems qualification training files
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003*
- *Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations*
- HNF-1232, *PHMC Performance Objectives and Criteria*
- HNF-4610, *324 Building Safety Equipment List*
- HNF-8705, *SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading*
- HNF-IP-1277, *River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- Individual training plans
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

- OJT evaluations and OJT instructor evaluations
- RWP M-02-360
- RWP M-02-364
- Training delinquency reports
- Training qualification record files for Persons In Charge, crane operators, Nuclear Chemical Operators, and Radiological Control Technicians (RCT).

Interviews Conducted

- RCTs (five)
- Training office personnel (three).

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask load out from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion of Results

A major part of the training included the mockups, which had six scenes.

Scene 1 was the cask preparation and consisted of using a mobile crane to lift the box and empty cask onto the trailer, moving the trailer into the trucklock, taking the lid off of the box, moving the cask into the cask handling area, and removing the cask lid.

Scene 2 was the transfer of the cask into the airlock and consisted of using the bridge crane to lift the cask onto the cart (on rails leading to the airlock) and winching the cart into a mockup of the airlock opening. The airlock was not actually opened for this scene.

Scene 3 was the cask loading. This operation was staged at the 306 Building where it could be viewed more readily by the readiness assessment team. It included lifting the fuel from its original position over to the transfer thimble. It did not include simulation of loading the fuel into the cask.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

Scene 4 was the cask load out from the airlock. This involved winching the cask through the mockup of the airlock opening with the outer bag tearing away and remaining in the airlock, removing the second bag, and installing the cask lid.

Scene 5, held at the 306 Building, was the welding of the seals on the fuel canister, helium leak testing, and dye penetrant testing of the welds. The first mockup attempt did not suffice. The AAHS did not function and the welding, helium leak testing and dye penetrant testing were not attempted. The second attempt at scene 5 was satisfactory.

Scene 6 was the cask closure and shipment that involved use of the bridge crane to place the lid on the cask, loading the cask into the box, and placing the lid on the box. The repositioning of the box on the trailer was not mocked up in the first attempt but was in the second.

The use of mockups was essential in ensuring that personnel were trained in the specific tasks to be performed and to gain facility in performing them. It constituted the most important training for spent fuel movement. Another training episode for the movement of fuel was the transfer of the solid waste disposal boxes that contained highly radioactive materials, heavily shielded transport/storage boxes, and surface dose rates higher than those calculated for the spent fuel in the NAC-1 casks. The 324 Building operations personnel successfully transferred many of the solid waste disposal boxes without any significant incidents. The entry into the airlock using personnel in bubble hoods has been accomplished many times. The new items involved here are the movement of tall, thin casks with a higher center of gravity than the solid waste disposal boxes. The use of the electric winch to move the cart on the tracks provided a slow, steady motion that safely moved the cask during the mockup testing.

Criterion 1: The management support of training by means of the use of mockups has provided the essential training needed by personnel.

Criterion 2: The training program on the mockups has actively involved the facility personnel in the tasks to be performed in transferring the fuel. Personnel have ample opportunity to ask questions and get concerns addressed in the AJHA sessions and the pre-job briefings.

Criterion 3: There is no doubt among the personnel that safety is paramount. Management encourages personnel to voice their concerns at the pre-job and AJHA meetings.

Criterion 4: Personnel have been observed during the mockups correcting errors of other personnel in use of personal protective equipment and safety hazards. Personnel are encouraged to speak up if they have concerns at the AJHA sessions and the pre-job briefings.

Criterion 5: Interviews showed that some personnel were weak in Integrated Safety Management System terminology but were actively engaged in carrying out the principles.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

Conclusion

The facility meets the core requirement #1 for training.

Issue(s):**Findings**

Scene 5 needs more work. The second mockup test of this scene was a definite improvement over the first attempt.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for the Operations functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Records Reviewed

- HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- HNF-1232, PHMC Performance Objectives and Criteria
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask load out from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion of Results

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer. The training which they have received on the mockups and in movement of the solid waste disposal boxes gave them the necessary training to perform the work.

The mockup operations and drill observed went very well for training activities. One instance of a safety hazard was noted which was immediately corrected (gate left open on the platform).

Personnel seemed to be well practiced on the mockups of the fuel transfer operations observed. The personnel had performed similar operations for the solid waste disposal boxes which had higher dose rates and similar contamination levels. The use of mockups not only trained the personnel but it allowed management to determine where improvements were needed in procedures.

Criterion 1: The pre-job briefing establishes the lines of control in the particular task at hand. Personnel are given their specific assignments and are given the opportunity to ask questions and clarify anything of concern.

Criterion 2: The senior management has taken the approach that safety is of such importance that each step of the process has been extensively mocked up to ensure that each part of the procedure can function properly.

Conclusion

The facility meets core requirement-2 for training.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Issue(s)

Findings

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT- 3	DATE: August 14, 2002

OBJECTIVE

The selection, training and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers assures competence commensurate with responsibilities. (The training and qualification program encompasses the range of duties and activities required to be performed.)

Criteria

1. The tasks required for competent 324 Building B-Cell Spent Fuel Packaging job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. Learning objectives are derived from the analysis. (DOE Order 5480.20A, Chapter I)
2. Requirements for 324 Building B-Cell Spent Fuel Packaging continuing training have been adequately defined and programs have been developed. Continuing training includes conduct of realistic drills, regarding the SNF handling operations, to maintain proficiency in responding to abnormal and accident situations, including those involving radiological hazards. (DOE Order 5480.20A, Chapter I)
3. Training programs for operations and maintenance personnel involved in 324 Building B-Cell Spent Fuel Packaging operations include training on the requirements contained in the approved operating basis for the facility. (DOE Order 5480.20A, Chapter I)
4. Training programs for 324 Building B-Cell Spent Fuel Packaging operations and maintenance personnel emphasize the importance of compliance with procedures and safety requirements. (DOE Order 5480.20A, Chapter I)
7. Technical and management qualification of operations, radiological control, maintenance, and engineering personnel are adequate to perform SNF operational activities. (DOE Order 425.1A)
8. Training and Qualification programs for personnel involved in the SNF program are based on the latest modifications to the facility caused by the SNF operational activities. (DOE Order 5480.20A)
9. Training has been completed and documented for the latest revisions of procedures performed by operations personnel, supervisors, and shift technical advisors involved in the SNF program. (DOE Order 5480.20A)
10. The qualification of the weld process is in compliance with the American Society of Mechanical Engineers codes.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT- 3	DATE: August 14, 2002

11. Modifications to 324 Building B-Cell Spent Fuel Packaging project have been defined and reviewed for impacts to training and qualifications.

Approach

Records Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- 324 Test Accountability, ACCT-001, Drill Package
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
- Facility and Equipment Operability Checklist JCS
- Facility systems course materials for HVAC, electrical, piping systems
- Facility systems qualification training files
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 3	DATE: August 14, 2002

- Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations
- HNF-1232, PHMC Performance Objectives and Criteria
- HNF-4610, 324 Building Safety Equipment List
- HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
- HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
- HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
- HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
- HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
- HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- Individual training plans
- Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
- Maintenance package for Calibration of PCM-1B
- Maintenance package for Fire Suppression System in B Cell
- OJT evaluations and OJT instructor evaluations
- RWP M-02-360
- RWP M-02-364
- Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
- Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
- Training delinquency reports
- Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs.

Interviews Conducted

- Operations personnel (three).
- RCTs (five)
- Training personnel (three)

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask loadout from airlock (mockup)

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 3	DATE: August 14, 2002

- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion of Results

Criterion 1: The training program was developed from many sources. An AJHA was performed for the spent fuel transfer and the hazards were identified from that. Mockups were determined to be the best method to train personnel and were set up in buildings 324 and 306. The ALARA analyses were performed for dose rates through the cask walls, the shield plug, the canister to cask gap and temporary shielding was developed to minimize dose to the welders. A double bag was developed to prevent the spread of contamination. The lessons learned from the movement of the solid waste disposal boxes were incorporated into the current project. The mockups showed how these aspects of training were well incorporated into the project training. Interviews showed that personnel thought that their training definitely prepared them for the upcoming operations.

Criterion 2: Training was continuing with the mockup demonstrations for the readiness assessment teams. Drills were observed by the readiness assessment teams and went well except for accountability on the first drill, which was subsequently covered adequately on the second drill. Abnormal situations were handled well as seen by the response to an alarming dosimeter, a failed radio on a person inside the airlock and a torn PPE outer suit on a person inside the airlock.

Criterion 3: During the pre-job briefing, personnel were well aware of the required ventilation for an airlock entry in order to minimize the potential for airborne radioactivity.

Criterion 4: As described in criterion 3 above, personnel knew to evacuate if the HVAC were lost during an airlock entry.

Criterion 7: The technical qualifications and training records of personnel were reviewed to ensure that they had been trained in the prerequisite tasks and all training was up-to-date. Mockup operations showed that personnel were familiar with their required functions during the project.

Criterion 8: Personnel were familiar with the lessons learned from the movement of the solid waste disposal boxes which were higher in radiation level than the spent fuel casks and about the same contamination levels. The operations for the transfer of the spent fuel will be very similar to the movement of those boxes.

Criterion 9: Personnel training records were up-to-date. Personnel were required to attend the pre-job briefings and sign for their attendance. The latest RWP's had to be signed for as well.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 3	DATE: August 14, 2002

Personnel had to sign off on the latest versions of the procedures. These signoffs were checked by review of documents in the training office, and observation of the pre-job briefings and the mockup operations.

Criterion 10: The welding and the welders were qualified in accordance with the ASME codes. The test weld coupons were subjected to dye penetrant testing for the readiness assessment team's benefit and passed.

Criterion 11: A review of the training and qualification records in the training office showed that personnel were up-to-date on both.

Conclusion

The facility meets core requirement #3 for training.

Issues**Findings**

None.

Observations

None.

Inspector: <u>Frank Roddy</u> Frank Roddy	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT- 4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 4	DATE: August 14, 2002

Interview

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

- Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Records Reviewed

- HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- HNF-1232, PHMC Performance Objectives and Criteria
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
- Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
- HNF-4610, 324 Building Safety Equipment List
- 324 Maintenance Procedures Table of Contents
- 324 Hot Cell Procedure Index
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
- ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
- Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
- Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
- HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
- 324 Test Accountability, ACCT-001, Drill Package
- RWP M-02-360

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 4	DATE: August 14, 2002

- RWP M-02-364
- Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs
- Facility systems qualification training files
- Facility systems course materials for HVAC, electrical, piping systems
- OJT evaluations and OJT instructor evaluations
- Training delinquency reports
- Individual training plans
- Facility and Equipment Operability Checklist JCS
- HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
- HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
- HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
- Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations

Interviews Conducted

Interviews were conducted with 5 RCTs and 3 training office personnel.

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask loadout from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup)

Discussion of Results

Criterion 1: Operator knowledge is adequate for spent fuel transfer operations as shown by the mockup work and by the successful transfer of the solid waste disposal boxes.

Criterion 2: The training records for personnel and the training courses on the 324 systems such as HVAC, electrical, and piping systems were reviewed. All personnel are required to learn about these necessary systems.

FORM 1 -- READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 4	DATE: August 14, 2002

Criterion 3: Personnel demonstrated the ability to handle real abnormal conditions when there was a failure of an electronic dosimeter, a radio failure on a person in a bubble hood inside the airlock, and a tear in the outer PPE of a person inside the airlock. Drill response was adequate with the exception of accountability on the first drill. The second drill was satisfactory with no exceptions.

Criterion 4: The review of the training courses for systems showed that the operators were well instructed on the facility systems. The observations of the mockups showed that they were well aware of the requirements of the systems such as HVAC for an airlock entry.

Criterion 5: Operations support personnel such as the radiological controls personnel must take the systems courses for the facility so that they know the casualties and the required actions. The pre-job briefings and mockup operations showed that personnel were aware of the abnormal and emergency procedures, as shown by the responses to abnormal events described in Criterion 3 above.

Criterion 6: Management and technical support have sufficient knowledge as shown by management acting as controllers/observers of drills and the mockup evolutions in some cases.

Criterion 7: Stop work authority is discussed at the pre-job briefings and was exercised in the airlock entry observed by the RA team.

Conclusion

The facility meets core requirement #4 for training.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-5	DATE: August 14, 2002

OBJECTIVE

Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

Criteria

The criteria for this Core Requirement will be assessed under Core requirement 3

Approach**Record Review**

Determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

None.

Records Reviewed

- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- 324 Test Accountability, ACCT-001, Drill Package
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
- Facility and Equipment Operability Checklist JCS
- Facility systems course materials for HVAC, electrical, piping systems
- Facility systems qualification training files

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-5	DATE: August 14, 2002

- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
- Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations
- HNF-1232, PHMC Performance Objectives and Criteria
- HNF-4610, 324 Building Safety Equipment List
- HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
- HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
- HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
- HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
- HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
- HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- Individual training plans
- Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
- OJT evaluations and OJT instructor evaluations
- RWP M-02-360
- RWP M-02-364
- Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
- Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
- Training delinquency reports
- Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs

Interviews Conducted

- RCTs (five)
- Training office personnel (three).

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-5	DATE: August 14, 2002

- Cask loadout from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion of Results

The criteria for this Core Requirement are assessed under core requirement-3.

Conclusion

The facility meets core requirement-5 for training.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-5	DATE: August 14, 2002

OBJECTIVE

Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

Criteria

The criteria for this Core Requirement will be assessed under Core requirement 3

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

None.

Records Reviewed

- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- 324 Test Accountability, ACCT-001, Drill Package
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360
- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
- Facility and Equipment Operability Checklist JCS
- Facility systems course materials for HVAC, electrical, piping systems
- Facility systems qualification training files

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-5	DATE: August 14, 2002

- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
- Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations
- HNF-1232, PHMC Performance Objectives and Criteria
- HNF-4610, 324 Building Safety Equipment List
- HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
- HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
- HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
- HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
- HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
- HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- Individual training plans
- Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
- OJT evaluations and OJT instructor evaluations
- RWP M-02-360
- RWP M-02-364
- Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
- Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
- Training delinquency reports
- Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs

Interviews Conducted

- RCTs (five)
- Training office personnel (three).

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-5	DATE: August 14, 2002

- Cask loadout from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion of Results

The criteria for this Core Requirement are assessed under core requirement-3.

Conclusion

The facility meets core requirement-5 for training.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>DH</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interview

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

None.

Record Review

- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 6	DATE: August 14, 2002

- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
- Facility and Equipment Operability Checklist JCS
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
- Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations
- HNF-1232, PHMC Performance Objectives and Criteria
- HNF-4610, 324 Building Safety Equipment List
- HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
- HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
- HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
- HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
- HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
- HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
- Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
- Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM).

Interviews Conducted

- RCTs (five)
- Training office personnel (three).

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask loadout from airlock (mockup)

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT- 6	DATE: August 14, 2002

- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion of Results

The mockup operations and drill observed went very well. A few instances of contamination control errors were noted but most were also noted by the facility personnel. The proper corrective actions were taken immediately.

Personnel in the mockup situations frequently did not write down the measurements which were taken, including, in some instances, actual contamination on the cask lid. During the real fuel transfers, the measurements and other parameters would be real and must be recorded. In order to accomplish the task, it may be necessary to add another person as a recorder to leave the existing personnel available for performing the various functions expeditiously so as not to delay the fuel transfer operations. Adequate numbers of personnel are available to perform these functions but an extra person may be needed backside.

Personnel seemed to be very knowledgeable in the operational steps for the fuel transfer and the radiological controls/contamination controls necessary to perform the work.

Criterion 1: The facility has sufficient personnel to staff the upcoming operations. The observations of the mockups showed that perhaps an additional person might be needed just to record the results of the measurements, etc.

Criterion 2: The staffing of the facility is sufficient for the upcoming operations as evidenced by the observations of the mockups.

Conclusion

The facility meets core requirement-6 for training.

Issue(s)

Findings

None.

Observations

None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: **Training**

CRITERIA MET: [X] Yes [] No

CORE REQUIREMENT- 6

DATE: August 14, 2002

Inspector:

FM Roddy

Frank Roddy

Approved:

DH

Dennis Humphreys
Team Leader

Date:

8/14/02

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interview

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations Management Assessment Report, July 2002
- 324 Hot Cell Procedure Index
- 324 Maintenance Procedures Table of Contents
- 324 Test Accountability, ACCT-001, Drill Package
- AJHA Report for Procedure 31-SOP-SNF-001, AJHA ID: 31-360

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FUNCTIONAL AREA: Training	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-15	DATE: August 14, 2002

- AJHA Report for Procedure 31-SOP-SNF-002, AJHA ID: 31-662
- AJHA Report for Procedure 31-SOP-SNF-003, AJHA ID: 31-642
- Central Plateau Project Drill Package, Fire at 324, CP-FIRE-001
- ED-062, 324 Spent Fuel Packaging/Handling Equipment Closure Systems Dose Assessment
- Facility and Equipment Operability Checklist JCS
- Facility systems course materials for HVAC, electrical, piping systems
- Facility systems qualification training files
- Fluor Hanford Inc. Radiological Controls Program Assessment Cards
- Fluor Hanford Inc. Radiological Controls Project Assessment Cards
- Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations OIA-2002-RA-003
- Fluor Hanford Readiness Assessment Report for 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations
- HNF-1232, PHMC Performance Objectives and Criteria
- HNF-4610, 324 Building Safety Equipment List
- HNF-8705, SARP Onsite NFS-4/NAC-1 Spent Fuel Shipping Cask
- HNF-8869, Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project
- HNF-IP-1264-9.3, Spent Nuclear Fuel Transfer Project Personnel Qualifications
- HNF-IP-1264-9.4, Spent Nuclear Fuel Transfer Project Personnel Training
- HNF-IP-1264-9.7, Spent Nuclear Fuel Transfer Project Required Reading
- HNF-IP-1277, River Corridor Radiological Control Procedures 5.5.12, Radiation Protection Workplace Air Monitoring
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report
- Individual training plans
- Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment
- OJT evaluations and OJT instructor evaluations
- RWP M-02-360
- RWP M-02-364
- Standard Operating Procedure 31-SOP-SNF-001, Pre-Staging the SNF Cask for Loading
- Standard Operating Procedure 31-SOP-SNF-002, SNF Cask Sealing and ISO Container Loading (OCRWM)
- Standard Operating Procedure 31-SOP-SNF-003, PWR Fuel Assembly Packaging and Load-Out (OCRWM)
- Training delinquency reports
- Training qualification record files for Persons In Charge, crane operators, NCOs, RCTs

Interviews Conducted

- RCTs (five)
- Training office personnel (three).

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CORE REQUIREMENT-15	DATE: August 14, 2002

Observations

- Airlock entry and radcon survey
- AJHA meeting on facility and equipment operability checklist JCS
- Cask closure and shipment (mockup)
- Cask loading (mockup)
- Cask loadout from airlock (mockup)
- Cask preparations
- Facility drill involving a fire and contaminated individuals
- Facility drill testing accountability
- Fuel canister vacuum testing and helium backfill
- Transfer of cask and components into airlock (mockup).

Discussion of Results

Feedback of an informal nature was good among the personnel. When it became known that the cramped areas along the boundaries of the high contamination area chains were leading to potential violations of the boundaries by personnel, the RCTs made a straight line across the cask handling area giving the operations personnel more room for the activities.

Criterion 1: There are no facility pre-start training issues.

Criterion 2: There are no facility post-start training issues.

Conclusion

The facility meets core requirement-15 for training.

Issue(s)

Findings

None.

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Observations

None.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-1	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Maintenance
Transportation/Packaging and Shipping
Emergency Preparedness
Engineering
Radiological Controls
Environmental
Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)
Safety Analysis
Training
Fire Protection
Welding
Industrial Safety
Hoisting and Rigging
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

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FUNCTIONAL AREA: Safety Documents;
Engineering/Startup Testing; Emergency
Preparedness; Industrial Safety
CORE REQUIREMENT-1

CRITERIA MET: [] Yes [X] No

DATE: August 14, 2002

Approach

Records Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Management Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for the Management Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Review

The Criteria associated with this review were Safety Documents, Engineering/Start-up Testing, Emergency Preparedness, and Industrial Safety. The DOE-RL review was performed as a parallel effort to oversee the Contractor Readiness Assessment. The purpose of the DOE-RL Readiness Review is to assess the Contractor to ensure a rigorous and in-depth review is conducted to ensure the facility readiness to perform the intended work. At least 25% of those documents reviewed by the Contractor are to be reviewed by the DOE-RL Team members. Interviews and observations are to be observed by the DOE-RL Team to ensure the areas are addressed and that questions probe the depth of knowledge of the personnel. The area of Management is to ensure facility management has programs and controls in place and sufficient oversight to conduct the work in a safe and effective manner. These concepts will ensure the project will be completed on time, within budget, and safely.

Record Review

Emergency Preparedness

- HNF-IP-0263-324, *Building Emergency Plan for 324 Facility*, Revision 7, 01-17-02
- Operational Drill Records
- RCP-FIRE-006, *Fire at 324 During Fuel Movement*, 05-07-02
- RCP-PRO-004, *Emergency Preparedness Program*, Revision 5, 06-14-02
- RCP-RAD-002, *SNF Cask Drop at 324*, 04-03-02
- RCP-RAD-003, *Rad Material Impingement at 324 Building High Rad Storage Yard*, 02-14-02

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FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-1	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

- RCP-RADCON-011, *Airlock Man Down*, 06-06-02
- CP-FIRE-001, Central Plateau Project Drill Package, 07-25-02 and 07-31-02
(Accountability) Readiness Assessment Team Fire Drill

Engineering/Start-up Testing

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, *Start-up Plan to Operations*, Revision C, 06-26-02
- RCP-7816, *Design and Fabrication Specification for Building 324 AAHS*, Revision 0-A
- RCP-11507, *Operational Test Report for PWR Equipment*, Revision 0, 07-03-02
- HNF-PRO-052, *Corrective Action Management*, Revision 7, 06-07-02
- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, *Start-up Readiness*, Revision 7, 04-14-02

Safety Documents

- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- 10CFR 830.203 (b) *Nuclear Safety Bases – Unreviewed Safety Questions*
- 3I-SOP-SNF-002, *Perform Stationary Operating Engineer Surveillance*, Revision 4, Change F
- SOM/SOE Log Book
- CP-PRO-013, *Facility Worker Training*, Revision 0
- HNF-3553, *Annex D–200 Area Interim Storage Area Final Safety Analysis Report*, Revision 2, Vol. 5
- HNF-8705, *SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask*, Revision 0, 04-22-02
- HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*, Revision 0
- HNF-GD-7581, *Unreviewed Safety Question Process Guidance*, Revision 1
- HNF-IP-1264, *324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process*, Revision 12
- HNF-PRO-018, *Unreviewed Safety Questions*, Revision 1
- HNF-PRO-062, *Unreviewed Safety Question Process*, Revision 4
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*, Revision 4
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements, Section 6, “Design Features, Passive Safety SSCs”*, Revision 4
- Letter 0103014, K.A. Klein to E.K. Thompson, *Contract Number DE-AC06-96RL13200 – 324 Building Deactivation Project Authorization Agreement (AA)*, 05-30-02
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 13, 09-14-99
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 5, 09-24-94
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 5, 09-23-77
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 17, 04-13-84
- *Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask*, 03-15-90
- *Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model #NFS-4*, 09-29-72

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FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-1	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

- SNF-4894, *SNF Project Acceptance Criteria for LWR Spent Fuel Storage System*, Revision 2
- NUREG 1536, *Standard Review Plan for Dry Casks Storage System*, 1997
- 3I-SOP-PWR-005, *Operate Building 324 HVAC System*, Revision 3, Change 0
- Controlled Copies of Essential Drawings
- H-3-49514, *Exhaust Flow Diagram Zone 1*, Revision 2, last ECN and update 08-22-94
- H-3-49514, *Exhaust Flow Diagram Zone 2*, Revision 2, last ECN and update 08-22-94
- H-3-49514, *Exhaust Flow Diagram Zone 3*, Revision 2, last ECN and update 06-16-94
- H-3-49514, *Exhaust Flow Diagram Zone 4*, Revision 2, last ECN and update 10-22-92
- H-3-70224, *Exhaust Flow Diagram POG and Vessel Vent*, Revision 1, last ECN and update 10-22-92
- HNF- 6898, *324 Building Essential Drawing List*, Revision 3 (with ECNs)
- HNF-PRO-1819, *PHMC Engineering Requirements*, Section 6.a.6, "Change Control"

Industrial Safety

None.

Interviews Conducted

- Authorization Basis Cognizant Engineer
- Nuclear Chemical Operator
- Principal Engineer
- Stationary Operating Engineer
- Operations Supervisor
- Industrial Safety Engineer
- HVAC Cognizant Engineer/Design Authority
- Criticality Safety Engineer
- Emergency Coordinator
- SNF Projects Engineer

Observations

- Spent Fuel Cask/Canister Mockup
- SOE Logbook Review
- Walkdown of the HVAC Zone I and II Areas

Discussion of Results

Safety Documents: The Safety Analysis Report is not compliant with the format of DOE-STD-3009-94 and is so stated in the document. The Unreviewed Safety Question area is established and meets the intent of 10 CFR 830.203(b). The Authorization Agreement is established and updated as required. The one area of concern was associated with the SARP for the shipment of

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the spent fuel from the 324 Building to the Interim Storage Area (ISA/ISP) at the Canister Storage Building (CSB) in the 200 Area.

Engineering/Start-up Testing: A review of the Operational Test Procedure (OTP) and the Operational Test Report (OTR) for the Airlock A-Cell Hoisting System (AAHS) was conducted. A walkdown and drawing review of the Building HVAC was conducted.

The fact that the AAHS is considered General Service (GS) equipment excludes it from meeting the requirement normally seen for these type documents. As a result the facility can provide these documents in their present format. Future documents for the Boiling Water Reactor fuel will be prepared in the same manner. Some alterations are expected as a result of this review. The Engineering Change Notice (ECN) process was reviewed by reviewing the HVAC system drawings. The last ECN published was in 1994 and the drawings were all up-to-date.

Emergency Preparedness: There was one prepared drill for the FHI RA Team to observe. The review consisted of a review of previously held drills and the associated program for conducting drills. The Emergency Coordinator is a matrixed individual from the FHI Central Plateau Group. The individual therefore does not spend full time in the facility. The drill did provide insight into the accountability characteristics of the drill program. As a result the drill had to be re-performed to provide evidence the facility could show how the accountability portion of the program worked. The placement of the RA Team members for observation did not work well in all cases. Those who were observing the Cask Handling Area (CHA) were not able to determine whether or not the contaminated individual actually went to the staging area or if another individual went in their place. There was much simulation and several personnel were exempted from the drill. These concepts do not allow for actual reality to personnel. Management needs to be aware of these aspects for future drills and the involvement of the total facility to ensure all personnel are prepared for events of this nature.

Industrial Safety: No documents were reviewed in this area. An interview was held with the Industrial Safety Engineer. The review consisted of the Facility walkdown and observations of facility conditions and personnel actions, including management involvement. There were lapses in safety culture and radiological controls noted during the review process. Areas where slips, trips, and fall could occur were observed. The required use of hard hats was not always followed. The pre-job briefs noted these areas, but only once were personnel noted as taking some physical action to minimize the danger. Housekeeping was generally acceptable. Although the interviews indicated that senior management is involved and serious about safety, their presence backside is not obvious to the workers.

Senior Supervisory Watch: This area is not one of the criteria that was reviewed, but is one in which management plays a key role in facility oversight. The facility Standing Instruction (SI-324-Bldg-030, Revision 1, April 2002) describes the program and the responsibilities of the Senior Supervisory Watch (SSW). There was only one time when the SSW was actually called out at the Pre-Job for the mockup work. When the SSW was on the scene the SSW also directed

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work that is contrary to the Standing Instruction (SI). Management cannot get full utilization of this oversight capability when they are either performing work or not present. Since the mockup work involves the airlock the SI indicates that the SSW will be stationed for all work where people will enter the airlock. During the interviews personnel stated that because of the RA and the mockup work and the minimum staffing some areas of oversight could not be covered. The SSW area was not mentioned. The review team did not address this issue primarily because it was not pointed out that management had such a position. The position was established in April 2002 following an incident in January 2002.

Integrated Safety Management System: This area is not one of the criteria that was reviewed, but is one in which management plays a key role in facility oversight. During the interviews it was noted that not all personnel understand the tenets and concepts of Integrated Safety Management System (ISMS). Personnel know the key words and phases associated with ISMS, but are not fully aware of the culture that ISMS provides. Management has not provided sufficient guidance on the implementation of ISMS to the personnel associated with the facility. Those personnel who are matrixed to the facility seemed to be the least knowledgeable while the operators understood the concepts much better.

Conclusions

Safety Documents: Facility Management is involved in the preparation and submittal of the safety documentation. The use of external resources is prevalent due to the minimum staffing requirements the facility is currently operating under. There were several questions and concern raised, during the review, concerning the SARP. Additional management oversight is needed in this area to ensure implementation of the associated Memorandum of Understanding (MOU) is completed in a satisfactory manner. The design requirements also came under scrutiny when it was observed there was a difference in the as-built drawing and the actual delivered cask/canister. The difference allows for some potential internal movement of the canister. The facility meets the intent of these criteria. The conclusions of the FHI RA Team covered the criterion and allowed for a complete assessment in this area. There are Findings and Observations in this area that have been submitted by the FHI RA Team. This reviewer added no additional Findings and Observations.

Engineering/Start-up Testing: The methodology used to prepare and issue the OTP/OTR for the AAHS did not lend itself the management rigor and oversight. By placing this critical item in the General Service (GS) arena removes it from the "normal" rigor of management and formal peer review. The requirements for GS equipment are much less restrictive and management needs to recognize this. As a result no Findings or Observations were found in this area.

Emergency Preparedness: The requirements of the Emergency Preparedness program are being met under the current minimum staffing program. However, a more rigorous management oversight in this area could provide needed reality to all facility personnel. The only emergency drills associated with the facility were found to be Fire and Cask Drop drills. Other facility

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oriented drills need to be worked into the program to include radiological concerns, industrial safety concerns and potentially external phenomenon.

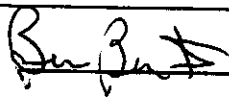
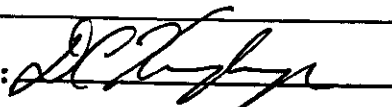
Industrial Safety: Although management stresses that safety is a priority and some individuals follow this tenet, it is not clear that all staff management adheres to this concept. More examples of management presence need to put into practice to ensure workers "see" the example and understand the priority of safety on the job. The use of a matrixed safety professional could send a mixed message as to the priority of safety at an operating facility. The fact that some of the work is taking place in another building seems to preclude the concept of making the workplace a safe place to work. These conditions were generally stated at the pre-job, but with the caveat that the work was not in their facility and they needed to work around these hazards. Management did not alter this approach to safety.

Senior Supervisory Watch: The use of the SSW is not consistent with the Standing Instruction. Management does not gain the benefit of this oversight position to control Conduct of Operations and facility safety. The effectiveness of the SSW is reduced when they perform actual fieldwork associated with their normal duties. Due to the minimum staffing the need for other management personnel to perform this function should be pursued by the facility management. Management needs to review the programmatic impacts of the Standing Instruction to ensure the SSW is performing as expected to the statements of the SI.

Integrated Safety Management System: The concepts of Integrated Safety Management Systems (ISMS) have not been fully implemented at the facility. Management has not provided sufficient guidance to those individuals assigned to the facility to improve the culture associated with ISMS. Management should consider a program for improving this process and ensuring all personnel understand its concepts and the results of implementing ISMS at all levels of the work place.

Issues (Findings/Observations)

Due to the issues associated with the SARP the Team does not consider the Facility has met the intent of this criteria. No issues other than previously identified by the FH RA Team.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

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FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-2	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

OBJECTIVE:

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

CRITERIA:

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for the Operations functional area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW: The Criteria associated with this review was Safety Documents. The DOE-RL review was performed as a parallel effort to oversee the Contractor Readiness Assessment. The purpose of the DOE-RL Readiness Review is to assess the Contractor to ensure a rigorous and in-depth review is conducted to ensure the facility readiness to perform the intended work. At least 25% of those documents reviewed by the Contractor are to be reviewed by the DOE-RL Team members. Interviews and observations are to be observed by the DOE-RL Team to ensure the areas are addressed and that questions probe the depth of knowledge of the personnel.

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FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-2	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Records Reviewed:**Safety Documents**

- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- 10CFR 830.203 (b) Nuclear Safety Bases – Unreviewed Safety Questions
- 3I-SOP-SNF-002, Perform Stationary Operating Engineer Surveillance, Revision 4, Change F
- SOM/SOE Log Book
- CP-PRO-013, Facility Worker Training, Revision 0
- HNF-3553, Annex D–200 Area Interim Storage Area Final Safety Analysis Report, Revision 2, Volume 5
- HNF-8705, SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask, Revision 0, 04-22-02
- HNF-8749, 324 Building Failed Fuel Path Forward (OCRWM), Revision 0
- HNF-GD-7581, Unreviewed Safety Question Process Guidance, Revision 1
- HNF-IP-1264, 324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process, Revision 12
- HNF-PRO-018, Unreviewed Safety Questions, Revision 1
- HNF-PRO-062, Unreviewed Safety Question Process, Revision 4
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report, Revision 4
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements, Section 6, “Design Features, Passive Safety SSCs”, Revision 4
- Letter 0103014, K.A. Klein to E.K. Thompson, Contract Number DE-AC06-96RL13200 – 324 Building Deactivation Project Authorization Agreement (AA), 05-30-02
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 13, 09-14-99
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC–1 Package, Revision 5, 09-24-94
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 5, 09-23-77
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 17, 04-13-84
- Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask, 03-15-90
- Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model #NFS-4, 09-29-72
- SNF-4894, SNF Project Acceptance Criteria for LWR Spent Fuel Storage System, Revision 2
- NUREG 1536, Standard Review Plan for Dry Casks Storage System, 1997
- 3I-SOP-PWR-005, Operate Building 324 HVAC System, Revision 3, Change 0
- Controlled Copies of Essential Drawings

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FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-2	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- H-3-49514, Exhaust Flow Diagram Zone 1, Revision 2, last ECN and update 08-22-94
- H-3-49514, Exhaust Flow Diagram Zone 2, Revision 2, last ECN and update 08-22-94
- H-3-49514, Exhaust Flow Diagram Zone 3, Revision 2, last ECN and update 06-16-94
- H-3-49514, Exhaust Flow Diagram Zone 4, Revision 2, last ECN and update 10-22-92
- H-3-70224, Exhaust Flow Diagram POG and Vessel Vent, Revision 1, last ECN and update 10-22-92
- HNF- 6898, 324 Building Essential Drawing List, Revision 3 (with ECNs)
- HNF-PRO-1819, PHMC Engineering Requirements, Section 6.a.6, "Change Control"

Emergency Preparedness

- HNF-IP-0263-324, Building Emergency Plan for 324 Facility, Revision 7, 01-17-02
- Operational Drill Records
- RCP-FIRE-006, Fire at 324 During Fuel Movement, 05-07-02
- RCP-PRO-004, Emergency Preparedness Program, Revision 5, 06-14-02
- RCP-RAD-002, SNF Cask Drop at 324, 04-03-02
- RCP-RAD-003, Rad Material Impingement at 324 Building High Rad Storage Yard, 02-14-02
- RCP-RADCON-011, Airlock Man Down, 06-06-02
- CP-FIRE-001, Central Plateau Project Drill Package, 07-25-02 and 07-31-02 (Accountability) Readiness Assessment Team Fire Drill

Engineering/Start-up Testing

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, Start-up Plan to Operations, Revision C, 06-26-02
- RCP-7816, Design and Fabrication Specification for Building 324 AAHS, Revision 0-A
- RCP-11507, Operational Test Report for PWR Equipment, Revision 0, 07-03-02
- HNF-PRO-052, Corrective Action Management, Revision 7, 06-07-02
- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, Start-up Readiness, Revision 7, 04-14-02

Industrial Safety

- None

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Positions Interviewed:

- Authorization Basis Cognizant Engineer
- Nuclear Chemical Operator
- Principal Engineer
- Stationary Operating Engineer
- Operations Supervisor
- Industrial Safety Engineer
- HVAC Cognizant Engineer/Design Authority
- Criticality Safety Engineer
- Emergency Coordinator
- SNF Projects Engineer

Evolutions/Operations Observed:

N/A

DISCUSSION OF RESULTS:

The reviews and documentation for this Core Requirement have been covered under the Management Functional Area for this Core Requirement. For the RL RA assigned Functional Areas the review was considered "all inclusive" and incorporates the below described Functional Areas.

Safety Documents

The Safety Analysis Report is not compliant with the format of DOE-STD-3009-94 and is so stated in the document. The Unreviewed Safety Question area is established and meets the intent of 10 CFR 830.203(b). The Authorization Agreement is established and updated as required. The one area of concern was associated with the SARP for the shipment of the spent fuel from the 324 Building to the Interim Storage Area (ISA/ISP) at the Canister Storage Building (CSB) in the 200 Area. It is not clear whether these inconsistencies are significant enough to be a problem that needs resolved. There are FH RA Findings and Observations associated with this area, but they are not concise enough to determine whether there is a major problem. The documentation and associated requirements type documents, from the NRC, allude to a twenty-year storage life. The Findings and Observations are associated with a 75-year storage life. It is not clear whether or not this is or should be a part of the scope of this RA.

Document reviews and interviews were conducted, to ascertain that an organizational structure is provided and the organization has the overall responsibility and functions effectively to ensure completion of the project.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-2	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Emergency Preparedness

The facility has an established Emergency Plan and a clearly defined management structure to carry out the requirements of the plan. The matrixed personnel that are assigned responsibility for the facility plan are also associated with other Emergency Preparedness activities at other assigned facilities.

The FH RA Team did not specifically review this Core Requirement, but rather placed their priority on Core Requirement 11 that is associated with the Drill Program. Document reviews and interviews were conducted, to ascertain that an organizational structure is provided and the organization has the overall responsibility and functions effectively to ensure completion of the project.

Engineering/Start-up Testing

Document reviews and interviews were conducted, to ascertain that an organizational structure is provided and the organization has the overall responsibility and functions effectively to ensure completion of the project. The issuance and approval of the project Operational Test Procedure and the Operational Test Report provided evidence of the functionality of the organization to maintain overall responsibility for the project.

Industrial Safety

Document reviews and interviews were conducted, to ascertain that an organizational structure is provided and the organization has the overall responsibility and functions effectively to ensure completion of the project. Industrial Safety is part of the matrixed function of the assigned safety professional.

CONCLUSIONS:

Safety Documents

The review of the Safety Document program indicates there is an established process to provide the necessary preparation, review, and issuance. The approvals by DOE-RL indicate acceptance of this program. There is a clear management structure established, approved, and in place. This structure is implemented and is understood by operations and support personnel.

The 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s). Personnel that are matrixed to the facility are under the cognizance of the 324 Building management.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-2	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

The areas of concern raised by the FH Readiness Assessment Team appear to be outside the scope of review for this particular Core Requirement. The Core Requirement is associated with the programmatic aspects and the management control of the program. The stated FH RA concerns seem to fit better and are reflected under CR-7.

Emergency Preparedness

The preparation, review, and issuance of the emergency procedures and the drill scenarios are under the responsibility of the facility management. Personnel that are matrixed to the facility are under the cognizance of the 324 Building management.

Engineering/Start-up Testing

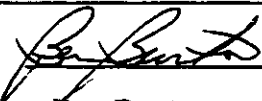
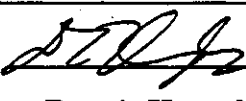
The 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s). Personnel that are matrixed to the facility are under the cognizance of the 324 Building management.

Industrial Safety

The 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s). Personnel that are matrixed to the facility are under the cognizance of the 324 Building management.

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-4	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

OBJECTIVE:

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

CRITERIA:

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-4	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW:**Records Reviewed:****Emergency Preparedness**

- HNF-IP-0263-324, *Building Emergency Plan for 324 Facility*, Revision 7, 01-17-02
- Operational Drill Records
- RCP-FIRE-006, *Fire at 324 During Fuel Movement*, 05-07-02
- RCP-PRO-004, *Emergency Preparedness Program*, Revision 5, 06-14-02
- RCP-RAD-002, *SNF Cask Drop at 324*, 04-03-02
- RCP-RAD-003, *Rad Material Impingement at 324 Building High Rad Storage Yard*, 02-14-02
- RCP-RADCON-011, *Airlock Man Down*, 06-06-02
- CP-FIRE-001, Central Plateau Project Drill Package, 07-25-02 and 07-31-02
(Accountability) Readiness Assessment Team Fire Drill

Engineering/Start-up Testing

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, Start-up Plan to Operations, Revision C, 06-26-02
- RCP-7816, Design and Fabrication Specification for Building 324 AAHS, Revision 0-A
- RCP-11507, Operational Test Report for PWR Equipment, Revision 0, 07-03-02
- HNF-PRO-052, Corrective Action Management, Revision 7, 06-07-02
- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, Start-up Readiness, Revision 7, 04-14-02

Safety Documents

- 10 CFR 72.236, Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-4	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- 10CFR 830.203 (b) Nuclear Safety Bases – Unreviewed Safety Questions
- 3I-SOP-SNF-002, Perform Stationary Operating Engineer Surveillance, Revision 4, Change F
- SOM/SOE Log Book
- CP-PRO-013, Facility Worker Training, Revision 0
- HNF-3553, Annex D–200 Area Interim Storage Area Final Safety Analysis Report, Revision 2, Volume 5
- HNF-8705, SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask, Revision 0, 04-22-02
- HNF-8749, 324 Building Failed Fuel Path Forward (OCRWM), Revision 0
- HNF-GD-7581, Unreviewed Safety Question Process Guidance, Revision 1
- HNF-IP-1264, 324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process, Revision 12
- HNF-PRO-018, Unreviewed Safety Questions, Revision 1
- HNF-PRO-062, Unreviewed Safety Question Process, Revision 4
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report, Revision 4
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements, Section 6, “Design Features, Passive Safety SSCs”, Revision 4
- Letter 0103014, K.A. Klein to E.K. Thompson, Contract Number DE-AC06-96RL13200 – 324 Building Deactivation Project Authorization Agreement (AA), 05-30-02
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 13, 09-14-99
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC–1 Package, Revision 5, 09-24-94
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 5, 09-23-77
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 17, 04-13-84
- Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask, 03-15-90
- Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model #NFS-4, 09-29-72
- SNF-4894, SNF Project Acceptance Criteria for LWR Spent Fuel Storage System, Revision 2
- NUREG 1536, Standard Review Plan for Dry Casks Storage System, 1997
- 3I-SOP-PWR-005, Operate Building 324 HVAC System, Revision 3, Change 0
- Controlled Copies of Essential Drawings
- H-3-49514, Exhaust Flow Diagram Zone 1, Revision 2, last ECN and update 08-22-94
- H-3-49514, Exhaust Flow Diagram Zone 2, Revision 2, last ECN and update 08-22-94
- H-3-49514, Exhaust Flow Diagram Zone 3, Revision 2, last ECN and update 06-16-94
- H-3-49514, Exhaust Flow Diagram Zone 4, Revision 2, last ECN and update 10-22-92
- H-3-70224, Exhaust Flow Diagram POG and Vessel Vent, Revision 1, last ECN and update 10-22-92

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-4	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- HNF- 6898, 324 Building Essential Drawing List, Revision 3 (with ECNs)
- HNF-PRO-1819, PHMC Engineering Requirements, Section 6.a.6, "Change Control"

Industrial Safety

- None

Positions Interviewed:

- Authorization Basis Cognizant Engineer
- Nuclear Chemical Operator
- Principal Engineer
- Stationary Operating Engineer
- Operations Supervisor
- Industrial Safety Engineer
- HVAC Cognizant Engineer/Design Authority
- Criticality Safety Engineer
- Emergency Coordinator
- SNF Projects Engineer

Evolutions/Operations Observed:

- Spent Fuel Cask/Canister Mockup
- SOE Logbook Review
- Walkdown of the HVAC Zone I and II Areas

DISCUSSION OF RESULTS:

Based on the interviews and the observations of the processes the individuals demonstrated an adequate level of knowledge of the process and the procedures used to operate the facility. The level of knowledge and understanding of the ISMS program/process/culture is an area for improvement. Operations personnel demonstrated a much higher understanding of the tenets of ISMS than did the matrixed (management level) personnel. The knowledge of the facility Limiting Conditions for Operation (LCOs) met the expectations for all the interviewees. Observations of the Mockup at the 306E facility indicated a sufficient level of knowledge of the associated procedures. Although some lapses in the implementation of the radiological practices indicate an area for improvement the personnel and management are adequately knowledgeable in this area. The RA Team questioned the Person-In-Charge (PIC) concerning the functionality and knowledge of the Fire Watch at the mockup, during one of the observations, and this condition was remediated by the next observation event.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

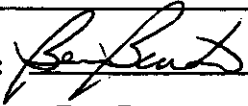
FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-4	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

CONCLUSIONS:

The knowledge level of facility managers, operations, and operations support personnel of the 324 Building B-Cell Spent Fuel Packaging and Shipment Operations is adequate to support the overall operation.

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-5	CRITERIA MET: [] Yes [] No [X] N/A DATE: August 14, 2002

OBJECTIVE:

Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

CRITERIA:

The criteria for this Core Requirement will be assessed under Core Requirement 3 per the Implementation Plan.

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW:**Records Reviewed:**

N/A

Positions Interviewed:

N/A

Evolutions/Operations Observed:

N/A

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-5	CRITERIA MET: [] Yes [] No [X] N/A DATE: August 14, 2002

DISCUSSION OF RESULTS:

The RL RA assigned Functional Areas of Safety Documentation and Engineering/Start-up Testing were completed under Core Requirement 3 per the IP. There are no inputs for this Core Requirement.

CONCLUSIONS:

N/A

ISSUES (FINDINGS/OBSERVATIONS):

N/A

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-6	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

OBJECTIVE:

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

CRITERIA:

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW: The Criterion associated with this review were Safety Documents, Engineering/Startup Testing, Emergency Preparedness, and Industrial Safety. The DOE-RL review was performed as a parallel effort to oversee the Contractor Readiness Assessment. The purpose of the DOE-RL Readiness Review is to assess the Contractor to ensure a rigorous and in-depth review is conducted to ensure the facility readiness to perform the intended work. At least 25% of those documents reviewed by the Contractor are to be reviewed by the DOE-RL Team members.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-6	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Interviews and observations are to be observed by the DOE-RL Team to ensure the areas are addressed and that questions probe the depth of knowledge of the personnel.

Records Reviewed:**Emergency Preparedness**

- HNF-IP-0263-324, *Building Emergency Plan for 324 Facility*, Revision 7, 01-17-02
- Operational Drill Records
- RCP-FIRE-006, *Fire at 324 During Fuel Movement*, 05-07-02
- RCP-PRO-004, *Emergency Preparedness Program*, Revision 5, 06-14-02
- RCP-RAD-002, *SNF Cask Drop at 324*, 04-03-02
- RCP-RAD-003, *Rad Material Impingement at 324 Building High Rad Storage Yard*, 02-14-02
- RCP-RADCON-011, *Airlock Man Down*, 06-06-02
- CP-FIRE-001, Central Plateau Project Drill Package, 07-25-02 and 07-31-02 (Accountability) Readiness Assessment Team Fire Drill

Engineering/Start-up Testing

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, *Start-up Plan to Operations*, Revision C, 06-26-02
- RCP-7816, *Design and Fabrication Specification for Building 324 AAHS*, Revision 0-A
- RCP-11507, *Operational Test Report for PWR Equipment*, Revision 0, 07-03-02
- HNF-PRO-052, *Corrective Action Management*, Revision 7, 06-07-02
- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, *Start-up Readiness*, Revision 7, 04-14-02

Safety Documents

- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- 10CFR 830.203 (b) *Nuclear Safety Bases – Unreviewed Safety Questions*
- 3I-SOP-SNF-002, *Perform Stationary Operating Engineer Surveillance*, Revision 4, Change F
- SOM/SOE Log Book
- CP-PRO-013, *Facility Worker Training*, Revision 0
- HNF-3553, *Annex D–200 Area Interim Storage Area Final Safety Analysis Report*, Revision 2, Vol. 5
- HNF-8705, *SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask*, Revision 0, 04-22-02
- HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*, Revision 0

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-6	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- HNF-GD-7581, *Unreviewed Safety Question Process Guidance*, Revision 1
- HNF-IP-1264, *324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process*, Revision 12
- HNF-PRO-018, *Unreviewed Safety Questions*, Revision 1
- HNF-PRO-062, *Unreviewed Safety Question Process*, Revision 4
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*, Revision 4
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*, Section 6, "Design Features, Passive Safety SSCs", Revision 4
- Letter 0103014, K.A. Klein to E.K. Thompson, *Contract Number DE-AC06-96RL13200 – 324 Building Deactivation Project Authorization Agreement (AA)*, 05-30-02
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 13, 09-14-99
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 5, 09-24-94
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC-4 Package, Revision 5, 09-23-77
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC-4 Package, Revision 17, 04-13-84
- *Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask*, 03-15-90
- *Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model #NFS-4*, 09-29-72
- SNF-4894, *SNF Project Acceptance Criteria for LWR Spent Fuel Storage System*, Revision 2
- NUREG 1536, *Standard Review Plan for Dry Casks Storage System*, 1997
- 3I-SOP-PWR-005, *Operate Building 324 HVAC System*, Revision 3, Change 0
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- H-3-49514, *Exhaust Flow Diagram Zone 4*, Revision 2, last ECN and update 10-22-92
- H-3-70224, *Exhaust Flow Diagram POG and Vessel Vent*, Revision 1, last ECN and update 10-22-92
- HNF- 6898, *324 Building Essential Drawing List*, Revision 3 (with ECNs)
- HNF-PRO-1819, *PHMC Engineering Requirements*, Section 6.a.6, "Change Control"

Industrial Safety

- None

Positions Interviewed:

- Authorization Basis Cognizant Engineer

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-6	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- Nuclear Chemical Operator
- Principal Engineer
- Stationary Operating Engineer
- Operations Supervisor
- Industrial Safety Engineer
- HVAC Cognizant Engineer/Design Authority
- Criticality Safety Engineer
- Emergency Coordinator
- SNF Projects Engineer

Evolutions/Operations Observed:

- Spent Fuel Cask/Canister Mockup
- SOE Logbook Review
- Walkdown of the HVAC Zone I and II Areas

DISCUSSION OF RESULTS:

Safety Documents: The facility is currently operating at the minimum staffing level. The reliance upon external assistance is noted and known to all facility personnel and management. The development, review, and issuance of the safety documentation (Safety Analysis Report, Fire Hazards Analysis, etc.) are primarily conducted by support personnel with review and comment by assigned facility personnel.

Engineering/Start-up Testing: The Operational Test Plan (OTP), the Acceptance Test Plan (ATP), and the Operational Test Report (OTR) was generated internally. The design and fabrication of the cranes and lifting device were contracted out. A coordinated effort between the facility and the contractor was needed to ensure all the requirements were met in accordance with the ATP. The facility then provided input to the contractor for the ATP as it was operationally tested by the contractor. The effort placed a strain on the facility staff to meet other needed functions. Support staff provided input to areas that were found to be less than adequately covered by existing staff.

Emergency Preparedness: Support staff, that is matrixed to the facility, covers this area. This functional area also provides support to other facilities. The priorities associated with the position of Emergency Coordinator are not clearly defined and there does not appear to be any backup for this position. To date, this has not been a problem for the facility.

Industrial Safety: Support staff, that is matrixed to the facility, covers this area. This functional area also provides support to other facilities. The priorities associated with the position of Emergency Coordinator are not clearly defined and there does not appear to be any backup for this position. To date, this has not been a problem for the facility. The availability of the

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-6	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

individual is limited due to other facilities needs and requirements. To date, this has not been a problem for the facility.

CONCLUSIONS:

Safety Documents: The level of minimum staffing appears adequate and the functioning of the facility is not impeded for this project with the current level of staffing.

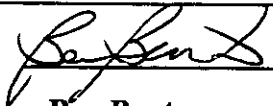
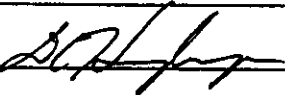
Engineering/Start-up Testing: The level of minimum staffing appears adequate and the functioning of the facility is not impeded for this project with the current level of staffing.

Emergency Preparedness: The level of minimum staffing appears adequate and the functioning of the facility is not impeded for this project with the current level of staffing.

Industrial Safety: The level of minimum staffing appears adequate and the functioning of the facility is not impeded for this project with the current level of staffing.

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/19/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents CORE REQUIREMENT-7	CRITERIA MET: ☒ Yes ☐ No DATE: August 14, 2002

OBJECTIVE:

Facility safety documentation is in place and has been implemented that describes the “safety envelope” of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design and is established.

CRITERIA:

1. The safety documentation addresses appropriate hazards/risks associated with 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.23, paragraph 8, Attachment 1, Sections 3 and 4)
2. A safety basis has been prepared and approved by DOE. (DOE Order 5480.23, paragraph 8)
3. Administrative controls are in place to ensure that 324 Building B-Cell Spent Fuel Packaging equipment repairs (or modifications) are adequately analyzed to identify system degradation and to ensure that design changes are documented and approved prior to implementation. (DOE-STD-1073-93, Chapter 1.3)
4. An adequate process has been implemented to ensure that documentation for 324 Building B-Cell Spent Fuel Packaging systems critical to the safety exist and is kept current, as appropriate for their safety functions, and that documentation is available to the 324 Building B-Cell Spent Fuel Packaging operators. (DOE-STD-1073-93, Chapter 1.3)
5. Drawings and other documentation relied upon for operations and maintenance associated with SNF activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)
6. The NAC-1 Cask SARP has been approved
7. An un-reviewed safety question process is in place to ensure that procedure changes applicable to 324 Building B-Cell Spent Fuel Packaging project is covered by the safety basis and the evaluations resulted in no positive USQ.

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents CORE REQUIREMENT-7	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW: The Criteria associated with this review were the associated facility Safety Documents. The DOE-RL review was performed as a parallel effort to oversee the Contractor Readiness Assessment. The purpose of the DOE-RL Readiness Review is to assess the Contractor to ensure a rigorous and in-depth review is conducted to ensure the facility readiness to perform the intended work. At least 25% of those documents reviewed by the Contractor are to be reviewed by the DOE-RL Team members. Interviews and observations are to be observed by the DOE-RL Team to ensure the areas are addressed and that questions probe the depth of knowledge of the personnel. The area of Safety Documentation is to ensure facility management has programs and controls in place and sufficient oversight to conduct the work in a safe and effective manner and to ensure the safety documentation provides up-to-date status of the facility and the associated equipment. These concepts will ensure the project will be completed on time, within budget, and safely.

Records Reviewed:**Safety Documents**

- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- 10CFR 830.203 (b) *Nuclear Safety Bases – Unreviewed Safety Questions*
- 3I-SOP-SNF-002, *Perform Stationary Operating Engineer Surveillance*, Revision 4, Change F
- SOM/SOE Log Book
- CP-PRO-013, *Facility Worker Training*, Revision 0
- HNF-3553, *Annex D–200 Area Interim Storage Area Final Safety Analysis Report*, Revision 2, Vol. 5
- HNF-8705, *SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask*, Revision 0, 04-22-02
- HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*, Revision 0
- HNF-GD-7581, *Unreviewed Safety Question Process Guidance*, Revision 1

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents CORE REQUIREMENT-7	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- HNF-IP-1264, *324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process*, Revision 12
- HNF-PRO-018, *Unreviewed Safety Questions*, Revision 1
- HNF-PRO-062, *Unreviewed Safety Question Process*, Revision 4
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*, Revision 4
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*, Section 6, "Design Features, Passive Safety SSCs", Revision 4
- Letter 0103014, K.A. Klein to E.K. Thompson, *Contract Number DE-AC06-96RL13200 – 324 Building Deactivation Project Authorization Agreement (AA)*, 05-30-02
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 13, 09-14-99
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 5, 09-24-94
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 5, 09-23-77
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 17, 04-13-84
- *Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask*, 03-15-90
- *Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model #NFS-4*, 09-29-72
- SNF-4894, *SNF Project Acceptance Criteria for LWR Spent Fuel Storage System*, Revision 2
- NUREG 1536, *Standard Review Plan for Dry Casks Storage System*, 1997
- 3I-SOP-PWR-005, *Operate Building 324 HVAC System*, Revision 3, Change 0
- Controlled Copies of Essential Drawings
- H-3-49514, *Exhaust Flow Diagram Zone 1*, Revision 2, last ECN and update 08-22-94
- H-3-49514, *Exhaust Flow Diagram Zone 2*, Revision 2, last ECN and update 08-22-94
- H-3-49514, *Exhaust Flow Diagram Zone 3*, Revision 2, last ECN and update 06-16-94
- H-3-49514, *Exhaust Flow Diagram Zone 4*, Revision 2, last ECN and update 10-22-92
- H-3-70224, *Exhaust Flow Diagram POG and Vessel Vent*, Revision 1, last ECN and update 10-22-92
- HNF- 6898, *324 Building Essential Drawing List*, Revision 3 (with ECNs)
- HNF-PRO-1819, *PHMC Engineering Requirements*, Section 6.a.6, "Change Control"

Positions Interviewed:

- Authorization Basis Cognizant Engineer
- Nuclear Chemical Operator
- Principal Engineer
- Stationary Operating Engineer
- Operations Supervisor
- Industrial Safety Engineer
- HVAC Cognizant Engineer/Design Authority

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents CORE REQUIREMENT-7	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- Criticality Safety Engineer
- Emergency Coordinator
- SNF Projects Engineer

Evolutions/Operations Observed:

- Spent Fuel Cask/Canister Mockup
- SOE Logbook Review
- Walkdown of the HVAC Zone I and II Areas
- CY-2002 USQ Log Review

DISCUSSION OF RESULTS:

Safety Documents: The Safety Analysis Report (SAR) is not compliant with the format of DOE-STD-3009-94 and is so stated in the document. The Unreviewed Safety Question area is established and meets the intent of 10 CFR 830.203(b). The Authorization Agreement is established and updated as required. The SARP was reviewed and approved by DOE-RL and a Safety Evaluation Report (SER) was issued. Based on the current mission of the facility, the SAR is being revised to a Basis for Interim Operation (BIO) type document to support the Surveillance and Maintenance mode the facility will enter following the removal of the spent fuel.

The one area of concern was associated with the SARP for the shipment of the spent fuel from the 324 Building to the Interim Storage Area (ISA/ISP) at the Canister Storage Building (CSB) in the 200 Area. There are inconsistencies between the body of the document and the associated Appendices including two earlier versions of safety documents for the NFS-4/NAC-1 casks. One key area was the manner in which the Tamper Indicating Devices (TIDs) were stored by the facility. There was no indicated control of these devices by the facility. A USQ (324-FH-02-289, *NAC-1 Cask and ISO-Container Transloading Outside 324 Building*) was generated to review the potential differences between the 324 Building requirements and those external to the site. The evaluation resulted in a negative outcome because the existing accident analyses covered the concerns and bounded it.

CONCLUSIONS:

The FH RA Team generated three findings and one observation associated with this Core Requirements. The significance of these findings and observations is not defined in the Form 1 and the driver for the findings is not clearly stated. The Form 2s do provide some indication of the requirements, but the rationale for the actual finding is vague. In addition, all the Findings are listed as Post Start. Their result was to declare the Criteria not met for this Core Requirement. It is not clear why the report lists the criteria as not being met for this Core Requirement. It appears that if a Core Requirement has a Finding then the Core Requirement cannot be met. The report does not provide an explanation for this condition.

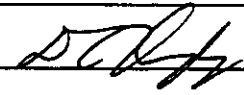
FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents CORE REQUIREMENT-7	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

It is this reviewer's conclusions the Criteria is met, but with open items that need to be corrected either pre or post start.

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing CORE REQUIREMENT-9	CRITERIA MET: ☒ Yes ☐ No DATE: August 14, 2002

OBJECTIVE:

The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

CRITERIA:

1. Documentation for system modifications related to 324 Building B-Cell Spent Fuel Packaging exists and is kept current. (DOE-STD-1073-93, Chapter 1.3)
2. Drawings and other documentation relied upon for 324 Building B-Cell Spent Fuel Packaging operations and maintenance activities are consistent with the existing plant configuration. (DOE-STD-1073-93, Chapter 1.3)

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW:

Systems and Procedures: A walkdown of the HVAC system for Zones I and II was conducted and a review of the Operational Test Procedure and the Operational Test Report was conducted. Interviews with the cognizant individuals were conducted to ascertain the level and depth of the procedures used and the quality of the process used to develop the procedures.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing CORE REQUIREMENT-9	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Records Reviewed:**Engineering/Start-up Testing**

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, *Start-up Plan to Operations*, Revision C, 06-26-02
- RCP-7816, *Design and Fabrication Specification for Building 324 AAHS*, Revision 0-A
- RCP-11507, *Operational Test Report for PWR Equipment*, Revision 0, 07-03-02
- HNF-PRO-052, *Corrective Action Management*, Revision 7, 06-07-02
- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, *Start-up Readiness*, Revision 7, 04-14-02

Safety Documents

- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- 10CFR 830.203 (b) *Nuclear Safety Bases – Unreviewed Safety Questions*
- 3I-SOP-SNF-002, *Perform Stationary Operating Engineer Surveillance*, Revision 4, Change F
- SOM/SOE Log Book
- CP-PRO-013, *Facility Worker Training*, Revision 0
- HNF-3553, *Annex D–200 Area Interim Storage Area Final Safety Analysis Report*, Revision 2, Vol. 5
- HNF-8705, *SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask*, Revision 0, 04-22-02
- HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*, Revision 0
- HNF-GD-7581, *Unreviewed Safety Question Process Guidance*, Revision 1
- HNF-IP-1264, *324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process*, Revision 12
- HNF-PRO-018, *Unreviewed Safety Questions*, Revision 1
- HNF-PRO-062, *Unreviewed Safety Question Process*, Revision 4
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*, Revision 4
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements, Section 6, “Design Features, Passive Safety SSCs”*, Revision 4
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- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 13, 09-14-99
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC–1 Package, Revision 5, 09-24-94
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 5, 09-23-77

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing CORE REQUIREMENT-9	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- NRC, Certificate of Conformance (COC) #6698 for Model #NAC –4 Package, Revision 17, 04-13-84
- *Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask*, 03-15-90
- *Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model #NFS-4*, 09-29-72
- SNF-4894, *SNF Project Acceptance Criteria for LWR Spent Fuel Storage System*, Revision 2
- NUREG 1536, *Standard Review Plan for Dry Casks Storage System*, 1997
- 3I-SOP-PWR-005, *Operate Building 324 HVAC System*, Revision 3, Change 0
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- H-3-49514, *Exhaust Flow Diagram Zone 4*, Revision 2, last ECN and update 10-22-92
- H-3-70224, *Exhaust Flow Diagram POG and Vessel Vent*, Revision 1, last ECN and update 10-22-92
- HNF- 6898, *324 Building Essential Drawing List*, Revision 3 (with ECNs)
- HNF-PRO-1819, *PHMC Engineering Requirements*, Section 6.a.6, "Change Control"

Positions Interviewed:

- Authorization Basis Cognizant Engineer
- Nuclear Chemical Operator
- Principal Engineer
- Stationary Operating Engineer
- Operations Supervisor
- Industrial Safety Engineer
- HVAC Cognizant Engineer/Design Authority
- Criticality Safety Engineer
- Emergency Coordinator
- SNF Projects Engineer

Evolutions/Operations Observed:

- Spent Fuel Cask/Canister Mockup
- Walkdown of the HVAC Zone I and II Areas

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing CORE REQUIREMENT-9	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

DISCUSSION OF RESULTS:

Safety Documents and Engineering and Startup Testing: In the Core Requirement there is no need to separate these in to individual items since both would contain the same information.

The facility drawings associated with the ventilation are complete and up-to-date. The last Engineering Change Notice (ECNs) was placed in 1994 and no other modifications have been made to the system. A current modification is planned to remove some unneeded equipment that will allow for improvement in the differential pressure across the filters. These drawings were not available. The Safety Equipment List was reviewed and found to be up-to-date. The Essential Drawing List showed only seven outstanding ECNs with the oldest being less than 30-days old. The Operational Test Procedure was developed for General Service equipment and therefore did not have the rigor of review that a Safety Class or Safety Significant system would have. The requirements for General Service are less restrictive. The cognizant individual did recognize areas for improvement and will consider these for the next phase of the fuel movement. The facility modification process utilizes HNF-PRO-2000-1, *Facility Modification* and HNF-PRO-1819, *PHMC Engineering Requirements*, to perform these activities.

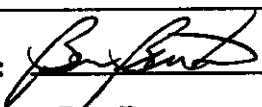
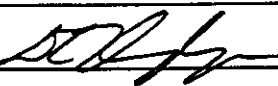
The facility procedures for maintaining the instrumentation current in calibration was checked by reviewing several instruments associated with the ventilation system. All instrumentation had current calibration stickers and due dates applied to them.

CONCLUSIONS:

The facility systems and procedures for modifications are in place and being utilized by maintenance, engineering, and management. Some opportunity for improvement was noted in the development of General Service type Operational/Acceptance Test Procedures. These procedures could be more concise in their development of the rationale for performing tasks and relating the appendices to the body of the report.

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/17/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents Engineering and Startup Testing CORE REQUIREMENT-10	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

OBJECTIVE:

There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

CRITERIA:

1. Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e.; DOE Order 5480.19, Chapter XVI)
2. The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)
5. 324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A Criterion 5)
6. Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility
7. An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.
8. An automated job hazard analysis of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.
9. Administrative procedures as defined in the POA, Appendix A, are prepared, approved and implemented.

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents Engineering and Startup Testing CORE REQUIREMENT-10	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW: The Criteria associated with this review were Safety Documents and Engineering/Start-up Testing. The DOE-RL review was performed as a parallel effort to oversee the Contractor Readiness Assessment. The purpose of the DOE-RL Readiness Review is to assess the Contractor to ensure a rigorous and in-depth review is conducted to ensure the facility readiness to perform the intended work. At least 25% of those documents reviewed by the Contractor are to be reviewed by the DOE-RL Team members. Interviews and observations are to be observed by the DOE-RL Team to ensure the areas are addressed and that questions probe the depth of knowledge of the personnel. The area of Management is to ensure facility management has programs and controls in place and sufficient oversight to conduct the work in a safe and effective manner. These concepts will ensure the project will be completed on time, within budget, and safely.

Records Reviewed:**Engineering/Start-up Testing**

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, *Start-up Plan to Operations*, Revision C, 06-26-02
- RCP-7816, *Design and Fabrication Specification for Building 324 AAHS*, Revision 0-A
- RCP-11507, *Operational Test Report for PWR Equipment*, Revision 0, 07-03-02
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- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, *Start-up Readiness*, Revision 7, 04-14-02

Safety Documents

- 10 CFR 72.236, Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication
- 10CFR 830.203 (b) Nuclear Safety Bases – Unreviewed Safety Questions
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FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents Engineering and Startup Testing CORE REQUIREMENT-10	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

- CP-PRO-013, Facility Worker Training, Revision 0
- HNF-3553, Annex D–200 Area Interim Storage Area Final Safety Analysis Report, Revision 2, Vol. 5
- HNF-8705, SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask, Revision 0, 04-22-02
- HNF-8749, 324 Building Failed Fuel Path Forward (OCRWM), Revision 0
- HNF-GD-7581, Unreviewed Safety Question Process Guidance, Revision 1
- HNF-IP-1264, 324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process, Revision 12
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- HNF-PRO-062, Unreviewed Safety Question Process, Revision 4
- HNF-SD-SPJ-SAR-001, 324 Building Safety Analysis Report, Revision 4
- HNF-SD-SPJ-OSR-001, 324 Building Operational Safety Requirements, Section 6, “Design Features, Passive Safety SSCs”, Revision 4
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FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents Engineering and Startup Testing CORE REQUIREMENT-10	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Positions Interviewed:

Authorization Basis Cognizant Engineer
Nuclear Chemical Operator
Principal Engineer
Stationary Operating Engineer
Operations Supervisor
Industrial Safety Engineer
HVAC Cognizant Engineer/Design Authority
Criticality Safety Engineer
Emergency Coordinator
SNF Projects Engineer

Evolutions/Operations Observed:

Spent Fuel Cask/Canister Mockup
SOE Logbook Review
Walkdown of the HVAC Zone I and II Areas
CY-2002 USQ Log Review

DISCUSSION OF RESULTS:

Safety Documents: The Safety Analysis Report (SAR) is not compliant with the format of DOE-STD-3009-94 and is so stated in the document. The Unreviewed Safety Question area is established and meets the intent of 10 CFR 830.203(b). The Authorization Agreement is established and updated as required. The associated Limiting Conditions for Operation (LCOs) are in place and understood by all personnel. Based on the current mission of the facility, the SAR is being revised to a Basis for Interim Operation (BIO) type document to support the Surveillance and Maintenance mode the facility will enter following the removal of the spent fuel.

The SARP was reviewed and approved by DOE-RL and a Safety Evaluation Report (SER) was issued. There were concerns raised about the differences between the 324 Building requirements and those of the external receiving facility. These were resolved through the development and issuance of an Unreviewed Safety Question (USQ) [324-FH-02-289]. The USQ was developed and completed during the Readiness Assessment review period.

A review of the Stationary Operating Engineer logbook was conducted to ascertain the content of information and the level of management overview of the logs. The logs do not appear to receive senior level management review except for the Building Operations Manager. In addition, the end/start of shift signoff is not consistent. The LCO Surveillance Procedure was reviewed and compared to the Zone I and II Operating Safety Requirements.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents Engineering and Startup Testing CORE REQUIREMENT-10	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Engineering/Start-up Testing: A review of the Operational Test Procedure (OTP) and the Operational Test Report (OTR) for the A-Cell Airlock Hoisting System (AAHS) was conducted. A walkdown and drawing review of the Building HVAC was conducted.

The fact that the AAHS is considered General Service (GS) equipment excludes it from meeting the requirement normally seen for these type documents. As a result the facility can provide these documents in their present format. Future documents for the Boiling Water Reactor fuel will be prepared in the same manner. Some alterations are expected as a result of this review.

The Engineering Change Notice (ECN) process was reviewed by reviewing the HVAC system drawings. The last ECN published was in 1994 and the drawings were all up-to-date.

CONCLUSIONS:

Safety Documents: Facility Management is involved in the preparation and submittal of the safety documentation. The use of external resources is prevalent due to the minimum staffing requirements the facility is currently operating under. There were several questions and concern raised, during the review, concerning the SARP. Additional management oversight is needed in this area to ensure implementation of the associated Memorandum of Understanding (MOU) is completed in a satisfactory manner. The design requirements also came under scrutiny when it was observed there was a difference in the as-built drawing and the actual delivered cask/canister. The difference allows for some potential internal movement of the canister. The facility meets the intent of these criteria. The conclusions of the FHI RA Team covered the criterion and allowed for a complete assessment in this area. There are Findings and Observations in this area that have been submitted by the FHI RA Team. This reviewer added no additional Findings and Observations.

Engineering/Start-up Testing: The methodology used to prepare and issue the OTP/OTR for the AAHS did not lend itself the management rigor and oversight. By placing this critical item in the General Service (GS) arena removes it from the "normal" rigor of management and formal peer review. The requirements for GS equipment are much less restrictive and management needs to recognize this.

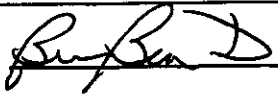
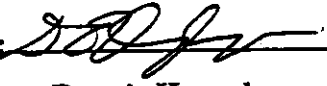
The function and operation of the Stationary Operating Engineer and the operation of the utility systems was found to meet the intent and requirements of the Core Requirement. There is opportunity for improvement in the logkeeping area; however, no findings or observations were generated in this area.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents Engineering and Startup Testing CORE REQUIREMENT-10	CRITERIA MET: ☒ Yes ☐ No DATE: August 14, 2002

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Engineering/ Startup Testing CORE REQUIREMENT-12	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

OBJECTIVE:

An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators. The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations including any required restrictions and additional oversight.

CRITERIA:

1. The startup plan to operations for the 324 Building B-Cell Spent Fuel Packaging includes all activities required to transition from the RA through operations for PWR Fuel and is being implemented. Specific hazards and evaluations that cannot be addressed prior to commencement of operations are included. (DOE Order 425.1A)
2. Factory acceptance and operational acceptance tests have been completed with no findings that impact the safe operations of equipment for the 324 Building B-Cell Spent Fuel Packaging Project

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

N/A

REVIEW: The Criteria associated with this review was Engineering/Start-up Testing. The DOE-RL review was performed as a parallel effort to oversee the Contractor Readiness Assessment. The purpose of the DOE-RL Readiness Review is to assess the Contractor to ensure a rigorous and in-depth review is conducted to ensure the facility readiness to perform the intended work. At least 25% of those documents reviewed by the Contractor are to be reviewed by the DOE-RL Team members. Interviews and observations are to be observed by the DOE-RL

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FUNCTIONAL AREA: Engineering/ Startup Testing CORE REQUIREMENT-12	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Team to ensure the areas are addressed and that questions probe the depth of knowledge of the personnel. The area of startup and resumption of operation programs is to ensure facility management has programs and controls in place and sufficient oversight to conduct the work in a safe and effective manner. These concepts will ensure the project will be completed on time, within budget, and safely.

Records Reviewed:**Engineering/Start-up Testing**

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, *Start-up Plan to Operations*, Revision C, 06-26-02
- RCP-7816, *Design and Fabrication Specification for Building 324 AAHS*, Revision 0-A
- RCP-11507, *Operational Test Report for PWR Equipment*, Revision 0, 07-03-02
- HNF-PRO-052, *Corrective Action Management*, Revision 7, 06-07-02
- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, *Start-up Readiness*, Revision 7, 04-14-02

Positions Interviewed:

Authorization Basis Cognizant Engineer
Principal Engineer
Operations Supervisor
Criticality Safety Engineer
SNF Projects Engineer

Evolutions/Operations Observed:

Spent Fuel Cask/Canister Mockup

DISCUSSION OF RESULTS:

Engineering/Start-up Testing: A review of the Operational Test Procedure (OTP) and the Operational Test Report (OTR) for the Airlock A-Cell Hoisting System (AAHS) was conducted. The fact that the AAHS is considered General Service (GS) equipment excludes it from meeting the requirement normally seen for these type documents. As a result the facility can provide these documents in their present format. An external contractor, Mid-Columbia Engineering (MCE) was hired to develop and perform the Factory Acceptance Tests for the AAHS to the requirements specified in the contract. These tests were conducted, under the auspices of the 324 Building Project Engineering in three phases. G&M Machining conducted the tests. The first phase of testing was conducted to test the functionality of the system controls to ensure these functioned properly prior to the application of any loads. The second phase, or dry run, verified

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Engineering/ Startup Testing CORE REQUIREMENT-12	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

that all critical dimensions were met. The third, and final, phase demonstrated the AAHS could be installed in near airlock conditions. This test was performed under full dress conditions. During the third phase the facility personnel witnessed and critiqued the entire process to ensure all requirements were met. All corrections to the engineering portion were corrected and modifications completed for final acceptance by the 324 Building personnel. None of these tests performed operational characteristics of the AAHS.

The Central Plateau Project engineering group has completed the SNF Packaging and Shipping handling equipment. As noted above this equipment is designated as General Service Equipment and as such does not have to meet the rigor of the safety class or safety significant equipment. This type designation is permitted by the FHI procedures. The Design Authority reviewed the test results and confirmed the OTP/OTR completion. The deficiencies and corrective actions were all tracked and documented in the OTP/OTR appendices.

Future documents for the Boiling Water Reactor fuel will be prepared in the same manner. Some alterations are expected as a result of this review.

A review of the facility Startup Plan was conducted. The Startup Plan contained the management controls and oversight and a summary of the associated procedures.

CONCLUSIONS:

Although there was an initial concern in the designation of this equipment as General Service, the fact that it was permitted under FHI procedures and the sufficient oversight and management control was provided the final product is expected to meet the facility needs. The mockup testing and subsequent facility testing confirmed the viability of the AAHS operability and functionality.

A more concise and rigorous OTP/OTR process would make these products more easily understood by other reviewers. The interrelations between the report section and the associated appendices currently are difficult to determine. The limited peer review on the General Service type documents lends itself to potential errors. Both these areas were discussed with the Design Authority and are under consideration for change.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Engineering/ Startup Testing CORE REQUIREMENT-12	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector: <u></u> Ben Burton	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Emergency Preparedness	CRITERIA MET: ☐ Yes ☐ No ☒ N/A
CORE REQUIREMENT-13	DATE: August 14, 2002

OBJECTIVE:

The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline

CRITERIA:

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
6. Personnel understand their roles and responsibilities

APPROACH:**Records Review:**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW: This assigned reviewer did not assess this particular Core Requirement. It has been covered in several other Core Requirements that were assigned to this reviewer.

Records Reviewed:

N/A

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FUNCTIONAL AREA: Emergency Preparedness CORE REQUIREMENT-13	CRITERIA MET: ☐ Yes ☐ No ☒ N/A DATE: August 14, 2002

Positions Interviewed:

N/A

Evolutions/Operations Observed:

N/A

DISCUSSION OF RESULTS:

This assigned reviewer did not assess this particular Core Requirement. It has been covered in several other Core Requirements that were assigned to this reviewer.

CONCLUSIONS:

This assigned reviewer did not assess this particular Core Requirement. It has been covered in several other Core Requirements that were assigned to this reviewer.

ISSUES (FINDINGS/OBSERVATIONS):

No issues other than previously identified by the FH RA Team.

Inspector: <u>Ben Burton</u> Ben Burton	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-15	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

OBJECTIVE:

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

CRITERIA:

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

APPROACH:

Records Review:

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews:

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations:

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

REVIEW:

The Criteria associated with this review were Safety Documents, Engineering/Start-up Testing, Emergency Preparedness, and Industrial Safety. The DOE-RL review was performed as a parallel effort to oversee the Contractor Readiness Assessment. The purpose of the DOE-RL Readiness Review is to assess the Contractor to ensure a rigorous and in-depth review is conducted to ensure the facility readiness to perform the intended work. At least 25% of those documents reviewed by the Contractor are to be reviewed by the DOE-RL Team members. Interviews and observations are to be observed by the DOE-RL Team to ensure the areas are addressed and that questions probe the depth of knowledge of the personnel. The area of Lessons Learned Feedback and Improvement is to ensure facility management has programs and

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-15	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

controls in place and sufficient oversight to conduct the work in a safe and effective manner. These concepts will ensure the project will be completed on time, within budget, and safely.

Records Reviewed:**Emergency Preparedness**

- HNF-IP-0263-324, *Building Emergency Plan for 324 Facility*, Revision 7, 01-17-02
- Operational Drill Records
- RCP-FIRE-006, *Fire at 324 During Fuel Movement*, 05-07-02
- RCP-PRO-004, *Emergency Preparedness Program*, Revision 5, 06-14-02
- RCP-RAD-002, *SNF Cask Drop at 324*, 04-03-02
- RCP-RAD-003, *Rad Material Impingement at 324 Building High Rad Storage Yard*, 02-14-02
- RCP-RADCON-011, *Airlock Man Down*, 06-06-02
- CP-FIRE-001, *Central Plateau Project Drill Package*, 07-25-02 and 07-31-02
(Accountability) Readiness Assessment Team Fire Drill

Engineering/Start-up Testing

- Acceptance Test Report for the AAHS, MCE-ATR-11466-001, Revision 0, 10-31-01
- HNF-10996, *Start-up Plan to Operations*, Revision C, 06-26-02
- RCP-7816, *Design and Fabrication Specification for Building 324 AAHS*, Revision 0-A
- RCP-11507, *Operational Test Report for PWR Equipment*, Revision 0, 07-03-02
- HNF-PRO-052, *Corrective Action Management*, Revision 7, 06-07-02
- Deficiency Tracking System Data Base
- Non-Deficiency Tracking Data Base
- HNF-PRO-055, *Start-up Readiness*, Revision 7, 04-14-02

Safety Documents

- 10 CFR 72.236, *Specific Requirements for Spent Fuel Storage Cask Approval and Fabrication*
- 10CFR 830.203 (b) *Nuclear Safety Bases – Unreviewed Safety Questions*
- 3I-SOP-SNF-002, *Perform Stationary Operating Engineer Surveillance*, Revision 4, Change F
- SOM/SOE Log Book
- CP-PRO-013, *Facility Worker Training*, Revision 0
- HNF-3553, *Annex D–200 Area Interim Storage Area Final Safety Analysis Report*, Revision 2, Vol. 5
- HNF-8705, *SARP On-Site NFS-4/NAC-1 Spent Fuel Shipping Cask*, Revision 0, 04-22-02
- HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*, Revision 0
- HNF-GD-7581, *Unreviewed Safety Question Process Guidance*, Revision 1
- HNF-IP-1264, *324/327 Facility Stabilization Projects Administrative Manual, Section 2.7, Unreviewed Safety Question Process*, Revision 12

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-15	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

- HNF-PRO-018, *Unreviewed Safety Questions*, Revision 1
- HNF-PRO-062, *Unreviewed Safety Question Process*, Revision 4
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*, Revision 4
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements*, Section 6, "Design Features, Passive Safety SSCs", Revision 4
- Letter 0103014, K.A. Klein to E.K. Thompson, *Contract Number DE-AC06-96RL13200 – 324 Building Deactivation Project Authorization Agreement (AA)*, 05-30-02
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 13, 09-14-99
- NRC, Certificate of Conformance (COC) #9183 for Model #NAC-1 Package, Revision 5, 09-24-94
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC-4 Package, Revision 5, 09-23-77
- NRC, Certificate of Conformance (COC) #6698 for Model #NAC-4 Package, Revision 17, 04-13-84
- *Safety Analysis Report for the NFS-4/NAC-1 Spent Fuel Shipping Cask*, 03-15-90
- *Safety Analysis Report for Nuclear Services, Inc., Spent Fuel Shipping Cask Model #NFS-4*, 09-29-72
- SNF-4894, *SNF Project Acceptance Criteria for LWR Spent Fuel Storage System*, Revision 2
- NUREG 1536, *Standard Review Plan for Dry Casks Storage System*, 1997
- 3I-SOP-PWR-005, *Operate Building 324 HVAC System*, Revision 3, Change 0
- Controlled Copies of Essential Drawings
- H-3-49514, *Exhaust Flow Diagram Zone 1*, Revision 2, last ECN and update 08-22-94
- H-3-49514, *Exhaust Flow Diagram Zone 2*, Revision 2, last ECN and update 08-22-94
- H-3-49514, *Exhaust Flow Diagram Zone 3*, Revision 2, last ECN and update 06-16-94
- H-3-49514, *Exhaust Flow Diagram Zone 4*, Revision 2, last ECN and update 10-22-92
- H-3-70224, *Exhaust Flow Diagram POG and Vessel Vent*, Revision 1, last ECN and update 10-22-92
- HNF- 6898, *324 Building Essential Drawing List*, Revision 3 (with ECNs)
- HNF-PRO-1819, *PHMC Engineering Requirements*, Section 6.a.6, "Change Control"

Industrial Safety

- None

Positions Interviewed:

Authorization Basis Cognizant Engineer
Nuclear Chemical Operator
Principal Engineer
Stationary Operating Engineer
Operations Supervisor
Industrial Safety Engineer
HVAC Cognizant Engineer/Design Authority
Criticality Safety Engineer
Emergency Coordinator
SNF Projects Engineer

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-15	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

Evolutions/Operations Observed:

Spent Fuel Cask/Canister Mockup
SOE Logbook Review
Walkdown of the HVAC Zone I and II Areas

DISCUSSION OF RESULTS:

Safety Documents: The one area of concern was associated with the SARP for the shipment of the spent fuel from the 324 Building to the Interim Storage Area (ISA/ISP) at the Canister Storage Building (CSB) in the 200 Area.

Engineering/Start-up Testing: The fact that the AAHS is considered General Service (GS) equipment excludes it from meeting the requirement normally seen for these type documents. As a result the facility can provide these documents in their present format. Future documents for the Boiling Water Reactor fuel will be prepared in the same manner. Some alterations are expected as a result of this review.

Emergency Preparedness: There was one prepared drill for the FHI RA Team to observe. The review consisted of a review of previously held drills and the associated program for conducting drills. The Emergency Coordinator is a matrixed individual from the FHI Central Plateau Group. The individual therefore does not spend full time in the facility. The drill did provide insight into the accountability characteristics of the drill program. As a result the drill had to be re-performed to provide evidence the facility could show how the accountability portion of the program worked. The placement of the RA Team members for observation did not work well in all cases. Those who were observing the Cask Handling Area (CHA) were not able to determine whether or not the contaminated individual actually went to the staging area or if another individual went in their place. There was much simulation and several personnel were exempted from the drill. These concepts do not allow for actual reality to personnel. Management needs to be aware of these aspects for future drills and the involvement of the total facility to ensure all personnel are prepared for events of this nature.

Industrial Safety: No documents were reviewed in this area. An interview was held with the Industrial Safety Engineer. The review consisted of the Facility walkdown and observations of facility conditions and personnel actions, including management involvement. There were lapses in safety culture and radiological controls noted during the review process. Areas where slips, trips, and fall could occur were observed. The required use of hard hats was not always followed. The pre-job briefs noted these areas, but only once were personnel noted as taking some physical action to minimize the danger. Housekeeping was generally acceptable. Although the interviews indicated that senior management is involved and serious about safety, their presence backside is not obvious to the workers.

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FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-15	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

Senior Supervisory Watch: This area is not one of the criteria that was reviewed, but is one in which management plays a key role in facility oversight. The facility Standing Instruction (SI-324-Bldg-030, Revision 1, April 2002) describes the program and the responsibilities of the Senior Supervisory Watch (SSW). There was only one time when the SSW was actually called out at the Pre-Job for the mockup work. When the SSW was on the scene the SSW also directed work that is contrary to the Standing Instruction (SI). Management cannot get full utilization of this oversight capability when they are either performing work or not present. Since the mockup work involves the airlock the SI indicates that the SSW will be stationed for all work where people will enter the airlock. During the interviews personnel stated that because of the RA and the mockup work and the minimum staffing some areas of oversight could not be covered. The SSW area was not mentioned. The review team did not address this issue primarily because it was not pointed out that management had such a position. The position was established in April 2002 following an incident in January 2002.

Integrated Safety Management System: This area is not one of the criteria that was reviewed, but is one in which management plays a key role in facility oversight. During the interviews it was noted that not all personnel understand the tenets and concepts of Integrated Safety Management System (ISMS). Personnel know the key words and phases associated with ISMS, but are not fully aware of the culture that ISMS provides. Management has not provided sufficient guidance on the implementation of ISMS to the personnel associated with the facility. Those personnel who are matrixed to the facility seemed to be the least knowledgeable while the operators understood the concepts much better.

Management Self Assessment: Prior to the Readiness Assessment Team coming to the facility a Management Self Assessment (MSA) was conducted by a team from Fluor Hanford, Inc. (FHI). The team issued a report of their assessment. A review of this report by this Readiness Assessment Team indicated that a less than rigorous review was conducted and areas of importance to the successful completion of this project were not assessed. The report did not reflect areas that were noted as areas of concern and this Readiness Assessment Team did not receive information on items that were discovered during the MSA. The lack of this information caused the Team to discover these same areas only to be told that MSA members had related the same information and these were contained on a facility maintained punch list and not tracked by any of the formal tracking systems provided by FHI to its subcontractors. It is not clear where or how the open items from the MSA will provide closure for either pre or post start of the project.

CONCLUSIONS:

Safety Documents: Facility Management is involved in the preparation and submittal of the safety documentation. The use of external resources is prevalent due to the minimum staffing requirements the facility is currently operating under. There were several questions and concern raised, during the review, concerning the SARP. Additional management oversight is needed in this area to ensure implementation of the associated Memorandum of Understanding (MOU) is completed in a satisfactory manner. The design requirements also came under scrutiny when it

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-15	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

was observed there was a difference in the as-built drawing and the actual delivered cask/canister.

Engineering/Start-up Testing: The methodology used to prepare and issue the OTP/OTR for the AAHS did not lend itself the management rigor and oversight. By placing this critical item in the General Service (GS) arena removes it from the “normal” rigor of management and formal peer review. The requirements for GS equipment are much less restrictive and management needs to recognize this.

Emergency Preparedness: The requirements of the Emergency Preparedness program are being met under the current minimum staffing program. However, a more rigorous management oversight in this area could provide needed reality to all facility personnel. The only emergency drills associated with the facility were found to be Fire and Cask Drop drills. Other facility oriented drills need to be worked into the program to include radiological concerns, industrial safety concerns and potentially external phenomenon.

Industrial Safety: Although management stresses that safety is a priority and some individuals follow this tenet, it is not clear that all staff management adheres to this concept. More examples of management presence need to put into practice to ensure workers “see” the example and understand the priority of safety on the job. The use of a matrixed safety professional could send a mixed message as to the priority of safety at an operating facility. The fact that some of the work is taking place in another building seems to preclude the concept of making the workplace a safe place to work. These conditions were generally stated at the pre-job, but with the caveat that the work was not in their facility and they needed to work around these hazards. Management did not alter this approach to safety.

Senior Supervisory Watch: The use of the SSW is not consistent with the Standing Instruction. Management does not gain the benefit of this oversight position to control Conduct of Operations and facility safety. The effectiveness of the SSW is reduced when they perform actual fieldwork associated with their normal duties. Due to the minimum staffing the need for other management personnel to perform this function should be pursued by the facility management. Management needs to review the programmatic impacts of the Standing Instruction to ensure the SSW is performing as expected to the statements of the SI.

Integrated Safety Management System: The concepts of Integrated Safety Management Systems (ISMS) have not been fully implemented at the facility. Management has not provided sufficient guidance to those individuals assigned to the facility to improve the culture associated with ISMS. Management should consider a program for improving this process and ensuring all personnel understand its concepts and the results of implementing ISMS at all levels of the work place.

Management Self Assessment: The Management Self Assessment (MSA) process is the key to indicating to the facility their ability and readiness to initiate a specific operation or process. The

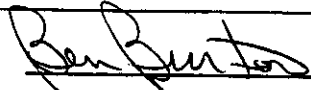
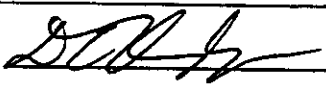
FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Safety Documents; Engineering/Startup Testing; Emergency Preparedness; Industrial Safety CORE REQUIREMENT-15	CRITERIA MET: [] Yes [X] No DATE: August 14, 2002

associated reviews and conclusions from these assessments are critical to the successful initiation of the Readiness Assessment by the external review team. The lack of feedback and Lessons Learned to the external assessment team places undue burden and schedule time to review areas of known concerns. It also implies management may not be in control of the facility when self-discovered items are not presented up front so credit can be given and other critical areas of concern could be more thoroughly assessed by the external team. It is not clear what the depth and rigor of the MSA was concerning the mockup area at 306E was in its review. The areas of concern discovered by the Readiness Assessment Team should have been discovered by the MSA.

ISSUES (FINDINGS/OBSERVATIONS):

One Observation (CR—1-MGT-O-1) was initiated associated with the use of the Senior Supervisory Watch.

Inspector:  Ben Burton	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Transportation/Packaging and Shipping

2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003, *Integrated ES&H Management System Description*.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

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FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-3553, ISA SAR
- HNF-8705, SARP
- OCRWM Indoctrination Training Personnel Listing
- QAPP-OCRWM-001, QAPP for HNSF Program, Rev. 11.

Interviews Conducted

- 324 SNF Project Design Authority
- Chief Engineer
- HSNF Project Manager
- Transportation and Safety Operations Manager
- Nuclear Safety Consultant
- Nuclear Safety Manager
- Quality Engineer
- Safety Program Manager
- SNF Program Design Authority
- Waste Program Manager.

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5(306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Tabletop leak penetrate testing on 7-26-02
- Tabletop SNF Document Transfer on 7-29-02

Discussion of Results

Criterion 1: The plans, procedures, instructions, and safety documents are in place for transportation/packaging and shipping activities for the 324 SNF Project. Agreements are in place with the HSNF Project (will receive the shipments) and the waste management organization (responsible for the transportation). The FH RA Team indicated the roles and responsibilities between the HSNF Project and the 324 SNF Project were not clearly understood. Also, that the agreement between waste management and the 324 SNF Project covered waste but did not address spent fuel.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Criterion 2: Operations personnel involved in the spent fuel packaging operations have attended the OCRWM orientation training. Management and technical personnel who are managing, performing and verifying specified technical activities have taken OCRWM-specific training. Pre-job briefings cover the various safety and health hazards expected to be encountered during the work activities through the AJHA analysis process. Additional evaluation results are covered in the Industrial Safety functional area.

Criterion 3: Personnel interviews, project document reviews, and work activity observations indicate that management takes an active part in encouraging a strong safety culture. The 324 Building Safety Log is one example of management involvement. Additional details are available in the functional areas of Fire Protection, Industrial Safety, and Radiological Controls.

Criterion 4: Several health, safety, and quality related systems are in place to identify and track respective issues. The 324 Building Safety Log is one example of a system that allows employees to identify safety and health hazards to their management. Additional review results are in the Industrial Safety functional area.

Criterion 5: This criterion is covered in the Industrial safety functional area.

Conclusion

The 324 Building SNF Project meets core requirement-1 for transportation and shipping.

Issue(s)

No issues other than those identified by the FH RA Team.

Findings

None.

Observations

None.

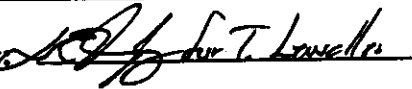
FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: **Transportation
and Shipping**
CORE REQUIREMENT-1

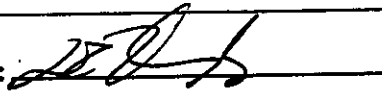
CRITERIA MET: ☒ Yes ☐ No

DATE: August 14, 2002

Inspector:


Tom Lewallen

Approved:


Dennis Humphreys
Team Leader

Date:



FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Records Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for the Operations functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- ASME Code Case N595-2
- HNF-3553, ISA SAR.
- HNF-8705, SARP
- HNF-8749, *324 Building Failed Fuel Path Forward (OCRWM)*
- NUREG-1536, *Review Plan for DSS*
- Program Agreement between SNF and 324

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 14, 2002

- SNF-4894, *SNF Project Acceptance Criteria for Light Water Reactor Spent Fuel Storage System.*

Interviews Conducted

- 324 SNF Design Authority
- HSNF Project Design Authority
- Nuclear Safety Manager
- Transportation and Safety Operations Manager
- Quality Engineer
- Safety Consultant
- Safety Program Manager
- Waste Program Manager.

Observations

- 324 SNF Project Design Authority
- Chief Engineer
- Transportation and Safety Manager
- Nuclear Safety Consultant
- Nuclear Safety Manager
- Quality Engineer
- Safety Project Manager
- SNF Program Design Authority
- SNF Project Manager
- Waste Program Manager.

Discussion of Results

Criterion 1: The management structure for the 324 SNF Project is shown on the organization chart issued on July 23, 2002. An agreement is in place between the 324 SNF Project and the HSNF Project. Several key individuals have been matrixed from the various FH support organizations to support the 324 SNF Project. Personnel interviews and reviews of project documents indicate roles between the HSNF Project and the 324 SNF Project are not clearly understood. This was also noted by the FH RA Team. In addition, the current responsibility for the SARP rests with the FH Transportation and Safety operations organization. However, the development of the SARP was started by the 324 SNF before the transportation and safety operations organization was formed. It was agreed by the respective organizations to leave the responsibility for the SARP with the 324 SNF Project. A program interface document is in place that addresses waste transportation activities but does not address spent fuel. This was also pointed out by the FH RA Team. COGEMA Engineering is performing the liquid penetrant examination and the helium leak testing.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Criterion 2: Personnel interviews, reviews of project documents, and work activity observations indicate that 324 Building senior management has overall responsibility for the content and effective conduct of transportation and shipping activities.

Conclusion

The 324 SNF Project meets core requirement # 2 for transportation and shipping.

Issue(s)

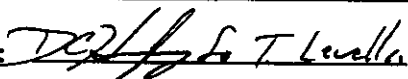
No issues other than those previously identified by the FH RA Team.

Findings

None.

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF-used facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF Program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to perform normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-3553, ISA SAR
- HNF-8705, SARP
- HNF-8749, *Failed Fuel Path Forward*
- NUREG- 1536, *Review Plan for Dry Storage Systems*
- Program agreement between HSNF Project and 324 Building Project
- SNF-4894.

Interviews Conducted

- 324 SNF Project design Authority
- Chief Engineer
- HSNF Program Design Authority
- HSNF Project Manager
- Transportation and Safety Operations Manager
- Nuclear Safety Consultant
- Nuclear Safety Manager
- Quality Engineer
- Safety Program Manager
- Waste Program Manager.

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on 7-23-02
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on 7-25-02
- Tabletop leak penetrate testing on 7-26-02
- Tabletop SNF document transfer on 7-29-02.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Discussion of Results

Criterion 1: Personnel interviews, review of project documents, and observation of work activities indicates operations personnel have adequate knowledge to effectively implement specified safety, technical, and quality assurance requirements. Also items and activities important to OCRWM safety requirements have been identified on the 324 SNF Project “Q-list”.

Criterion 2: Personnel interviews, review of project documents, and observation of work activities indicates operations personnel have an understanding of the Safety, technical, and quality assurance requirements applicable to transportation and shipping.

Criterion 3: Through personnel interviews, and observation of work activities, operations demonstrated their ability to carry out required technical and admin procedures.

Criterion 4: Through personnel interviews and observation of work activities, operations personnel demonstrated a working knowledge of SNF systems and components identified on the 324 SNF Project “Q-list”.

Criterion 5: The 324 Bldg operations support personnel (quality assurance, inspection and testing, and engineering) demonstrated a superior knowledge of SNF systems and components as required to implement procedure under their cognizance.

Criterion 6: Personnel interviews, review of project documents, and observation of work activities indicates management and technical support’s knowledge (OCRWM) is adequate. In addition, personnel involved with managing, performing, and verifying specified technical activities have received specific OCRWM training.

Criterion 7: Through interviews, reviewing project documents, and observing work activities, the 324 Bldg SNF Project personnel understand their responsibilities toward procedure compliance and “stop work.” In addition, project SOPs identifies the need to “stop work” if a safety issue is identified or if there is a question regarding the quality of work activities.

Conclusion

The 324 Building SNF Project meets core requirement-4 for transportation and shipping.

Issue(s)

No issues other than those previously identified by the FH RA Team.

Findings

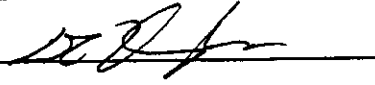
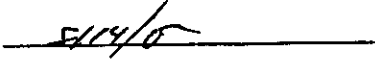
None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Observations

None.

Inspector:  Tom Lewallen	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)

Quality Assurance/Office of Civilian Radioactive Waste Management (OCRWM)

2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- CP-MP-002, Rev. 0, CP QA Plan
- OCRWM-Indoctrination Training Personnel Listing
- QAPP-OCRWM-001, Rev. 11, QAPP for HSNF Program
- SOP 31-SOP-SNF-001
- SOP 31-SOP-SNF-002
- SOP 31-SOP-SNF-003.

Interviews Conducted

- 324 SNF Project Design Authority
- Lessons Learned /CAM Coordinator
- NDE Technicians
- QC Inspector
- Quality Engineer
- SNF Program Design Authority
- SNF Program Mgr.

Observations

- Pre-job Briefing, Scene 5(306): Welding/Leak Testing of Loaded NAC Cask” on 7-25-02
- Pre-job Briefing, “Scene 2(324): Prepare the NAC Cask” on 7-23-02
- Tabletop leak Penetrate Testing on 7-26-02
- Tabletop SNF Document transfer on 7-29-02.

Discussion of Results

Criterion 1: The plans, procedures, and requirements matrix addressing the OCRWM QA requirements are in place and adequately implemented. Personnel interviews, review of project documents, and observation of work activities indicates the items and activities identified on the 324 SNF Project “Q-List” are appropriate for the 324 SNF Project.

Criterion 2: 324 SNF Project personnel have received an OCRWM orientation session and those personnel who manage, perform, and verify the performance of specified technical activities have received specific OCRWM training. The FH RA Team noted: “Training program well managed and solid, and very current. Excellent.”

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Criterion 3: All levels of 324 SNF Project management, including the Project Director, have taken the OCRWM orientation as well as the specific OCRWM training. Administrative and operating procedures have been identified as "OCRWM", to provide awareness to personnel utilizing those procedures.

Criterion 4: Procedures are in place to identify and track safety and quality issues. The CP CAM Coordinator maintains a status of the issues associated with the 324 SNF Project. The 324 Facility Safety Log process is an example of how safety issues are addressed.

Criterion 5: Results of the review of these criteria are covered in the Industrial Safety functional area.

Conclusion

The 324 Building SNF Project meets core requirement-1 for quality assurance.

Issue(s)

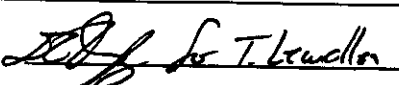
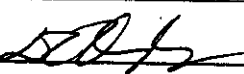
No issues other than those previously identified by the FH RA Team.

Findings

None.

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for the Operations functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 Building Deactivation Project Organization Chart, July 23, 2002
- CP-MP-002, Rev. 0, CP QA Plan
- HNF-IP-1264, Rev. 0, SNF Transfer Project Personnel Qualification (OCRWM)
- OCRWM Indoctrination Training personnel listing
- QAPP-OCRWM-001, Rev. 11, QAPP for HSNF Program.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 14, 2002

Interviews Conducted

- 324 Spent Fuel Design Authority
- Chief Engineer
- Lessons Learned/CAM Coordinator
- Manager, Transportation and Safety Operations
- NDE Technicians
- Nuclear Safety Consultant
- Nuclear Safety Manager
- Operations PICs
- Project Engineer
- QC Inspector
- Quality Engineer
- SNF Program Design Authority
- SNF Program Manager
- Waste Management Program Manager
- Welders
- Welding Engineer
- Welding Supervisor.

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Table top Leak Penetrate Testing on July 26, 2002
- Tabletop SNF Document Transfer on July 29, 2002.

Discussion of Results

Criterion 1: An updated organization chart for the 324 Building Deactivation Project was issued on July 23, 2002. Interviews with operations and support personnel indicate a clear understanding of management structure for quality assurance program activities. In addition, organization charts relating to the quality assurance management structure are shown in the CP QAP as well as the QAPP for HSNF Programs.

Criterion 2: Personnel interviews, review of project documentation, and observation of work activities indicates building senior management has overall responsibility for the effective conduct of the Quality Assurance Program. In addition, all project and support personnel have received OCRWM Indoctrination Training. Personnel involved with performing or verifying identified technical activities have received specific OCRWM training.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Conclusions

The 324 Building SNF Project meets core requirement-2 for Quality Assurance.

Issue(s)

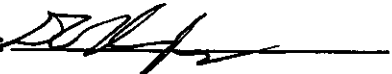
No issues other than those previously identified by the FH RA Team.

Findings

None.

Observations

None.

Inspector:  Tom Lewallen	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 3I-SOP-SNF-001, Rev. 2, Change C, "*Pre-Staging the SNF Cask for Loading*", July 18, 2002
- 3I-SOP-SNF-002, Rev. 2, Change C, "*SNF Cask Sealing and ISO Container Loading (OCRWM)*", July 18, 2002
- 3I-SOP-SNF-003, Rev. 3, Change 0, "*PWR Fuel Assembly Packaging and Load-Out (OCRWM)*", July 18, 2002
- CP-MP-002, Rev. 0, CP QA Plan
- HNF-IP-1264, Rev. 0, SNF Transfer Project Personnel Qualification (OCRWM)
- OCRWM Indoctrination Training personnel listing
- QAPP-OCRWM-001, Rev. 11, QAPP for HSNF Program.

Interviews Conducted

- 324 Spent Fuel Design Authority
- NDE Technicians
- Operations PICs
- QC Inspector
- Quality Engineer
- SNF Program Design Authority
- Welders
- Welding Engineer.

Observations

- Inspect O-Rings and Storage Locations on July 23, 2002
- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Table top Leak Penetrate Testing on July 26, 2002

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

- Tabletop SNF Document Transfer on July 29, 2002.

Discussion of Results

Criterion 1: Personnel interviews, review of project documents, and observation of work activities indicate operations personnel have adequate knowledge to effectively implement specified quality assurance requirements. In addition, all 324 Building operations personnel have received OCRWM Indoctrination Training.

Criterion 2: Personnel interviews, review of project documents, and observation of work activities indicate operations personnel have an understanding of the quality assurance requirements applicable to the 324 SNF Project. 324 SNF SOPs identify the specific QC hold points throughout the work activities. Through personnel interviews and observations of work activities operations personnel demonstrated an adequate knowledge of quality assurance requirements specific to 324 SNF Project work activities.

Criterion 3: Through personnel interviews and observation of work activities, operations personnel demonstrated their ability to carry out required quality assurance procedures.

Criterion 4: Through personnel interviews and observation of work activities, operations personnel demonstrated a working knowledge of SNF systems and components identified on the 324 SNF Project "Q" List.

Criterion 5: The 324 Building operations support personnel (Quality Engineer, QC Inspector, and NDE Technician) demonstrated a superior knowledge of SNF systems and components required to implement quality assurance procedures under their cognizance.

Criterion 6: Personnel interviews, review of project documentation, and observation of work activities indicate management and technical supports (OCRWM) level of knowledge is adequate. In addition, personnel involved with managing and verifying specified technical activities have received specific OCRWM training.

Criterion 7: Through interviews, reviewing project documents, and observing work activities, the 324 Building SNF Project personnel understand their responsibilities toward procedure compliance and "stop work". In project SOP's identify the need to "stop work" if a safety issue is identified or if there is a question regarding the quality of work activities.

Conclusion**Issue(s)****Findings**

None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

Observations

None.

Inspector: <u><i>Tom Lewallen</i></u> Tom Lewallen	Approved: <u><i>Dennis Humphreys</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Not applicable.

Record Review

- 324 Building Deactivation Project Organization Chart, July 23, 2002
- HNF-IP-1264, Rev. 0, SNF Transfer Project Personnel Qualification (OCRWM).

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

Interviews Conducted

- 324 Spent Fuel Design Authority
- QC Inspector
- Quality Engineer
- SNF Program Design Authority.

Evolutions/Operations Observed:

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Table top Leak Penetrate Testing on July 26, 2002
- Tabletop SNF Document Transfer on July 29, 2002.

Discussion of Results

Criterion 1: Personnel interviews, review of QA related documentation, and observation of work activities indicates the facility has sufficient numbers of operational personnel familiar with the QA requirements.

Criterion 2: Personnel interviews, documents reviewed, and observation of work activities indicate the facility has sufficient numbers of QA/QC personnel to support the 324 Building SNF operations. Designated backups are available for the QA/QC personnel and have been qualified and trained to the OCRWM QA requirements.

Conclusions

The 324 Building SNF Project meets core requirement #6 for Quality Assurance.

Issue(s)

No issues other than those previously identified by the FH RA Team.

Findings

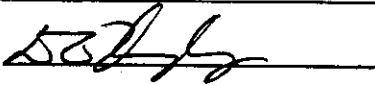
None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

OBJECTIVE

There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

Criteria

1. Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e.; DOE Order 5480.19, Chapter XVI)
2. The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)
3. 324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A Criterion 5)
4. Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility
5. An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.
6. An automated job hazard analysis of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.
7. Administrative procedures as defined in the POA, Appendix A, are prepared, approved and implemented.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-10	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- SOP 31-SOP-SNF-001
- SOP 31-SOP-SNF-002
- SOP 31-SOP-SNF-003
- OCRWM Indoctrination Training Personnel Listing
- CP-MP-002, rev 0, CP QA Plan
- QAPP-OCRWM-001, rev 11, QAPP for HSNF Program.

Interviews Conducted

- 324 SNF Project Design Authority
- NDE Technicians
- Operations PICs
- QC Inspector
- Quality Engineer
- SNF Program Design Authority.

Observations

- Pre-job briefing, "Scene 2(324): Prepare the NAC Cask" on 7-23-02
- Pre-job Briefing, "Scene 5(306): Welding/Leak Testing of Loaded NAC Cask" on 7-25-02
- Tabletop Leak Penetrate Testing on 7-26-02
- Tabletop SNF Document Transfer on 7-29-02.

Discussion of Results

Criterion 1: Personnel interviews, review of project documents, and observation of work activities indicates that OCRWM required QA procedures have been developed for the 324 SNF Project. Some FH site-wide procedures, some SNF Project procedures, as well as 324 SNF Project procedures were developed to fulfil the OCRWM QA requirements. All procedures are

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-10	DATE: August 14, 2002

identified on the 324 SNF Project OCRWM matrix.

Criterion 2: The specific OCRWM related requirements are contained within the SOPs developed for the SNF related work activities, with specific reference to the applicable testing and inspection procedures. Inspection plans were developed by the Quality Engineer, approved by the Design Authority, for items purchased from vendors as well as receiving inspections. Inspection plans contain criteria that can be physically verified or measured.

Criterion 5: SOPs are available to the operators to enable them to monitor and control the quality of work activities. "Stop work" provisions for both safety and quality are contained throughout the sequence of work activities.

Criterion 6: SOPs have been revised as required to reflect the latest modifications to the facility and dimensional changes to the SNF canisters.

Criterion 7: The ALARA review provisions are addressed in the functional area covering Radiological Controls.

Criterion 8: AJHA analysis review is addressed in the functional area covering Industrial Safety. However, it was noted that AJHA was covered during the pre-job briefings. The FH RA Team noted: "COGENA procedure, no AJHA done".

Criterion 9: Administrative procedures to support the implementation of the OCRWM QA requirements have been developed, approved, and issued. Some implementation discrepancies were identified by the FH RA Team involving: Pass-on of requirements to COGEMA via the inspection request for liquid penetrant and helium leak testing, performance of scheduled management assessments, and implementation of the OCRWM surveillance requirements (identified by FH internal audit).

Conclusions

The 324 Bldg SNF Project meets core requirement # 10 for quality assurance.

Issue(s)

No issues other than those previously identified by the FH RA Team.

Findings

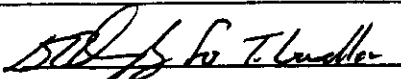
None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-10	DATE: August 14, 2002

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-11	DATE: August 14, 2002

OBJECTIVE

A routine drill program and emergency operations drill program, including program records, have been established and implemented.

Criteria

1. An effective emergency preparedness program, which reflects specific SNF activity-based drills, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 151.1; DOE Order 5480.20A, Chapter I)
2. An effective routine operations drill program, reflecting SNF activities, has been established. Drills and exercises are conducted and an adequate response capability exists. (DOE Order 425.1A)
3. Approved emergency plan and supporting documents are in place and the plan encompasses the 324 Building B-Cell Spent Fuel Packaging Project and new equipment.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-11	DATE: August 14, 2002

Record Review

- 3I-SOP-SNF-001, Rev. 2, Change C, *Pre-Staging the SNF Cask for Loading*, July 18, 2002
- 3I-SOP-SNF-002, Rev. 2, Change C, *SNF Cask Sealing and ISO Container Loading (OCRWM)*, July 18, 2002
- 3I-SOP-SNF-003, Rev. 3, Change 0, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*, July 18, 2002
- FH RA Team Issues List July 22 through July 29, 2002.

Interviews Conducted

- 324 SNF Project Design Authority
- QC Inspector
- Quality Engineer
- SNF Program Design Authority.

Observations

- Pre-job briefing, "Scene 1 (324): Transfer NAC Cask" on July 22, 2002.
- "Inspect O-Rings and Storage Location" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask", on July 25, 2002
- EP Drill (324) on July 25, 2002
- Table top Leak Penetrate Testing on July 26, 2002
- Table top SNF Document Transfer on July 29, 2002
- Drill on July 31, 2002.

Discussion of Results

Criterion 1: Evaluation included in Functional Area for "Emergency Preparedness and Operations Drill". As a participant in the EP drill on July 25, 2002, noted that Staging Area Manager was having some difficulty with the accountability portion of the drill. This condition was identified on the FH RA team as: "Drill did not satisfactorily validate accountability".

Criterion 2: Evaluation included in Functional Area for "Emergency Preparedness and Operations Drill".

Criterion 3: Evaluation included in Functional Area for "Emergency Preparedness and Operations Drill".

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-11	DATE: August 14, 2002

Conclusions

Not applicable.

Issue(s)

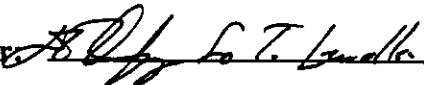
No issues other than those previously identified by the FH RA Team.

Findings

None.

Observations

None.

Inspector:  Tom Lewallen	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 SNF Startup Readiness Pre and Critical Post-Start Open Items, July 23, 2002
- 324 SNF Transfer Action Item Tracking, July 23, 2002
- DOE Memo dated July 18, 2002, *Mission Element Verification*
- HNF-PRO-052, Corrective Action Management.

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FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-15	DATE: August 14, 2002

Interviews Conducted

- 324 SNF Project Design Authority
- Lessons Learned/CAM Coordinator
- Quality Engineer
- SNF Program Design Authority.

Observations

Tabletop SNF Document Transfer on July 29, 2002.

Discussion of Results

Criterion 1: The 324 SNF Project has identified an open pre-start item as "Complete Acceptance of Documentation by the SNF Project". This documentation, based on personnel interviews, would also include the quality assurance related documentation as the results of all the required inspections and tests. This open pre-start item was also identified in the DOE-RL memo dated July 18, 2002. The individuals involved in the "Table top SNF Document Transfer" did not appear to have a detailed knowledge of the anticipated document transfer process. This was also noted by the FH RA team with the following comment on their issues list as: "Table top Document Transfer for SNF shipment is informal and not well developed (Does not comply with the intent of 4894)".

Criterion 2: "Institutionalize the readiness process for conduct of MSA" is identified by FH as an open pre-start item. Comments regarding the MSA process were contained in the DOE-RL memo of July 18, 2002.

Conclusion**Issue(s)****Findings**

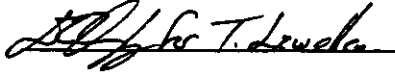
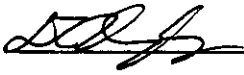
None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Quality Assurance (OCRWM)	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Not applicable.

Record Review

- ASME Code Case N595-2
- HNF-3553, ISA SAR
- HNF-8705, SARP

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

- HNF-8749, Failed Fuel Path Forward
- NUREG-1536, *Review Plan for DSS*
- Program Agreement between SNF and 324
- SNF-4894.

Interviews Conducted

- 324 SNF Project Design Authority
- Chief Engineer
- Manager, Transportation And Safety
- Nuclear Safety Consultant
- Nuclear Safety Manager
- Quality Engineer
- Safety Project Manager
- SNF Program Design Authority
- SNF Project Manager
- Waste Program Manager.

Observations

None applicable to this core requirement.

Discussion of Results

Criteria 1: Personnel interviews and reviews of project documents indicate that minimum staffing levels have been established based on the past and future anticipated workloads. Personnel involved with managing, performing, and verifying specified technical activities have been identified as required by OCRWM QA requirements. Verification of education and experience has been performed to also meet OCRWM QA requirements.

Criteria 2: Personnel interviews and reviews of project documents indicate sufficient numbers of OCRWM-related operations personnel are available to perform OCRWM-related technical and quality activities. OCRWM qualified personnel have been designated as backups for the QC Inspector and Quality Engineer. The Design Authorities for both the SNF Project and the 324 SNF Project have a positive working relationship.

Conclusion

The 324 Building SNF Project meets core requirement-6 for transportation and shipping.

Issue(s)

No issues other than those previously identified by the FH RA Team.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

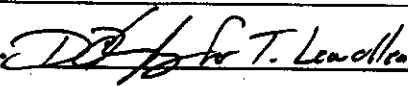
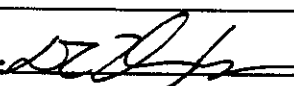
FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

Findings

None.

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

OBJECTIVE

The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline

Criteria

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
5. Personnel understand their roles and responsibilities

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-3553, ISA SAR
- HNF-8705, SARP

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

- SOP 31-SOP-SNF-001
- SOP 31-SOP-SNF-002
- SOP 31-SOP-SNF-003.

Interviews Conducted

- HSNF Program Design Authority
- Nuclear Safety Consultant
- 324 SNF Project Design Authority
- Nuclear Safety Manager
- Quality Engineer
- Transportation and Safety Operations Manager
- Waste Program Manager
- HSNF Project Manager
- Safety Program Manager.

Observations

- Inspect O-rings and storage location on 7-23-02.
- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on 7-23-02
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on 7-25-02
- Tabletop leak penetrate testing on 7-26-02
- Tabletop SNF document transfer on 7-29-02.

Discussion of Results

Criterion 1: Personnel interviews, review of project documents, and observation of work activities indicate the programmatic elements of conduct of operations are in place as related to transportation and shipping operations for the 324 SNF Project.

Criterion 2: Designated personnel have been qualified and certified for their respective roles for the transportation and shipping operations for the 324 SNF Project. OCRWM-required training has been given to personnel either as orientation or as specific training depending on their assigned job function. The FH RA Team stated: "Training program well managed and solid, and very current. Excellent!"

Criterion 3: The 324 Building Safety Log process is a procedure that may be used for identification and correction of conduct of operations issues. In addition, the FH Corrective Action Management system is available for identifying and resolving operations issues. The FH lesson-learned system makes provisions for notifying affected personnel of specific issues from the Hanford Site, as well from DOE complex-wide.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

Criterion 4: The FH RA Team identified several issues related to the expected rigor and discipline during the mock-ups and demonstrations. However, there were also positive comments by the RA Team, which included: "Interviews with operators and HPTs...they know procedure compliance is mandatory...their knowledge was more than adequate and [they] are involved in the procedure process."

Criterion 6: Personnel interviews, and observation of work activities indicate that 324 SNF Project personnel understand their roles and responsibilities for transportation and shipping activities. The FH RA Team did indicate that the roles and responsibilities regarding the agreement between the HSNF Project and the 324 SNF Project are not well understood.

Conclusion

The 324 Building SNF Project meets core requirement-13 for transportation and shipping.

Issue(s)

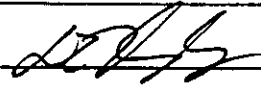
No issues other than those previously identified by the FH RA Team.

Findings

None.

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 -- READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review:

- 324 SNF Startup Readiness Pre-and Critical Post-Start Opens Items Listing, July 25, 2002
- 324 Transfer Action Item Tracking, July 25, 2002
- DOE memo, *Mission Element Verification*, July 18, 2002.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Interviews Conducted

- 324 SNF Project Design Authority
- FH Transportation and Safety Operations Manager.
- Lessons Learned/Corrective Action Management Coordinator
- Nuclear Safety Consultant
- Nuclear Safety Manager
- Quality Engineer
- SNF Project Design Authority
- SNF Project Manager.

Observations

None applicable to this core requirement.

Discussion of Results

Criterion 1: FH is tracking pre-start issues via a spreadsheet entitled 324 SNF Startup Readiness Pre-and Critical Post-Start Open Items. Several post-start items have been identified that are related to transportation and shipping. Pre-start items are identified in the DOE Richland Operations Office memo (dated 7-18-02), which are included on the spreadsheet.

Criterion 2: FH is tracking post-start issues via a spreadsheet entitled 324 SNF Startup Readiness Pre-and Critical Post-Start Open Items. Several post-start items have been identified that are related to transportation and shipping. One post-start item was identified in the DOE Richland Operations Office memo (dated 7-18-02), which is included on the spreadsheet. The FH RA Team stated, "MSA findings not evaluated nor entered into corrective action management system per site requirements (February and December too)."

Conclusion

The 324 Building SNF Project meets core requirement-15 for transportation and shipping.

Issue(s)

No issues other than those previously identified by the FH RA Team.

Findings

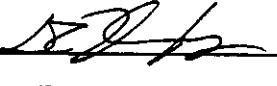
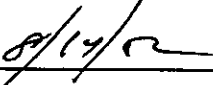
None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Transportation and Shipping	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Observations

None.

Inspector:  Tom Lewallen	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work-place surveillance exists to identify and track safety and health hazards, and systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project Integrated Safety Management System is maintained current and aligned with HNF-MP-003, *Integrated Environment, Safety, and Health Management System Description*.

Approach

Record Review

Determine the records/documents reviewed by the FH Readiness Assessment (RA) team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the review scope.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- SOP 31-SOP-SNF-001
- SOP 31-SOP-SNF-002
- SOP-31-SOP-SNF-003
- HNF-RD-9040, *Semi-Automatic Flux Cored Welding of Stainless Steels 8-8-FC-1*
- HNF-RD-9041, *Manual Gas Tungsten Arc & or Shielded Metal Arc Welding of A693 & A320 & P-8 & P-10H Steel Castings 8-8-GT/SM-1.*

Interviews Conducted

- 324 Spent Nuclear Fuels Project Design Authority
- NDE Technicians
- Quality Control Inspector
- Quality Engineer
- SNF Project Design Authority
- Welders
- Welding Engineer
- Welding Supervisor.

Observations

- Pre-job briefing, "Scene 5(306): Welding/Leak Testing of Loaded NAC Cask" on 7-25-02
- Tabletop leak-penetrate testing on 7-26-02.

Discussion of Results

Criterion 1: Personnel interviews, reviews of project documents, and observations of work activities indicate the management programs for welding operations for the 324 SNF Project have been adequately addressed. Plans, procedures, instructions, and qualified and trained welding and inspection personnel are adequate to ensure appropriate requirements are met.

Criterion 2: Welding and inspection personnel have attended the OCRWM orientation training. Pre-job briefings cover the various safety and health hazards expected to be encountered during the work activities through the Automated Job Hazard Analysis process. The hot work permit requirements regarding the welding operations are also discussed during pre-job briefings.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Criterion 3: Personnel interviews, reviews of project documents, and observations of work activities indicate that management takes an active part in encouraging a strong safety culture. The 324 Building safety log is one example of management involvement. Additional details are available in the functional areas of Fire Protection, Industrial Safety, and Radiological Controls.

Criterion 4: Several health, safety, and quality-related systems are in place to identify and track respective issues. The 324 Building Safety Log is one example of a system that allows employees to identify safety and health hazards to their management. Additional review results are in the Industrial Safety functional area.

Criterion 5: This criterion is covered in the Industrial Safety functional area.

Conclusion

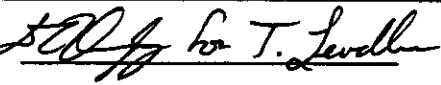
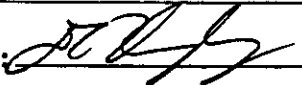
The 324 Building SNF Project meets core requirement 1 for welding.

Issue(s)**Findings**

None.

Observations

None.

Inspector:  Tom Lewallen	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

Determine the records/documents reviewed by the FH Readiness Assessment (RA) team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the review scope.

Interviews

Conduct parallel interviews with the FH RA team member responsible for the Operations functional area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 Building Deactivation Project Organization Chart, July 23, 2002
- FH-QA-01-018, October 23, 2001
- HNF-IP-1264, Rev. 0, *SNF Transfer Project Personnel Qualification (OCRWM)*
- OCRWM Indoctrination Training personnel listing.

Interviews Conducted

- Chief Engineer

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 14, 2002

- NDE Technicians
- QC Inspector
- Quality Engineer
- Welders
- Welding Engineer
- Welding Supervisor.

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Tabletop leak penetrate testing on July 26, 2002
- Tabletop SNF document transfer on July 29, 2002.

Discussion of Results

Criterion 1: *A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)*

Personnel interviews, reviews of welding and inspection documents, and observations of work activities indicate a clear management structure is established by the project for required work activities. Interviews with project personnel revealed a clear understanding of their respective role and responsibility for the SNF Project-related work activities. Personnel from COGEMA Engineering are utilized by FH for sitewide nondestructive examination services. COGEMA personnel function as "an affiliated staff member for Fluor Hanford."

Criterion 2: *324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).*

Personnel interviews, reviews of welding and inspection documentation, and observations of work activities indicate 324 Building senior management has overall responsibility for the 324 SNF Project welding and inspection activities.

Conclusion

The 324 Building SNF Project meets core requirement-2 for welding.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Issue(s)

Findings

None.

Observations

None.

Inspector: <u><i>DCB</i> for T. Lewallen</u> Tom Lewallen	Approved: <u><i>DCB</i></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF-utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to perform normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 3I-SOP-SNF-001, *Pre-Staging the SNF Cask For Loading*, Rev. 2, Change C, July 18, 2002
- 3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*, Rev. 2, Change C, July 18, 2002
- 3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*, Rev. 3, Change 0, July 18, 2002
- HNF-RD-9040, *Semi-Automatic Flux Cored Welding of Stainless Steels 8-8-FC-1*
- HNF-RD-9041, *Manual Gas Tungsten Arc & or Shielded Metal Arc Welding of A693 & A320 & P-8 & P-10H Steel Castings 8-8-GT/SM-1*
- HNF-IP-1264, *SNF Transfer Project Personnel Qualification (OCRWM)*, Rev. 0
- Cogema-SVCP-PRC-014, *Qualification and Certification of NDE Personnel*, Rev. 0.

Interview Conducted

- 324 SNF Project Design Authority
- Nondestructive Examination Technicians
- Quality Control Inspector
- Quality Engineer
- SNF Project Design Authority
- Welders
- Welding Engineer
- Welding Supervisor.

Observations

- Pre-job briefing, "Scene 1 (324): Transfer NAC Cask," on July 22, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask," on July 25, 2002
- Tabletop leak penetrate testing on July 26, 2002.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Discussion of Results

Criterion 1: *The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)*

Personnel interviews, reviews of project documents, and observations of work activities indicate welding personnel have the knowledge to perform welding operations safely and in accordance with quality requirements. Welding personnel have received OCRWM indoctrination training.

Criterion 2: *324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF-utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)*

Criterion 2: Personnel interviews, reviews of project documents, and observations of work activities indicate an understanding of SNF-required work activities. In addition, the SNF SOPs for the SNF Project work activities contain both safety and quality requirements throughout the sequence of work activities.

Criterion 3: *Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)*

Through mock-ups and demonstrations, welding personnel showed their ability to perform work to the safety and quality requirements contained in the 324 Building SNF Project procedures.

Criterion 4: *324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)*

Personnel interviews and observations of mock-ups and demonstrations indicate welding personnel have a working knowledge of SNF systems and components related to safety and work quality.

Criterion 5: *324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to perform normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)*

Inspection personnel demonstrated a working knowledge of SNF systems and components as required to perform procedures under their cognizance.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

Criterion 6: *324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)*

Personnel interviews, reviews of project documentation, and observations of work activities indicate the 324 SNF Project Management and Inspection personnel have an adequate knowledge of requirements related to welding.

Criterion 7: *324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.*

Personnel interviews, reviews of project documentation, and observations of work activities indicate personnel assigned to the 324 SNF Project understand their responsibilities toward procedure compliance and "stop work" authority. Provisions for "stop work" are included throughout the SOPs for the SNF Project.

Conclusion

The 324 Building SNF Project meets core requirement-4 for welding.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u><i>Tom Lewallen</i></u> Tom Lewallen	Approved: <u><i>Dennis Humphreys</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

None.

Record Review

- OCRWM Indoctrination Training personnel listing
- 3I-SOP-SNF-001, *Pre-Staging the SNF Cask For Loading*, Rev. 2, Change C, July 18, 2002

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

- 3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*, Rev. 2, Change C, July 18, 2002
- 3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*, Rev. 3, Change 0, July 18, 2002
- HNF-RD-9040, *Semi-Automatic Flux Cored Welding of Stainless Steels 8-8-FC-1*
- HNF-RD-9041, *Manual Gas Tungsten Arc & or Shielded Metal Arc Welding of A693 & A320 & P-8 & P-10H Steel Castings 8-8-GT/SM-1.*

Interviews Conducted

- Quality Control Inspector (2)
- Welders
- Welding Engineer
- Welding Supervisor.

Observations

- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Tabletop leak penetrate testing on July 26, 2002.

Discussion of Results

Criterion 1: *Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)*

Personnel interviews, reviews of project documents, and work activity observations indicate that required numbers of welders and inspection personnel are available for the 324 SNF Project. Back-ups were required to be identified for the welders, Quality Control Inspector, and Nondestructive Examination (NDE) Technicians.

Criterion 2: *Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)*

Personnel interviews, project document reviews, and work activity observations indicate that sufficient numbers of qualified welders, QC Inspectors, and NDE Technicians are available to carry out SNF welding and inspection activities. Mock-ups and demonstrations were performed to allow the welders, QC Inspector, and NDE Technicians to demonstrate their respective qualifications specific to the 324 SNF Project work activities. These personnel and back-ups

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

have received the OCRWM Indoctrination Training. The QC Inspector and NDE Technicians have also received OCRWM-specific training.

Conclusion

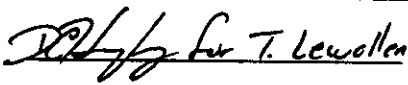
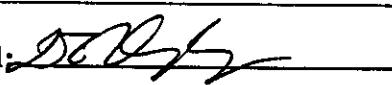
The 324 SNF Project meets core requirement-6 for welding.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

OBJECTIVE

The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline

Criteria

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
6. Personnel understand their roles and responsibilities.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- SOP 31-SOP-SNF-001
- SOP 31-SOP-SNF-002

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

- SOP 31-SOP-SNF-003
- HNF-RD-9040, *Semi-Automatic Flux Cored Welding of Stainless Steels 8-8-FC-1*
- HNF-RD-9041, *Manual Gas Tungsten Arc & or Shielded Metal Arc Welding of A693 & A320 & P-8 & P-10H Steel Castings 8-8-GT/SM-1*
- HNF-IP-1264, *SNF Transfer Project Personnel Qualification (OCRWM)*, Rev. 0
- COGEMA-SCVP-PRC-014, *Qualification and Certification of NDE Personnel*, Rev. 0.

Interviews Conducted

- Nondestructive examination Technicians
- Quality Control Inspector
- Quality Engineer
- Welders
- Welding Engineer.

Observations

- Pre-job briefing, "Scene 1(324): Transfer NAC Cask" on July 22, 2002
- Pre-job briefing, "Scene 5(306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Tabletop leak penetrate testing on July 26, 2002.

Discussion of Results

Criterion 1: Personnel interviews, project document reviews, and work activity observations indicate the programmatic elements of conduct of operations are in place as related to welding operations for the 324 SNF Project.

Criterion 2: Welding and inspection personnel are qualified and certified for their respective roles for the welding operations for the 324 SNF Project. In addition to other required training, welding and inspection personnel have attended the OCRWM indoctrination training. The FH RA Team stated: "The training program well managed and solid, and very current. Excellent."

Criterion 3: The 324 Building Safety Log process is one procedure that may be used for identification and correction of conduct of operations issues. In addition, the FH corrective action management system is available for identifying and resolving operations issues. The FH lessons-learned system makes provisions for notifying affected personnel of specific issues from the Hanford Site, as well as from DOE complex-wide.

Criterion 4: The FH RA Team identified several issues related to the expected rigor and discipline during the mockups and demonstrations. However, there were also positive comments by the RA Team:

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-13	DATE: August 14, 2002

“Interviews with operators and HPTs...they know procedure compliance is mandatory and their knowledge was more than adequate and are involved in the procedure process.”

Criterion 6: Personnel interviews and work activity observations indicate that welding and inspection personnel understand their roles and responsibilities for the welding operations for the 324 SNF Project. FH RA Team stated: “In summary, the welding program was well run and executed.”

Conclusion

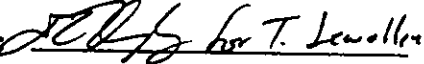
The 324 SNF Project meets core requirement-13 for welding.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 SNF Startup Readiness Pre- and Critical Post-Start Open Items listing, July 25, 2002
- 324 Transfer Action Item Tracking, July 25, 2002
- DOE Memo, *Mission Element Verification*, July 18, 2002.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Interviews Conducted

- 324 SNF Project Design Authority
- Lessons Learned/Corrective Action Management Coordinator
- Quality Engineer
- SNF Project Design Authority
- SNF Project Manager.

Observations

None applicable to this core requirement.

Discussion of Results

Criterion 1: FH is tracking pre-start issues via a spreadsheet entitled “324 SNF Startup Readiness Pre- and Critical Post-Start Open Items”. There are no pre-start issues identified which are related to welding operations.

Criterion 2: FH is tracking pre-start issues via a spreadsheet entitled “324 SNF Startup Readiness Pre- and Critical Post-Start Open Items.” There are no post-start issues identified related to welding operations.

Conclusion

The 324 SNF Project meets core requirement-15 for welding.

Issue(s)**Findings**

None.

Observations

None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Welding	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Inspector: <u><i>Tom Lewallen</i></u> Tom Lewallen	Approved: <u><i>Dennis Humphreys</i></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 14, 2002

Record Review

- 3I-SOP-SNF-001, Rev. 2, Change C, "Pre-Staging the SNF Cask For Loading", July 18, 2002
- 3I-SOP-SNF-002, Rev. 2, Change C, "SNF Cask Sealing and ISO Container Loading (OCRWM)", July 18, 2002
- 3I-SOP-SNF-003, Rev. 3, Change 0, "PWR Fuel Assembly Packaging and Load-Out (OCRWM)", July 18, 2002
- HNF-3235, Rev. 3, "324 Building Fire Hazards Analysis Implementation Plan"
- HNF-IP-1264, Rev. 4, "Fire Protection"
- HNF-RD-9900, Rev.0, "Hot Work Performance Requirements"
- 324 Facility Safety Log

Interviews Conducted

- Lessons Learned/CAM Coordinator
- Fire Protection Engineer
- Safety Program Engineer
- Welding Supervisor
- Welders
- NDE Technicians

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Table top Leak Penetrate Testing on July 26, 2002
- Table top SNF Document Transfer on July 29, 2002

Discussion of Results

Criterion 1: *Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)*

Personnel interviews, review of fire protection related documentation, and observation of work activities indicates the Fire Protection Program has been adequately addressed for the 324 Building B-Cell Spent Fuel Packaging operations.

Criterion 2: *Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Utilization of the 324 Facility Safety Log and covering fire protection requirements during pre-job briefings are two of the programs in place that have actively involved workers in fire protection programs for Spent Fuel Packaging work activities.

Criterion 3: *Management takes an active part in encouraging a strong safety culture.*

Personnel interviews, review of fire protection related documentation, and observation of work activities indicate that management takes an active part in encouraging a strong safety culture. Management involvement is particularly evident when reviewing the actions taken on items in the 324 Facility Safety Log.

Criterion 4: *Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.*

Fire Protection professionals have performed the required assessments and surveillances as indicated by the personnel interviews and review of documents. The utilization of the 324 Facility Safety Log is one process available for employees to identify safety and health issues to facility management.

Criterion 5: *River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003*

Evaluation of this criterion is discussed in the Industrial Safety functional area.

Conclusion

The 324 Building SNF Project meets core requirement #1 for Fire Protection.

Issue(s)

Findings

No issues other than previously identified by the FH RA team

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

No issues other than previously identified by the FH RA team.

Inspector: <u><i>Tom Lewallen</i></u> Tom Lewallen	Approved: <u><i>Dennis Humphreys</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 3I-SOP-SNF-001, Rev. 2, Change C, "*Pre-Staging the SNF Cask For Loading*", July 18, 2002
- 3I-SOP-SNF-002, Rev. 2, Change C, "*SNF Cask Sealing and ISO Container Loading (OCRWM)*", July 18, 2002
- 3I-SOP-SNF-003, Rev. 3, Change 0, "*PWR Fuel Assembly Packaging and Load-Out (OCRWM)*", July 18, 2002
- HNF-3235, Rev. 3, "*324 Building Fire Hazards Analysis Implementation Plan*"

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 14, 2002

- HNF-IP-1264, Rev. 4, "Fire Protection"
- HNF-RD-9900, Rev.0, "Hot Work Performance Requirements"
- Building 324, "Fire Protection Assessment", March 2001
- 324 Building Deactivation Project Organization Chart, July 23, 2002

Interviews Conducted

- Lessons Learned/CAM Coordinator
- Fire Protection Engineer
- Safety Program Engineer
- Chief Engineer
- Waste Management Program Manager

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Table top Leak Penetrate Testing on July 26, 2002
- Table top SNF Document Transfer on July 29, 2002

Discussion of Results

Criterion 1: *A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)*

An updated organization chart for the 324 Deactivation Project was issued on July 23, 2002. Interviews with operations and support personnel indicate a clear understanding of management structure for fire protection program activities.

Criterion 2: 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Personnel interviews, review of project documentation, and observation of work activities indicate building senior management has overall responsibility for the effective conduct of the fire protection program.

Conclusion

The 324 Building SNF project meets Core Requirement #2 for Fire Protection.

Issue(s)

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Findings

None.

Observations

None.

Inspector: <u><i>Tom Lewallen</i></u> Tom Lewallen	Approved: <u><i>Dennis Humphreys</i></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 3I-SOP-SNF-001, Rev. 2, Change C, "*Pre-Staging the SNF Cask For Loading*", July 18, 2002
- 3I-SOP-SNF-002, Rev. 2, Change C, "*SNF Cask Sealing and ISO Container Loading (OCRWM)*", July 18, 2002
- 3I-SOP-SNF-003, Rev. 3, Change 0, "*PWR Fuel Assembly Packaging and Load-Out (OCRWM)*", July 18, 2002
- HNF-3235, Rev. 3, "*324 Building Fire Hazards Analysis Implementation Plan*"
- HNF-IP-1264, Rev. 4, "*Fire Protection*"
- HNF-RD-9900, Rev.0, "*Hot Work Performance Requirements*"
- Building 324, "*Fire Protection Assessment*", March 2001
- OCRWM Indoctrination Training Personnel Listing

Interviews Conducted

- QC Inspector
- Welders
- Welding Supervisor
- Lessons Learned/CAM Coordinator
- Fire Protection Engineer
- Safety Program Manager
- Quality Engineer

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002
- Tabletop leak penetrate testing on July 26, 2002

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Discussion of Results

Criterion 1: *Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)*

Personnel interviews, review of fire protection related documents, and observation of work activities indicate the Fire Protection professionals have a superior knowledge of the fire protection requirements applicable to the 324 Building.

Criterion 2: *324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)*

Personnel interviews and review of fire protection related documentation indicate operations personnel have an adequate understanding of fire protection requirements to operate safely.

Criterion 3: *Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)*

Personnel interviews and observation of pre-job briefing indicates that operations personnel have an adequate understanding of the SNF utilized facility systems and operations. The hot work permit requirements and personnel protection equipment were discussed during pre-job briefings.

Criterion 4: *324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)*

Observation of work activities indicate operations personnel demonstrated their ability to carry out fire protection requirements.

Criterion 5: *324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)*

Personnel interviews and review of fire protection related documentation indicates that Fire Protection professionals have a superior knowledge of SNF systems and components to carry out fire protection requirements under their cognizance.

Criterion 6: *324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Review of OCRWM training records indicate two levels of training for personnel involved with the SNF project. One level is a general overview for all personnel and the other is the specific QARD requirements.

Criterion 7: 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and “stop work” authority.

Personnel interviews and review of documentation indicates personnel have an understanding of their responsibilities toward procedure compliance and “stop work” authority. Facility SOPs highlight “stop work” provisions and was also covered during pre-job briefings.

Conclusion

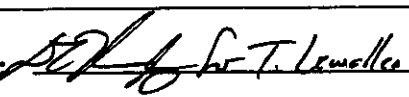
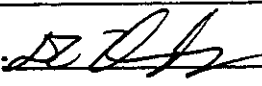
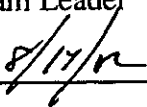
The 324 Building SNF project meets care requirement #4 for Fire Protection.

Issue(s)**Findings**

None.

Observations

None.

Inspector:  Tom Lewallen	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-3235, Rev. 3, "324 Building Fire Hazards Analysis Implementation Plan"
- HNF-IP-1264, Rev. 4, "Fire Protection"
- HNF-RD-9900, Rev.0, "Hot Work Performance Requirements"

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 14, 2002

- Building 324, "Fire Protection Assessment", March 2001

Interviews Conducted

- Lessons Learned/CAM Coordinator
- Fire Protection Engineer
- Safety Program Manager

Observations

- Pre-job briefing, "Scene 2 (324): Prepare the NAC Cask" on July 23, 2002
- Pre-job briefing, "Scene 5 (306): Welding/Leak Testing of Loaded NAC Cask" on July 25, 2002

Discussion of Results

Criterion 1: *Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)*

Personnel interviews, review of fire protection related documents, and observations of work activities indicate the facility has sufficient numbers of operations personnel familiar with the fire protection requirements. Designated backups are available for the resident Fire Protection Engineer as well as additional assistance as needed from the Fire Marshall's office.

Criterion 2: *Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)*

Personnel interviews, documents reviewed, and observations of work activities indicate the facility has sufficient numbers of fire protection professionals to support the 324 Building SNF Operations.

Conclusion

The 324 Building SNF Project meets Core Requirement #6 for Fire Protection.

FH RA Assessment Team stated: "Fire protection program for Building 324 is well managed and adequately staffed to meet the safety basis requirements".

Issue(s)

Findings

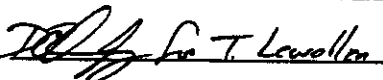
FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

None.

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- HNF-3235, Rev. 3, "324 Building Fire Hazards Analysis Implementation Plan"
- HNF-IP-1264, Rev. 4, "Fire Protection"
- Building 324, "Fire Protection Assessment", March 2001
- 324 SNF Transfer Item Tracking, July 25, 2002
- 324 SNF Startup Readiness Pre and Critical Post-Start Open Items, July 25, 2002
- DOE Memo dated July 18, 2002, "Mission Element verification..."
- HNF-PRO-052, Corrective Action Management

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Interviews Conducted

- Lessons Learned/CAM Coordinator
- Fire Protection Engineer
- Safety Program Engineer

Observations

None applicable to this core requirement

Discussion of Results

Criterion 1: *Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)*

The corrective measures taken to implement the recommendations contained in the 324 Building Fire Hazards Analysis were reviewed and verified as completed. No fire protection related pre-start issues have been identified.

Criterion 2: *Facility management has reviewed and tracked post start issues.*

The FH Company Corrective Action Management System, HNF-PRO-052, contains the process for reviewing and tracking post-start issues related to fire protection. No fire protection related post-start issues have been identified.

Conclusion

The 324 Building SNF project meets core requirement #15 for Fire Protection.

Issue(s)

Findings

None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Fire Protection	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Observations

None.

Inspector: <u></u> Tom Lewallen	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

- Interview managers to determine that management programs were developed/revised, as necessary, and implemented.
- Interview operations and support personnel to assess their understanding of ES&H policies and procedures and how they feel about management responsiveness to safety issues.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach**Record Review**

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

- Interview managers to determine that management programs were developed/revised, as necessary, and implemented.
- Interview operations and support personnel to assess their understanding of ES&H policies and procedures and how they feel about management responsiveness to safety issues.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Observations

- Observe the performance of activities to determine if the programs are implemented to support operations.
- Walk-down two safety systems, from design specification to the drawings, to the field components, to verify the systems were built and installed to design.
- Observe the performance of the A-Cell AAHS.
- Observed the mock-up of SNF transfer from B-Cell to the air lock and the performance of AAHS.
- Observed the mock-up of the loaded SNF container (critical lift)
- Observe workers in all demonstrations to be sure they demonstrate awareness of requirements for safe operations.

Record Review

- Equipment Specific Tagging
- Maintenance Tagging
- HNF-8705
- Grove 80 ton truck crane HO017T-5692 load chart
- 3I-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*, Revision 2, Change C
- 3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*, Revision 2, Change C
- DOE-RL-92-36, *Hanford Site Hoisting and Rigging Manual*
- Grove 80 Ton Truck Crane HO-17T-5692 Load Chart
- Upper Impact Limiter Lifting Fixture 324-MAT-LF-050 Tagging
- ISO Lid Lifting Slings Tagging, DOE-RL-92-36
- AAHS Manufacture specifications documents
- SNF critical lift plan (mobile crane)
- Lifting Device Maintenance Files

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Interviews Conducted

- Mobile Crane Operator
- Crane Cog Engineer
- Person In-Charge
- Nuclear Chemical Operator
- Cognizant Engineer
- Crane Custodian
- Designated Leader
- Health Physics Technician
- Industrial Safety
- Maintenance Supervisor
- Mobile Crane Operator
- Nuclear Chemical Operator(s) (6)
- Operations Crane Operator
- Operations PIC
- Operations Supervisor(s) (4)
- Quality Assurance Engineer/QC
- Rigger(s) (2)
- Stationary Operating Engineer (SOE)

Observations

- Pre-job Brief, 3I-SOP-SNF-001.
- 3I-SOP-SNF-001 Evolutions, Scene 1 and 2.
- 3I-SOP-SNF-002 Evolutions, Scene 3 and 6.
- AAHS mock-up videotape review.

Spaces Visited:

- 324 Truck Lock.
- Equipment Yard.
- Low Boy Trailer HO-64-5712.
- Building 324 B-Cell exterior windows.
- Building 306 mock-up areas.
- 324 back side (north)

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 14, 2002

Discussion of Results

Criterion 1: *Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA)*

The facility has sufficient crane operator and operations personnel to staff the upcoming operations. The observations of the mock-ups were adequate for the upcoming operations.

Criterion 2: *Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.*

Personnel involved in B-Cell Spent Fuel Packaging operations and mock-ups are actively involved in ES&H programs.

Criterion 3: *Management takes an active part in encouraging a strong safety culture.*

324-facility management takes an active part in encouraging a strong safety culture as evidenced by the operations observation and mock-ups.

Criterion 4: *Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.*

Safety and Health issues identified, tracked and systems are in place to encourage employees to report hazards to their manager for corrective actions without fear of reprisal. However, in interviews with support personnel a majority of the interviewees expressed concern with reporting safety issues directly to 324 management or using the 324-safety log. All Interviewees indicated that they expressed safety concerns informally to there support supervisor.

Criterion 5: *River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003*

In the interviews, the prompting question was, "What does Integrated Safety Management mean to you," and "How have you participated in the planning and conduct of work?" In general, responses were inadequate with 324 facility personnel as well as exterior service and support personnel. Responses included, "Team approach, everyone involved," "worker and building safety," "informed/being informed," "team process," "program here to stay," "not the flavor of the day," "drives harder look," and "proactive approach." Personnel also indicated that they had little or no involvement in post-job critiques, and use of lessons learned applicable to work. The results of the interviews were shared with the facility management.

Conclusion

Based on the discussions above the core requirements have been met.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: **Hoisting and Rigging**

CRITERIA MET: [X] Yes [] No

CORE REQUIREMENT-1

DATE: August 14, 2002

Issue(s)

Findings

None

Observations

None

Inspector:

Theo Martin
Theo Martin

Approved:

Dennis Humphreys
Dennis Humphreys
Team Leader

Date:

8/14/02

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach**Record Review**

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review, including Hoist and Rigging evolutions with mobile cranes.

Record Review

- 324 Building Crane Operations Conduct of Operations Improvement Plan Checklist
- 324 Building Deactivation project Organization Chart
- 3I-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*, Revision/Change 2-C

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

- 3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*, Revision/Change 2-C
- 3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-out (OCRWM)*, Revision/Change 3-0

Interviews Conducted

- Cognizant Engineer
- Maintenance Supervisor
- Operations PIC
- Designated Leader
- Crane Custodian
- Facility Engineer(s) (2)

Observations

- Scenes I, II, and III
- Plan of the Day Meeting
- EZAC Meeting
- 324 Procedure Violation Critique
- Pre-job Meeting(s) (3)

Spaces Visited:

- 324 Building
- 306 Building

Discussion of Results

Criteria 1: *A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)*

324 facility has a clear and functioning management structure established, approved, and in place. This structure is implemented and understood by interior 324 Building operations personnel. However, it was observed during the mobile crane lift evolutions that several exterior 324 Building support personnel were unclear about organization integration and management functions. In these cases unclear guidance led to support personnel being late for pre-jobs and

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

AJHA's as well as not attending them in some cases. The FH RA team documented this and other similar instances in their report.

Criteria 2: *324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).*

The 324 Building senior management takes responsibility and effectively manages conduct of safety program.

Conclusion

Based upon the discussions above the core requirements have been met.

Issue(s)**Findings**

No issues other than those identified by the FH RA Team.

Observations

No issues other than those identified by the FH RA Team.

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe 324 Building B-Cell Spent Fuel Packaging routine evolutions and normal operations to assess technical understanding and ability of the operators and supervisors to conduct their duties and to safely operate systems and components in accordance with approved plant procedures.

Record Review

- 324 Building Deactivation Project Organization Chart
- Facility Furnished Training Item reports for crane & rigging and OCRWM
- Facility Training plan
- FH Training Data Base-random personnel(s) training history reviewed

Interviews Conducted

- 324 Building Cognizant Engineer
- 324 Building Crane Custodian
- 324 Building Designated Leader
- 324 Building Engineering Manager
- 324 Building Facility Engineer(s)
- 324 Building Facility Supervisors
- 324 Building Health Physics Technician
- 324 Building Hot Cell Operations Manager
- 324 Building Maintenance Manager
- 324 Building Nuclear Chemical Operator(s)
- 324 Building Operations PIC
- 324 Building Operations Supervisor(s)
- 324 Building Project Management & Integration Manager

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

- 324 Building Quality Control Inspector
- 324 Building Radiological Controls Supervisor
- 324 Building Rigging & Below the Hook Lifting Device Custodian
- 324 Building Rigging Inspector
- 324 Building Stationary Operating Engineer
- Industrial Safety Staff
- Mobile Crane Operator(s)
- Outside Support Crane & Rigging Supervisor
- Riggers
- Support Personnel

Observations

- Cask Closure and Shipment
- Cask Loading
- Cask Load-Out From the Airlock
- Cask Preparation

Spaces Visited:

- 306 Building Mockup Area
- 324 Building Working Spaces
- 324 Building Cask Handling Area
- 324 Building Truck Lock

Discussion of Results

Criterion 1: *The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)*

Evolution observations indicate 324 Building B-Cell Spent Fuel Packaging operator personnel were knowledgeable and could adequately operate safely.

Criterion 2: *324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give*

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FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 14, 2002

adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)

324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. The personnel also have adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program.

Criterion 3: *Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)*

Except for issues raised during the first welding and leak check mockup in building 306, the facility operators demonstrated the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures.

Criterion 4: *324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)*

324 Building operators demonstrated a working knowledge of SNF systems and components related to safety.

Criterion 5: *324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)*

324 Building operations support personnel weren't included in all pre-job meetings and AJHA's. However, when included as part of the team and given opportunities to review procedures and AJHA's they demonstrated a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance.

Criterion 6: *324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)*

324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate.

Criterion 7: *324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.*

Early in the review during evolution mockups, it was observed that a small number of 324 Building B-Cell Spent Fuel Packaging personnel (operations support, technical support staff and

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

management) didn't fully understand stop work authority and their procedural compliance responsibilities. However, after this initial information was fed back to facility management personnel understanding of procedural requirement responsibilities and stop work authority improved dramatically.

Personnel interviews and review of documentation indicated that operational personnel have an understanding of their responsibilities toward procedure compliance and "stop work" authority. Facility SOPs highlight "stop work" provisions and was covered during pre-job briefings.

Conclusion

Based on discussions above the core requirements have been met.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)

Approach**Record Review**

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Assess staffing levels while observing routine evolutions and operations to determine if they are adequate and satisfy administrative and safety basis requirements.

Record Review

- 324 Building Deactivation Project Organization Chart, 07/08/02

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

- 3I-SOP-G-22, *Hot Cell Combustible Material Inventory*
- 3I-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*, Revision/Change 2-C
- 3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading*, Revision/Change 2-C
- 3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out*, Revision/Change 3-0
- 6-8EP.2, *Readiness Self-Assessment*, dated 6/5/02
- 99-TPD-130, *Categorical Exclusion for Stabilization/deactivation of the 324/327 Buildings, 300 Area, Hanford Site, Richland Washington*, dated 6/9/99
- Affidavit Punchlist 06-8EP.2, Closure Document, dated 6/14/02
- AIR-98-601, WDOH, *Notice of Construction Verification Inspection for the 324 B-Cell NOC*, 4/28/98
- AJHA Report, AJHA ID 3I-662, Work Package No. 3I-SOP-SNF-002
- Memorandum, D. Rasmussen to Distribution, *Attached Notice of Construction Revision Form for Cleanout of B-Cell at the 324 Building (AIR-95-903)*, Approved by WDOH September 21, 1999, dated 9/21/99

Interviews Conducted

- Activity Manager
- Environmental Compliance Officer
- Facility Engineer(s)
- Maintenance Manager
- NCO
- Operations Supervisor
- Outside support supervisor
- Person-In-Charge
- QC Inspector
- Safety Engineer
- SOE

Observations

- Scene I –IV an VI

Spaces Visited:

- 324 Building

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 14, 2002

- 306 Building
- Trailer 1
- Cast Handling area 324 Building

Discussion of Results

Criterion 1: *Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis)*

The facility appeared to have sufficient staff to accomplish their mission. These staffing levels are consistent with the safety basis requirements and assumptions.

Criterion 2: *Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis)*

Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements.

Conclusion

Based in the discussions above the core requirements have been met

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

OBJECTIVE

The formality and discipline of operations is adequate to conduct work safely and programs are in place to maintain this formality and discipline

Criteria

1. Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)
2. Personnel have been trained in key COO principles. (DOE Order 5480.19)
3. When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)
4. Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)
6. Personnel understand their roles and responsibilities

Approach

Record Review

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 324 Building Revised Conduct of Operations Applicability Matrix

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-13	DATE: August 14, 2002

- 3I-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*, Revision/Change 2-C
- 3I-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*, Revision/Change 2-C
- 3I-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load-Out (OCRWM)*, Revision/Change 3-0
- 49 CFR 173 (DOT regulations)
- DOE Order 5480.19
- DOE-RL-92-36, *Hanford Site Hoisting and Rigging Manual*
- Logbook (SOE, 324 CHA, and Operations)
- Review and conclusions re: engineering, fabrication and acceptance of the modification and equipment required to perform the operation, J. Jens/T. Erickson, 07/15/2002
- Work Package

Interviews Conducted

- Facility Supervisor(s)
- Health Physics Technician(s)
- Hot Cell Operations Manager
- Nuclear Chemical Operator(s)
- Operations Supervisor
- Quality Assurance inspector
- Radiological Control Supervisor
- Stationary Operating Engineer (SOE)

Observations

- 3I-SOP-SNF-001, Scene I and II
- 3I-SOP-SNF-001 (Scenes VI)
- AAHS Operation

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging CORE REQUIREMENT-13	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Spaces Visited:

- 324 Truck Load and Staging Area
- 324 Building
- 306 Building

Discussion of Results

Criterion 1: *Programmatic elements of conducts of operations (COO) are in place. (DOE Order 5480.19)*

Programmatic elements of conducts of operations (COO) are in place.

Criterion 2: *Personnel have been trained in key COO principles. (DOE Order 5480.19)*

Personnel have been trained in key COO principles.

Criterion 3: *When weaknesses in COO have been identified, corrective or compensatory actions are in place. (DOE Order 5480.19)*

Several weaknesses in COO were identified and corrective actions taken.

Criterion 4: *Operations personnel demonstrate the principles of the COO requirements during the dry run demonstrations of 324 Building B-Cell Spent Fuel Packaging operations. (DOE Order 5480.19)*

In several isolated instances operations and support personnel failed to demonstrate COO principle requirements during dry runs (e.g. industrial safety concerns and several radiological control zone violations)

Criterion 6: *Personnel understand their roles and responsibilities*

Operations personnel clearly understand their roles and responsibilities. During observations of dry run and mock up activities specifically the mobile crane empty ISO container dry run it was evident that the crane and rigging support personnel (non facility) did not have a clear understanding of their roles and responsibilities as they pertained to the specific procedure in use. This issue is noted and the FH Final Report and a finding was issued by the FH RA team relating to this dry run.

Conclusion

Based on the discussions above the core requirement has been met.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging CORE REQUIREMENT-13	CRITERIA MET: ☒ Yes ☐ No DATE: August 14, 2002

Issue(s)

Findings

None

Observations

None

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging CORE REQUIREMENT-15	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach**Record Review**

Determine the records/documents reviewed by the FH RA team member with the responsibility for this functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

- Observe the fuel transfer and packaging dry runs and any drills performed for this review
- B- Cell crane and wire rope via video camera
- AAHS operations

Record Review

- Affidavit Punchlist # 06-8EP.2, Punchlist Closure Document, dated 6/14/02
- Critique CRT-324-2002-011

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-15	DATE: August 14, 2002

- Employee Concern Log Book
- EZAC Meeting Minutes
- HNF-SD-HT-FHA-002, *324 Facility Fire Hazards Analysis*, Revision 1
- Management of the 300 Area LWR, SFN, "Programmatic Agreement between Spent Nuclear Fuel and River Corridor Project"
- Memorandum, M. S. Wright to N. C. Boyter, *Management Self-Assessment Results*, July 15, 2002

Interviews Conducted

- Building 324 Project Management and Integration Manager
- Environmental Compliance Officer
- EZAC Representative
- Hoisting & Rigging Designated Leader
- Maintenance Manager
- NCO(s)
- Operations PIC(s)
- Rigger(s)
- Rigging Supervisor

Observations

- 3I-SOP-SNF-001, Scene I and II
- 3I-SOP-SNF-001 (Scenes VI)
- AAHS Operation and video
- Critique CRT-324-2002-011
- EZAC Meeting
- SNF B-Cell video

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging CORE REQUIREMENT-15	CRITERIA MET: [X] Yes [] No DATE: August 14, 2002

Spaces Visited:

- 324 Building
- Trailer 1
- Trailer 2

Spaces Visited:

- 324 Truck Load and Staging Area
- 324 Building
- 306 Building

Discussion of Results

Criterion 1: *Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)*

Facility management has reviewed and resolved or scheduled work activities to resolve pre-start issues.

Criterion 2: *Facility management has reviewed and tracked post start issues.*

Facility management reviews, tracks, and works to resolve pre-start issues.

Conclusion

Based on the discussions above the core requirement has been met.

Issue(s)

Findings

No issues other than those identified by the FH RA Team.

Observations

No issues other than those identified by the FH RA Team.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Hoisting and Rigging	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Inspector: <u><i>Theo Martin</i></u> Theo Martin	Approved: <u><i>Dennis Humphreys</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-2	DATE: August 14, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

Conduct parallel interviews with the FH RA team member responsible for the Operations functional area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Not applicable.

Record Review

Refer to CR-14, S/RID Functional Area.

Interviews Conducted

Refer to CR-14, S/RID Functional Area.

Observations

Not applicable.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 14, 2002

Discussion of Results

Refer to CR-14, S/RID Functional Area.

Conclusions

Refer to CR-14, S/RID Functional Area.

Issue(s)

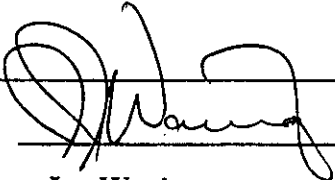
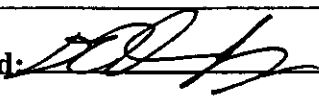
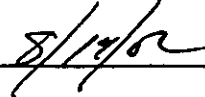
Refer to CR-14, S/RID Functional Area.

Findings

None.

Observations

None.

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

Refer to CR-14, S/RID Functional Area.

Interviews Conducted

Refer to CR-14, S/RID Functional Area.

Observations

Not applicable.

Discussion of Results

Refer to CR-14, S/RID Functional Area.

Conclusions

Refer to CR-14, S/RID Functional Area.

Issue(s)

Refer to CR-14, S/RID Functional Area.

Findings

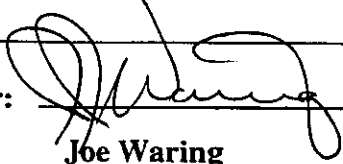
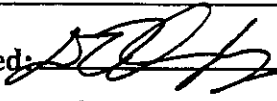
None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 14, 2002

Observations

None.

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

OBJECTIVE

There are adequate and correct procedures and safety limits for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.

Criteria

1. Procedures implement applicable 324 Building B-Cell Spent Fuel Packaging safety requirements and the associated limiting conditions for operation. (DOE Order 5480.22, paragraph 9.e.; DOE Order 5480.19, Chapter XVI)
2. The parameters indicating compliance with the 324 Building B-Cell Spent Fuel Packaging safety requirements can be measured or physically verified. (DOE Order 5480.22, paragraph 9.e)
3. 324 Building B-Cell Spent Fuel Packaging procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions. (DOE Order 5480.19, Chapter XVI; DOE Order 5480.22, paragraph 9; DOE Order 414.1A Criterion 5)
4. Procedures for 324 Building B-Cell Spent Fuel Packaging were developed based upon the latest modifications to the facility
5. An ALARA review has been completed for the 324 Building B-Cell Spent Fuel Packaging Project and necessary controls have been added to the work documents.
6. An automated job hazard analysis of the 324 Building B-Cell Spent Fuel Packaging Project work scope has been completed.
7. Administrative procedures as defined in the POA, Appendix A, are prepared, approved and implemented.

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

Refer to CR-14, S/RID Functional Area.

Interviews Conducted

Refer to CR -14, S/RID Functional Area.

Observations

N/A.

Discussion of Results

Refer to CR-14, S/RID Functional Area.

Conclusion

Refer to CR-14, S/RID Functional Area.

Issue(s)

Refer to CR-14, S/RID Functional Area.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

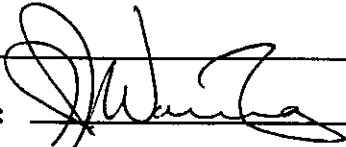
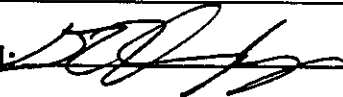
FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-10	DATE: August 14, 2002

Findings

None.

Observations

None.

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-14	DATE: August 14, 2002

OBJECTIVE

Formal agreements establishing requirements are in place between the operating contractor and DOE, via the contract or other enforceable mechanism, which govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place, and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE.

Criteria

1. A systematic review of the facility's conformance to applicable Programmatic Agreement requirements for the 324 Building B-Cell Spent Fuel Packaging has been performed and documented.
2. Applicable Programmatic Agreement requirements not completed have been identified and schedules for gaining compliance have been defined, in writing and formally approved.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

- 2002-RL-HNF-0010, *Project Hanford Lessons Learned*
- 31-SOP-SNF-001, *Pre-Staging the SNF Cask for Loading*
- 31-SOP-SNF-002, *SNF Cask Sealing and ISO Container Loading (OCRWM)*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-14	DATE: August 14, 2002

- 31-SOP-SNF-003, *PWR Fuel Assembly Packaging and Load Out (OCRWM)*
- 324 Building Activity Readiness Checklist
- 324 Building Activity Readiness Package Key Sections
- 324 Building B-Cell Spent Fuel Packaging and Shipment Operations, Management Self Assessment, July 2002
- 324 Building Deactivation Project Organizational Chart
- 324 Building Safety Log Book
- 324 Facility Disposition of MSA Findings and Observations (Two 3-Ring Binders for Form 1 and Form 2 Issues)
- 324 SNF Project, *PWR Transfer Operations Minimum Staffing Plan (Rev. 5, 7-1-02)*
- 324 SNF Startup Readiness Pre-and Critical Post-Start Open Items, dated 7/23/02
- AJHA ID: 3I-640 Rev 1, *AJHA Report*
- AJHA ID: 3I-642 Rev 1, *AJHA Report*
- AJHA ID: 3I-662 Rev 1, *AJHA Report*
- AJHA ID: 3I-813 Rev 0, *AJHA Report*
- AJHA ID: 3I-814, Rev 0, *AJHA Report*
- *Central Plateau Remediation Project (CP) Organizational Chart*
- Cogema-SVLT-PRC-003, Rev 0, *Leak Test Examination Procedure, 10/21/98*
- Cogema-SVPT-PRC-005, Rev 1, *Liquid Penetrant Examination Procedure, 9/1/99*
- CP-MD-003, *Central Plateau Remediation Project Integrated Environmental, Safety and Health Management System Description*
- CP-MD-018, *Central Plateau Remediation Project Technical Authorities*
- DOE Order 425.1A, *Startup and Restart of Nuclear Facilities*
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- Drill Number ACCT-001, *324 Facility Drill Package, Test Accountability*
- Drill Number CP-Fire-001, *Central Plateau Drill Package, Fire at 324*
- *E-mail messages on feedback to originators of Safety Log Book entries*
- Email, Leasa Hetzer to Blaine L. Hopkins, *ISMS Related to NDE Services*
- FH-0105153, *Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- *FY 2002 River Corridor Project – Office of Civilian Radioactive Waste Management (OCRWM) Assessment Program – Schedule*
- HNF-067, *Managing Lessons Learned*
- HNF-5173, *PHMC Radiological Control Manual*
- HNF-8869, *Project Execution Plan 324 Building Spent Nuclear Fuel Transfer Project*
- HNF-IP-1264-1.9, *Minimum Staffing Requirements*
- HNF-IP-1264-2.14, *Lessons Learned*
- HNF-IP-1264-2.2, *Administrative Procedure Development and Control*
- HNF-IP-1264-2.3, *Technical Procedure Development and Control*
- HNF-IP-1264-2.9, *Standing Instructions and Management Directives*
- HNF-IP-1264-4.1, *Job Control System Implementation*
- HNF-IP-1264-5.1, *Operations Organization and Administration*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-14	DATE: August 14, 2002

- HNF-IP-1264-9.1, *Spent Nuclear Fuel Transfer Project Administrative Procedure Control (OCRWM)*
- HNF-IP-1264-9.11, *Spent Nuclear Fuel Transfer Project Non-Conformance Control (OCRWM)*
- HNF-IP-1264-9.12, *Spent Nuclear Fuel Transfer Project Work Control (OCRWM)*
- HNF-IP-1264-9.13, *Spent Nuclear Fuel Transfer Project Technical Procedure Development and Control (OCRWM)*
- HNF-IP-1264-9.14, *Continuous Fissionable Material Inventory for SNF Transfer*
- HNF-IP-1264-9.2, *Spent Nuclear Fuel Transfer Project Records Management and File Control (OCRWM)*
- HNF-IP-1264-9.3, *Spent Nuclear Fuel Transfer Project Personnel Qualifications (OCRWM)*
- HNF-IP-1264-9.4, *Spent Nuclear Fuel Transfer Project Personnel Training (OCRWM)*
- HNF-IP-1264-9.5, *Spent Nuclear Fuel Transfer Project Design Control (OCRWM)*
- HNF-IP-1264-9.6, *Spent Nuclear Fuel Transfer Project Material Control (OCRWM)*
- HNF-IP-1264-9.7, *Spent Nuclear Fuel Transfer Project Required Reading (OCRWM)*
- HNF-IP-1264-9.8, *Spent Nuclear Fuel Transfer Project Peer Reviews (OCRWM)*
- HNF-IP-1264-9.9, *Spent Nuclear Fuel Transfer Project Management Assessment*
- HNF-MD-4821, *Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontractors*
- HNF-MP-003, *Integrated Environment, Safety and Health Management System Description*
- HNF-PRO-055, *Startup Readiness*
- HNF-PRO-079, *Job Hazard Analysis*
- HNF-PRO-1623, *Radiological Work Planning Process*
- HNF-SD-SPJ-OSR-001, *324 Building Operational Safety Requirements (OSR)*
- HNF-SD-SPJ-SAR-001, *324 Building Safety Analysis Report*
- *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment, April 19, 2002*
- Letter FH-0105153, R.P. Heck II, FHI to S.J. Veitenheimer, RL, *Programmatic Agreement on the Management of the 300 Area Light Water Reactor Spent Nuclear Fuel*
- Letter, D.T. Evans, RL to H.E. Bilson, RL, *Mission Element Verification Review of 324 B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging Readiness Assessment, dated July 18, 2002*
- Letter, MSW-02-033, from M.S. Wright, *Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement, dated August 1, 2002*
- Memorandum, Peggy McCarthy to B.L. Hopkins, *NDE Request, dated July 17, 2002*
- MSW-02-033, *Compliance Schedule for the Spent Nuclear Fuel Programmatic Agreement*
- OIA-2002-RA-003, *Fluor Hanford Readiness Assessment Implementation Plan for 324 Building B-Cell Spent Fuel Packaging and Shipment Operations*
- RCP-MD-001, *River Corridor Project Roles, Responsibilities, and Functions*
- RCP-PRO-007, *Enhanced ALARA Committee/Subcommittee*
- RCP-PRO-016, *Processing Lessons Learned Documents*
- *Readiness Self Assessment 1-2ISMS*

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-14	DATE: August 14, 2002

- *Readiness Self Assessment 1-3ISMS*
- *River Corridor Project CY-2002 Incoming Lessons Learned Log*
- *Safety Evaluation Report for 324 Building – Supplement 1, September 2000*
- *Safety Evaluation Report for 324 Building, January 2001*
- *Safety Evaluation Report for the River Corridor Project 324 Facility, Update to the Safety Analysis Report to Incorporate the Justification for Continued Operation, HNF-SD-SPJ-SAR-001, Rev 3A, February 2002*
- *SI-324 Bldg-001, Automated Job Hazard Analysis (AJHA)*
- *SI-324 Bldg-005, Management and Control of Procurements*
- *SI-324 Bldg-024, Conduct of Work Expectations*
- *SI-324 Bldg-025, Readiness Determination Process*
- *SI-324 Bldg-030, Establishment of the Senior Supervisory Watch*
- *SI-324 Bldg-032, Identification of OCRWM Personnel Who Support the 324 Building Spent Nuclear Fuel Transfer Project*
- *SI-324 Bldg-034, Procedure Compliance*
- *SI-324 Bldg-036, Spent Nuclear Fuel Transfer Technical Authorities*
- *Startup Plan to Operations, 324 Building, Spent Nuclear Fuel Transfer Project.*

Interviews Conducted

- 324 Building Deactivation Project Director
- Central Plateau Technical Support Director
- Cogema Engineer
- Engineering Manager
- Health Physicist
- Hot Cell Operations Manager
- Nuclear Chemical Operator (2)
- Operations Specialist (2)
- Planner
- Project Management & Integration Manager
- QA Engineer
- QC Inspector
- Readiness Assessment Coach
- Safety Engineer
- Surveillance Operations Manager.

Observations

Not applicable.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-14	DATE: August 14, 2002

Discussion of Results

In accordance with the *Joint RL/FH Plan of Action for the 324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging and Shipment Operations Readiness Assessment*, this RA only assessed compliance with the programmatic agreement between the RCP and SNF projects. Applicable Standards Requirements Identification Document (S/RID) requirements contractually established between RL and FH were not assessed.

The DOE-RL approved POA for the Project Readiness Review limited S/RID compliance to the programmatic agreement between SNF and RCP projects. The programmatic agreement was evaluated and found to be satisfactory but it does not have a schedule defined nor approved by the 324 Building Director.

Criterion 1: Letter FH-0105153, R.P. Heck II, FHI to S.J. Veitenheimer, RL, *Programmatic Agreement on the Management of the 300 Area Light Water Reactor Spent Nuclear Fuel* FH-0105153, *Management of the 300 Area Light Water Reactor Spent Nuclear Fuel* and its attachment, FH-0105153, *Management of the 300 Area Light Water Reactor Spent Nuclear Fuel* specified the interface requirements that must be satisfied by SNF and RCP to enable successful execution of fuel removal from the 324 Building by the River Corridor Project while ensuring SNF Project requirements for interim storage and final disposition of the 324 Building spent fuel inventory are satisfied. Specifically, 25 responsibilities to SNF and RCP had been assigned.

An assessment of compliance with Programmatic Agreement (PA) responsibilities was performed by the facility. The FH RA report identified that a review of this assessment showed RCP to be in compliance with no outstanding actions for 16 of the 25 items. Documentation demonstrating compliance for these items was reviewed – documentation was complete with no issues noted.

Criterion 2: The remaining 9 PA requirements not completed were identified. Assessment criteria stated schedules for gaining compliance must be defined in writing and formally approved by the Director, 324 Building Deactivation Project. No evidence that this documentation existed could be found. This issue was identified in the FH RA report.

Additionally, the RA team identified that the roles and responsibilities between SNF and RCP, though defined in an interface agreement, are implemented informally and sometimes duplicatively.

Conclusions

Based on the discussion above, the core requirement has been met.

Issue(s)

None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

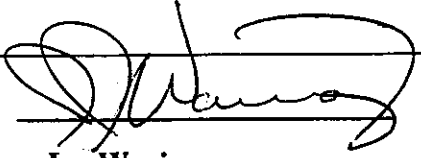
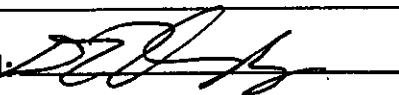
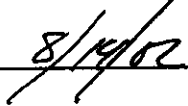
FUNCTIONAL AREA: S/RID	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-14	DATE: August 14, 2002

Findings

None.

Observations

None.

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

Refer to CR #14, S/RID Functional Area.

Interviews Conducted

Refer to CR #14, S/RID Functional Area.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: S/RID	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 14, 2002

Observations

Not applicable.

Discussion of Results

Refer to CR-14, S/RID Functional Area.

Conclusions

Refer to CR-14, S/RID Functional Area.

Issue(s)

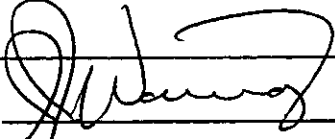
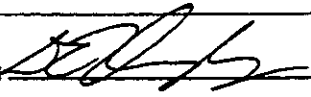
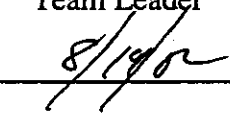
Refer to CR-14, S/RID Functional Area.

Findings

None.

Observations

None.

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 13, 2002

OBJECTIVE

Line management has established programs to assure safe accomplishment of work (the startup or restart authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high- priority commitment to comply with these requirements.

Criteria

1. Aspects of the management programs noted below have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations. (POA) Environmental
2. Programs are in place at 324 Building that have actively involved workers in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.
3. Management takes an active part in encouraging a strong safety culture.
4. Work place surveillance exists to identify and track safety and health hazards and, systems are in place that enable employees to identify safety and health hazards to their manager for corrective action without fear of reprisal.
5. River Corridor Project ISMS is maintained current and aligned with the HNF-MP-003

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 13, 2002

Observations

None.

Record Review

- 6.8EP.2, Readiness Self-Assessment, dated 6/5/02
- 99-TPD-130. Categorical Exclusion for Stabilization/deactivation of the 324/327 Buildings, 300 Area, Hanford Site, Richland Washington, dated 6/9/99,
- Affidavit Punch list 06-08EP.2 Closure Document, dated 6/14/02,
- AIR-98-601, WDOH, Notice of Construction Verification Inspection for the 324 B-Cell NOC, 4/28/98,
- AJHA Report, AJHA ID 3I-662, Work package No. 3I-SOP-SNF-002
- Correspondence, M. R. Sackschewsky to M.M. Serkowski, Biological Review of 324/327 Building Stabilization/Deactivation Project, 300 Area, ECR #99-3---007B, dated 2/14/01,
- Correspondence, A. Conklin to J. Rasmussen, AIR 95-903, 9/18/95,
- Correspondence, A. Conklin, WDOH to Hebdon, AIR-1-068, 6/26/01,
- Correspondence, A. Conklin, WDOH to J. Hebdon, Air-02-210, date 2/25/02
- Correspondence, A. Frankel, United States Environmental Protection Agency to J. Rasmussen, DOE, dated 08/12/98,
- Correspondence, B. McAllister, US EPA to J. Hebdon, dated 06/29/01,
- Correspondence, J. Hebdon to M. Wilson, WDOE, Complication Notification for Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Interim Milestone M-89-02, dated 7/23/01,
- Correspondence, J. Rasmussen to A. Conklin, WDOH and P. Milliamp, US EPS, 95-PCA-443, Subject: Cleanout of the Waste Technology Engineering Laboratory, B-Cell, August 1995,
- Correspondence, N. Cadoret to M. Jansky, Cultural Resources Review of 324/327 Buildings, Stabilization/Deactivation, dated 11/19/96,
- Correspondence, to M. Sackschewsky to M. Serowski, Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area, ECR # 1999-300-007d, dated June 7, 2002,
- Correspondence, to M. Serowskyi, Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area, ECR #99-300-007c, dated April 27, 2001,
- Correspondence, WDOE to DOE/RL and FDH, 324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault and Associated Areas Closure Plan, revision 1 (DOE/RL-96-73), dated 9/1/98,
- DOE/EA-1185, Environmental Assessment, Management of Hanford Site Non-Defense Production Reactor Spent Nuclear Fuel, Hanford Site, Richland Washington, dated March 1997,
- DOE/RL-96-73, 324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault, and Associated Closure Plan, Revision 1, March 1998,
- DOE-RL-2000-5, Radioactive Air Emissions Notice of Construction for Deactivation Activity at the 324 Building, Revision 0, February 2001,

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-1	DATE: August 13, 2002

- DOE-RL-2000-5, Radioactive Air Emissions Notice of Construction for Deactivation Activity at the 325 Building, Revision 1, December 2001,
- E-mail message, J. Perry to J. Becky, WDOH Notification of ESP Filter removal at 324 Facility, dated 2/23/00,
- HNF-3444, 324/327 Facilities Environmental Effluent Specifications, Revision 3,
- Listing of SWCXs (Site-wide Categorical Exclusion) currently available for PHMC use at the Hanford Site,
- Memorandum, D. Rasmussen to Distribution, Attached Notice of Construction Revision Form for Cleanout of B-Cell at the 324 Building (IAR-95-903), Approved by WDOH September 21, 1999, dated 9/21/99,
- New Source Review Applicability Determination, 324 Building Spent Nuclear Fuel Disposition Activities, dated February 28, 2002,
- Radioactive Air Pollutants Notice of Construction for Cleanout of the Waste Technology Engineering Laboratory's B-Cell, 324 Building, 300 Area, Hanford Site, August 1995,
- Solid Waste Engineering Analysis, Hazardous Smart System Output reports for MSDS # 1987, MSDS #16272.
- Update to Notice of Construction for Cleanout of B-Cell at the 324 Building, (AIR-95-903), dated, August 18, 1998.

Interviews Conducted

- Activity Manager
- Environmental Compliance Officer.

Observations

None.

Spaces Visited

- 324 Building
- Trailer 1
- 3763 Building.

Discussion of Results

Criterion 1: Management and Environmental programs have been adequately implemented to address 324 Building B-Cell Spent Fuel Packaging operations.

Criterion 2: Building workers are actively involved in ES&H programs regarding B-Cell Spent Fuel Packaging operational activities.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-1	DATE: August 13, 2002

Criterion 3: Management is actively engaged in 324 Building B Cell SNF work activities and encourages a strong safety culture.

Criterion 4: Evidence of Safety and Health surveillances exist to identify hazards and programs are in place that allows employees to communicate these issues to their manager.

Criterion 5: Personnel understand their duties with regard to the 324 SNF operations.

Conclusions

Based on the discussions above, the core requirement has been met.

Issue(s)**Findings**

None.

Observations

None.

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-2	DATE: August 13, 2002

OBJECTIVE

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

Criteria

1. A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel. (DOE Order 5480.19)
2. 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s).

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for the Operations functional area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for the Operations functional area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

None.

Record Review

- 99-TPD-130. Categorical Exclusion for Stabilization/deactivation of the 324/327 Buildings, 300 Area, Hanford Site, Richland Washington, dated 6/9/99,
- AIR-98-601, WDOH, Notice of Construction Verification Inspection for the 324 B-Cell NOC, 4/28/98,
- AJHA Report, AJHA ID 3I-662, Work package No. 3I-SOP-SNF-002
- Correspondence, M. R. Sackschewsky to M.M. Serkowski, Biological Review of 324/327 Building Stabilization/Deactivation Project, 300 Area, ECR #99-3---007B, dated 2/14/01,

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 13, 2002

- Correspondence, A. Conklin to J. Rasmussen, AIR 95-903, 9/18/95,
- Correspondence, A. Conklin, WDOH to Hebdon, AIR-1-068, 6/26/01,
- Correspondence, A. Conklin, WDOH to J. Hebdon, Air-02-210, date 2/25/02
- Correspondence, A. Frankel, United States Environmental Protection Agency to J. Rasmussen, DOE, dated 08/12/98,
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- Correspondence, J. Hebdon to M. Wilson, WDOE, Complication Notification for Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Interim Milestone M-89-02, dated 7/23/01,
- Correspondence, J. Rasmussen to A. Conklin, WDOH and P. Milliamp, US EPS, 95-PCA-443, Subject: Cleanout of the Waste Technology Engineering Laboratory, B-Cell, August 1995,
- Correspondence, N. Cadoret to M. Jansky, Cultural Resources Review of 324/327 Buildings, Stabilization/Deactivation, dated 11/19/96,
- Correspondence, to M. Sackschewsky to M. Serowski, Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area, ECR # 1999-300-007d, dated June 7, 2002,
- Correspondence, to M. Serowskyi, Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area, ECR #99-300-007c, dated April 27, 2001,
- Correspondence, WDOE to DOE/RL and FDH, 324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault and Associated Areas Closure Plan, revision 1 (DOE/RL-96-73), dated 9/1/98,
- DOE/EA-1185, Environmental Assessment, Management of Hanford Site Non-Defense Production Reactor Spent Nuclear Fuel, Hanford Site, Richland Washington, dated March 1997,
- DOE/RL-96-73, 324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault, and Associated Closure Plan, Revision 1, March 1998,
- DOE-RL-2000-5, Radioactive Air Emissions Notice of Construction for Deactivation Activity at the 324 Building, Revision 0, February 2001,
- DOE-RL-2000-5, Radioactive Air Emissions Notice of Construction for Deactivation Activity at the 325 Building, Revision 1, December 2001,
- E-mail message, J. Perry to J. Becky, WDOH Notification of ESP Filter removal at 324 Facility, dated 2/23/00,
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- Listing of SWCXs (Site-wide Categorical Exclusion) currently available for PHMC use at the Hanford Site,
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- New Source Review Applicability Determination, 324 Building Spent Nuclear Fuel Disposition Activities, dated February 28, 2002,
- Radioactive Air Pollutants Notice of Construction for Cleanout of the Waste Technology Engineering Laboratory's B-Cell, 324 Building, 300 Area, Hanford Site, August 1995,

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-2	DATE: August 13, 2002

- Solid Waste Engineering Analysis, Hazardous Smart System Output reports for MSDS # 1987, MSDS #16272.
- Update to Notice of Construction for Cleanout of B-Cell at the 324 Building, (AIR-95-903), dated, August 18, 1998.

Interviews Conducted

- Activity Manager
- Environmental Compliance Officer.

Observations

None.

Discussion of Results

Criterion 1: A clear management structure is established, approved, and in place for the packaging and shipment for SNF from the 324 Building to the 200 Area ISA. This management structure is implemented; and managers, operators, and operations support personnel involved in the packaging and shipment of the SNF to 200 Area ISA demonstrate knowledge of the structure.

Criterion 2: 324 Building senior management has overall responsibility for the content and effective conduct of safety program(s). The Director, 324 Building Deactivation Project, implements specific 324 Building plans as appropriate to ensure adequate management of safety programs (s).

Conclusions

Based on the discussions above, the core requirement has been met.

Issue(s)

No issues noted other than those indicated by the FH RA Team.

Findings

None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-2	DATE: August 13, 2002

Observations

None.

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-4	DATE: August 13, 2002

OBJECTIVE

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.

Criteria

1. The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely. (DOE Order 5480.19, Chapter XIII; 5480.20A, Chapters I and IV)
2. 324 Building B-Cell Spent Fuel Packaging operations personnel retain a practical and adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues associated with the SNF program. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapters I and IV; DOE Order 414.1A Criterion 2)
3. Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
4. 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety. (DOE Order 5480.19, Chapter XIII; DOE Order 5480.20A, Chapter I)
5. 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance. (DOE Order 5480.20A, Chapter I, paragraph 7)
6. 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate. (DOE Order 425.1A)
7. 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Approach

Record Review

- Review lesson plans for incorporation of safety and procedural requirements.
- Review trainee feedback forms, training evaluation of lessons learned from operating experiences, and formal training program reviews to verify feedback is addressed in a formal manner.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 13, 2002

- Review the continuing training program plan to verify its adequacy to support safe operations.
- Review the systematic analysis of job requirements to provide a reasonable assurance the training program addresses all tasks that are essential to safe and efficient operations.
- Review documentation to ensure that technical and management qualifications are defined.
- Review records that demonstrate that incumbents meet the defined technical and management qualifications.
- Review the process used to evaluate changes to operations and maintenance personnel training needs.
- Review lesson plans and supporting examinations to determine if lesson plans accurately reflect recent facility and/or procedure changes.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Interview personnel as necessary to assure the 324 Building B-Cell Spent Fuel Packaging training program is established, documented, and implemented.
- Interview training personnel to determine their involvement with facility and/or procedure changes affecting lesson plans.

Observations

None.

Record Review

Individual Training Plan Report for ECO.

Interviews Conducted

None.

Observations

None.

Discussion of Results

Criterion 1: The level of 324 Building B-Cell Spent Fuel Packaging operator knowledge is adequate to operate safely.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-4	DATE: August 13, 2002

Criterion 2: 324 Building B-Cell Spent Fuel Packaging operations personnel have an adequate understanding of SNF utilized facility systems and operations. These personnel also give adequate attention to and are knowledgeable of, health, safety, and environmental protection issues associated with the SNF program.

Criterion 3: Operators demonstrate the ability to carry out 324 Building B-Cell Spent Fuel Packaging normal, abnormal, and emergency procedures

Criterion 4: 324 Building operators demonstrate a working knowledge of SNF systems and components related to safety.

Criterion 5: 324 Building operations support personnel demonstrate a working knowledge of SNF systems and components as required to carry out normal, abnormal, and emergency procedures.

Criterion 6: 324 Building B-Cell Spent Fuel Packaging management and technical support's (OCRWM) level of knowledge is adequate.

Criterion 7: 324 Building B-Cell Spent Fuel Packaging personnel (operators, operations support, technical support staff and management) understand their responsibilities toward procedure compliance and "stop work" authority.

Conclusions

Based on the discussions above, the core requirement has been met.

Issue(s)

No issues other than those indicated by the FH RA Team.

Findings

None.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-4	DATE: August 13, 2002

Observations

None.

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 13, 2002

OBJECTIVE

There are sufficient numbers of qualified personnel to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services (e.g., operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

Criteria

1. Minimum staffing requirements have been established for operations personnel, including supervisors and managers involved with SNF activities. These staffing levels are met and are consistent with the safety basis requirements and assumptions. (Facility Authorization Basis.)
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out SNF operations. Staffing levels are consistent with the safety basis requirements. (Facility Authorization Basis.)

Approach**Record Review**

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

None.

Record Review

- 6.8EP.2, Readiness Self-Assessment, dated 6/5/02
- 99-TPD-130. Categorical Exclusion for Stabilization/deactivation of the 324/327 Buildings, 300 Area, Hanford Site, Richland Washington, dated 6/9/99

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-6	DATE: August 13, 2002

- Affidavit Punchlist 06-08EP.2, Closure Document, dated 6/14/02
- AIR-98-601, WDOH, Notice of Construction Verification Inspection for the 324 B-Cell NOC, 4/28/98
- AJHA Report, AJHA ID 3I-662, Work package No. 3I-SOP-SNF-002
- Correspondence, M. R. Sackschewsky to M.M. Serkowski, Biological Review of 324/327 Building Stabilization/Deactivation Project, 300 Area, ECR #99-3---007B, dated 2/14/01,
- Correspondence, A. Conklin to J. Rasmussen, AIR 95-903, 9/18/95
- Correspondence, A. Conklin, WDOH to Hebdon, AIR-1-068, 6/26/01
- Correspondence, A. Conklin, WDOH to J. Hebdon, Air-02-210, date 2/25/02
- Correspondence, A. Frankel, United States Environmental Protection Agency to J. Rasmussen, DOE, dated 08/12/98
- Correspondence, B. McAllister, US EPA to J. Hebdon, dated 06/29/01
- Correspondence, J. Hebdon to M. Wilson, WDOE, Complication Notification for Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Interim Milestone M-89-02, dated 7/23/01
- Correspondence, J. Rasmussen to A. Conklin, WDOH and P. Milliam, US EPS, 95-PCA-443, Subject: Cleanout of the Waste Technology Engineering Laboratory, B-Cell, August 1995
- Correspondence, N. Cadoret to M. Jansky, Cultural Resources Review of 324/327 Buildings, Stabilization/Deactivation, dated 11/19/96
- Correspondence, to M. Sackschewsky to M. Serowski, Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area, ECR # 1999-300-007d, dated June 7, 2002,
- Correspondence, to M. Serowskyi, Biological Review of the 324/327 Stabilization and Deactivation Project, 300 Area, ECR #99-300-007c, dated April 27, 2001
- Correspondence, WDOE to DOE/RL and FDH, 324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault and Associated Areas Closure Plan, revision 1 (DOE/RL-96-73), dated 9/1/98
- DOE/EA-1185, Environmental Assessment, Management of Hanford Site Non-Defense Production Reactor Spent Nuclear Fuel, Hanford Site, Richland Washington, dated March 1997
- DOE/RL-96-73, 324 Building Radiochemical Engineering Cells, High-Level Vault, Low-Level Vault, and Associated Closure Plan, Revision 1, March 1998
- DOE-RL-2000-5, Radioactive Air Emissions Notice of Construction for Deactivation Activity at the 324 Building, Revision 0, February 2001
- DOE-RL-2000-5, Radioactive Air Emissions Notice of Construction for Deactivation Activity at the 325 Building, Revision 1, December 2001
- E-mail message, J. Perry to J. Becky, WDOH Notification of ESP Filter removal at 324 Facility, dated 2/23/00
- HNF-3444, 324/327 Facilities Environmental Effluent Specifications, Revision 3
- Listing of SWCXs (Site-wide Categorical Exclusion) currently available for PHMC use at the Hanford Site

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 13, 2002

- Memorandum, D. Rasmussen to Distribution, Attached Notice of Construction Revision Form for Cleanout of B-Cell at the 324 Building (IAR-95-903), Approved by WDOH September 21, 1999, dated 9/21/99
- New Source Review Applicability Determination, 324 Building Spent Nuclear Fuel Disposition Activities, dated February 28, 2002
- Radioactive Air Pollutants Notice of Construction for Cleanout of the Waste Technology Engineering Laboratory's B-Cell, 324 Building, 300 Area, Hanford Site, August 1995
- Solid Waste Engineering Analysis, Hazardous Smart System Output reports for MSDS # 1987, MSDS #16272
- Update to Notice of Construction for Cleanout of B-Cell at the 324 Building, (AIR-95-903), dated, August 18, 1998.

Interviews Conducted

- Activity Manager
- Environmental Compliance Officer.

Observations

None.

Spaces Visited:

- 324 Building
- Trailer 1.

Discussion of Results

Criterion 1: 324 facility has established the minimum operations personnel staffing levels sufficient for the upcoming operations.

Criterion 2: A review of facility personnel records and interviews provides evidence that a sufficient number of qualified operations personnel are available for the upcoming operations.

Conclusions

Based on the discussions above, the core requirement has been met.

Issue(s)

No issues other than those indicated by the FH RA Team.

FORM 1 - READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-6	DATE: August 13, 2002

Findings

None.

Observations

None.

Inspector: <u>Theo Martin</u> Theo Martin	Approved: <u>Dennis Humphreys</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [☒] Yes [☐] No
CORE REQUIREMENT-15	DATE: August 13, 2002

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

Criteria

1. Facility management has reviewed and resolved pre-start issues. (DOE Order 414.1A Criterion 3; 10 CFR 830 Subpart A)
2. Facility management has reviewed and tracked post start issues.

Approach

Record Review

During the review determine the records/documents reviewed by the FH RA team member with the responsibility for this Functional Area. Sample 25% of the documents reviewed by the FH operations team member. Review any additional documents necessary to validate facility readiness within the scope of the review.

Interviews

- Conduct parallel interviews with the FH RA team member responsible for this Functional Area.
- Ask any additional questions during the interviews that are necessary to determine personnel readiness status.
- Interview appropriate managers to determine if they are aware of the items remaining to be completed before startup.
- Determine if there is a single list of outstanding items to be completed before startup.

Observations

None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-15	DATE: August 13, 2002

Observations

None.

Record Review

Affidavit Punch list # 06-8EP.2, Punchlist Closure Document, dated 6/14/02.

Interviews Conducted

- Activity Manager
- Environmental Compliance Officer.

Observations

None.

Spaces Visited:

- 324 Building
- Trailer 1.

Discussion of Results

Criterion 1: The facility environmental group reviewed (as documented in the affidavit punchlist # 06-8EP.2) facility air quality self-assessment to ensure any action items or corrective actions relative to those assessments had been completed. The facility reviewed three management self-assessment and found one deficiency. This deficiency had no effect on the SNF operational activity.

Criterion 2: Noted management self-assessment issue is being tracked but has no effect on the SNF operations and operations start-up.

Conclusions

Based on the discussions above, the core requirement has been met.

Issue(s)

No issues other than those indicated by the FH RA Team.

Findings

None.

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: Environmental	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-15	DATE: August 13, 2002

Observations

None.

Inspector: <u><i>Theo Martin</i></u> Theo Martin	Approved: <u><i>[Signature]</i></u> Dennis Humphreys Team Leader Date: <u><i>8/14/02</i></u>

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: N/A	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-16	DATE: August 14, 2002

OBJECTIVE

The technical and managerial qualifications of those personnel at the DOE field organization and at DOE Headquarters who have been assigned responsibilities for providing direction and guidance to the contractor, including the Facility Representatives, are adequate.

Criteria

1. The mission element program engineers have completed the RL Technical Qualification Program, and have a minimum of three years of experience in overview of 324 Building operations and program activities.
2. The Director, Facility Transition Division, has certified the acceptable performance of all mission element program engineers to be able to effectively overview the 324 Building operations and activities as demonstrated by past experience.
3. The 324 Building Facility Representatives have completed certification by the Manager, RL, and are fully qualified as 324 Building facility representatives.

Approach**Record Review**

- RL Technical Qualifications for the 342 Building Project documents the qualifications of the mission element program engineers and facility representatives
- RL Transition Division evaluations of mission element program engineers reflect satisfactory performance in the overview of the 324 Building Project

Interviews

- Interview the mission element personnel to ensure they have a familiarization with the spent fuel packaging and shipping process.
- Interview the 324 Facility Representatives to ensure they have a working level knowledge of spent fuel packaging and shipping process.

Observations

N/A

Record Review

N/A

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: N/A	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-16	DATE: August 14, 2002

Interviews Conducted

- RL Mission Element Program Engineers (2)
- RL 324 Facility Representative

Observations

None

Discussion of Results

Criterion 1 and 2: *The mission element program engineers have completed the RL Technical Qualification Program, and have a minimum of three years of experience in overview of 324 Building operations and program activities. The Director, Facility Transition Division, has certified the acceptable performance of all mission element program engineers to be able to effectively overview the 324 Building operations and activities as demonstrated by past experience.*

Certification was received from the mission element Division Director certifying that both of the staff members have completed the applicable RL Technical Qualification Program and have at least a minimum of three years of experience in the overview of operations and program activities.

Both mission element personnel exhibited (through informal interviews) adequate knowledge of the 324 Spent Fuel Removal processes.

The Division Director personally certified that both mission element engineers, based on past experience, have demonstrated acceptable performance to effectively overview the 324 Building operations and activities, specifically those related to spent fuel removal.

Criterion 3: *The 324 Building Facility Representatives have completed certification by the Manger, RL, and are fully qualified as 324 Building facility representatives*

The Director of the Operational Oversight Division personally certified that the Facility Representative assigned is fully qualified to carry the roles and responsibilities to provide oversight of the 324 Spent Fuel Removal activities.

Based on personnel observation the Facility Representative demonstrated a satisfactory level of knowledge of the activities and processes involving all aspects of the Spent Fuel Removal activity.

Conclusion

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: N/A	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-16	DATE: August 14, 2002

Based on the discussions above criteria 1 and 2 have been met for this core requirement.

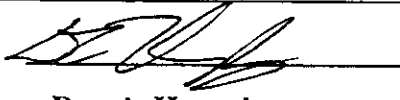
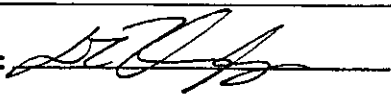
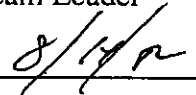
Issue(s)

Findings

None.

Observations

None.

Inspector:  Dennis Humphreys	Approved:  Dennis Humphreys Team Leader Date: 

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: N/A	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-17	DATE: August 14, 2002

OBJECTIVE

The breadth, depth, and results of the responsible contractor Readiness Review are adequate to verify the readiness of hardware, personnel, and management programs for operations.

Criteria

The contractor final report accurately reflects the state readiness of the 324 Building B-Cell Spent Fuel Packaging Project

Approach**Record Review**

Review the contractor RA final report to determine the adequacy of the report.

Interviews

Conduct parallel interviews with the FH RA team member responsible for this Functional Area. Ask any additional questions during the interviews that are necessary to determine personnel readiness status.

Observations

- During the field portion of the review the RL team matched up with their FH team counterpart will assess the adequacy of the FH team to perform the review per the POA and the IP.
- Observe the fuel transfer and packaging dry runs and any drills performed for this review.

Record Review

OIA-2002-RA-003-FR, August 2002, *324 Building B-Cell Pressurized Water Reactor Spent Nuclear Fuel Packaging And Shipment Operations Final Report.*

Interviews Conducted

None

Observations

The fuel transfer and packaging dry runs and emergency preparedness drill

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: N/A	CRITERIA MET: [X] Yes [] No
CORE REQUIREMENT-17	DATE: August 14, 2002

Discussion of Results

Criterion: *The contractor final report accurately reflects the state readiness of the 324 Building B-Cell Spent Fuel Packaging Project*

The RL RA team members were assigned a FH RA team counterpart for the review. With this one on one approach the RL RA team was able to assess the FH teams performance, competence, and adherence to the IP.

During the interview process the RL team member accompanied the FH team counterpart to assess the adequacy of the interview and determine the readiness of the individuals interviewed. Each RL team member reviewed as a minimum 25% of the documents review by their counterpart. At least one RL team member was part of the review team attendance during the observations of the dry runs and mockups including the emergency preparedness drill.

Utilizing this approach the RL team was able to independently evaluate the readiness of the facility but also evaluate the performance of the FH RA team. The competency and performance of the FH RA team was exceptional. Each FH RA team member demonstrated the necessary experience and knowledge to assess their respective functional areas.

The report provided an appraisal form 1 for each of the core requirements addressed in the IP, but did not specifically discuss each functional area tied to a given core requirement nor provide objective evidence that this was accomplished making it difficult to determine the completeness of the review based on the final report (CR-17-MG-O-01). However, combining the field review approach described above with a review of the FH RA Team final report the RL RA team was able determine the validity of the FH RA team conclusions relating to facility readiness. Without the parallel review approach it would have been difficult to evaluate the completeness of the review based on the report alone.

Conclusion

The breath and depth of the contractor final report is adequate to verify the readiness of hardware, personnel, and management programs for operations. The contractor final report accurately reflects the state readiness of the 324 Building B-Cell Spent Fuel Packaging Project. This core requirement has been satisfied.

Issue(s)**Findings**

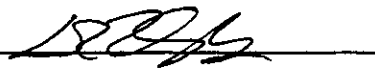
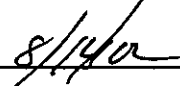
None.

Observations

FORM 1 – READINESS ASSESSMENT APPRAISAL FORM

FUNCTIONAL AREA: N/A	CRITERIA MET: ☒ Yes ☐ No
CORE REQUIREMENT-17	DATE: August 14, 2002

The report provided an appraisal form 1 for each of the core requirements addressed in the IP, but did not specifically discuss each functional area tied to a given core requirement nor provide objective evidence that this was accomplished making it difficult to determine the completeness of the review based on the final report (CR-17-MG-O-01).

Inspector:  Dennis Humphreys and input from all team members	Approved:  Dennis Humphreys Team Leader Date: 

APPENDIX D

RL READINESS REVIEW FINDINGS AND/OR OBSERVATIONS FORMS

FORM 2 – READINESS ASSESSMENT FINDING/OBSERVATION FORMFUNCTIONAL AREA: **Operations**ISSUE NUMBER: **CR-10-OP-F-01**

CORE REQUIREMENT-10

DATE: August 13, 2002

ISSUE DESIGNATION☒ **Finding** ☐ **Pre-start**☐ **Observation** ☒ **Post-start****ISSUE**

USQ review of the mobile critical lift revision to 31-SOP-SNF-002 (Rev. 2, Change 0, dated July 9, 2002) not performed.

REQUIREMENT

Complete a USQ review per RCP-PRO-018.

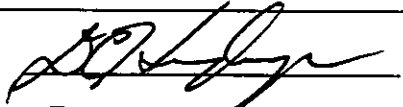
REFERENCE

HNF-IP-1265, section 2.3.5.2.5.13

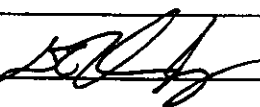
DISCUSSION

In early August of 2002 due to issues with the transport trailers a decision was made to revise 31-SOP-SNF-002 to include a section (critical lift) to reposition the ISO container on the trailer to allow transport of container to the ISA. During the revision development process a USQ review was performed to the revision (Rev 2) but did not include a review of the trailer repositioning critical lift portion. The RL RA team raised the concern and the facility did complete not only a USQ review but also a USQ evaluation. The evaluation was concluded that the existing SAR bound the movement and the result was a negative USQ evaluation. RL reviewed the evaluation and agreed with their determination.

Inspector:


Dennis Humphreys

Approved:


Dennis Humphreys
Team Leader

Date:


8/14/02

FORM 2 – READINESS ASSESSMENT FINDING/OBSERVATION FORM

FUNCTIONAL AREA: Management	ISSUE NUMBER: CR-15-MG-O-03
CORE REQUIREMENT-15	DATE: August 13, 2002

ISSUE DESIGNATION

☐ Finding ☐ Pre-start
☒ Observation ☐ Post-start

ISSUE

The assigned Senior Supervisory Watch (SSW) performed Person-In-Charge functions while assigned as SSW.

REQUIREMENT

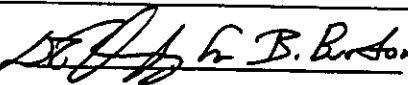
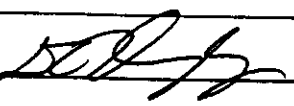
N/A

REFERENCE

Standing Instruction, SI-324-BLDG-030 Section 2.0 Scope

DISCUSSION

SI-324-BLDG-030 specifically states in the Scope section (2.0) The SSW is not to direct work. Contrary to this statement, during the mockup work in Building 306E for the weldment and leak testing the SSW also performed the duties of Person-In-Charge (PIC) by directing the work and assisting the Field Work Supervisor. The pre-job assigned the SSW to perform that function and did not assign any other duties. By performing other duties the SSW cannot effectively provide independent oversight duties.

Inspector: <u></u> Ben Burton	Approved: <u></u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 2 – READINESS ASSESSMENT FINDING/OBSERVATION FORM

FUNCTIONAL AREA: Radiological Controls	ISSUE NUMBER: CR-13-RC-O-01
CORE REQUIREMENT: CR-13	DATE: August 13, 2002

ISSUE DESIGNATION

☐ Finding ☐ Pre-start
☒ Observation ☐ Post-start

ISSUE

The FH RA Team final report does not have a functional area for radiological controls.

REQUIREMENT

N/A

REFERENCE

FH RA Implementation Plan for 324 B-Cell Spent Fuel Packaging and Shipment Operations
OIA-2002-RA-003-IP (FH 2002), Appendix 2, Core Requirement to Functional Area Crosswalk

DISCUSSION

The contractor readiness assessment report has a paragraph in the executive summary section and a few sentences buried in various Form 1 sections of the core requirements, but no thorough statement covering the radiological control aspects. There is one Form 2 for the functional area of radiological controls but it needs to have the corresponding Form 1s there for the appropriate core requirements to form the technical bases for the Form 2. The contractor did indeed perform a radiological controls assessment of the proposed operations but did not treat it as a separate functional area so that no pass/fail recommendation was made except in the executive summary.

Inspector: <u>FM Roddy</u> Frank Roddy	Approved: <u>[Signature]</u> Dennis Humphreys Team Leader Date: <u>8/14/02</u>

FORM 2 – READINESS ASSESSMENT FINDING/OBSERVATION FORM

FUNCTIONAL AREA: Management	ISSUE NUMBER: CR-15-MG-O-01
CORE REQUIREMENT-15	DATE: August 13, 2002

ISSUE DESIGNATION

☐ Finding ☐ Pre-start
☒ Observation ☐ Post-start

ISSUE

Areas for improvement noted in the *324 Readiness Self-Assessment Affidavit B1-2ISMS* were not completed prior to declaration of readiness.

REQUIREMENT

N/A

REFERENCE

RCP-LES-103, Attachment, *324 Facility Spent Nuclear Fuel Affidavit B1-2 ISMS Survey Analysis*, Page 2, Conclusion

DISCUSSION

There was a lack of thoroughness by the 324 Facility to address the areas for improvement noted in the *324 Readiness Self-Assessment Affidavit B1-2 ISMS*. These areas for improvement dealt with enhancements in effective supervisor implementation of pre-job and post-job communications in support of maintaining an effective ISMS culture.

There were three specific actions recommended for tracking in the Non-Deficiency Tracking System (NDTS) in support of the SNF RA. The contractor could not find if these items had been entered into the NDTS system.

The first of the three actions, "Work Supervisors should review HNF-PRO-079, *Job Hazard Analysis* (NOTE: This procedure contains pre-job briefing expectations), and HNF-RD-7085, *Safety Responsibilities*" was discussed in some type of meeting forum, although no attendance roster could be found.

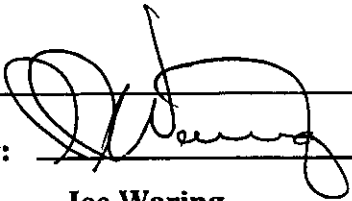
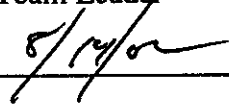
FORM 2 – READINESS ASSESSMENT FINDING/OBSERVATION FORMFUNCTIONAL AREA: **Management**ISSUE NUMBER: **CR-15-MG-O-01**

CORE REQUIREMENT-15

DATE: August 13, 2002

The second action, "Brief/review the results of this survey with 324 Facility staff members" was discussed in the same meeting forum as the first action, but apparently only the conclusion of the ISMS survey was discussed, not the survey results.

The third action, "Establish a periodic frequency for mandatory review of HNF-PRO-079, *Job Hazards Analysis*, and HNF-RD-7085, *Safety Responsibilities* for Work Supervisors (e.g., every six months)" was not completed.

Inspector:  Joe Waring	Approved:  Dennis Humphreys Team Leader Date:  8/14/02

FORM 2 – READINESS ASSESSMENT FINDING/OBSERVATION FORMFUNCTIONAL AREA: **Management**ISSUE NUMBER: **CR-15-MG-O-2**

CORE REQUIREMENT-15

DATE: August 13, 2002

ISSUE DESIGNATION☐ Finding ☐ Pre-start☒ Observation ☐ Post-start**ISSUE**

Improvements could be made to HNF-10996, *324 Building SNF Transfer Project Startup Plan to Operations*, Appendix 1.

REQUIREMENT

N/A

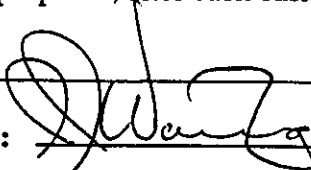
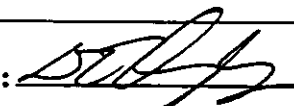
REFERENCE

HNF-10996, Revision C, *324 Building SNF Transfer Project Startup Plan to Operations*, Appendix 1.

DISCUSSION

Comments on the Startup Plan are as follows:

- No signoff to ensure SSW assigned for each cask shipment
- No signoff to ensure that Lessons Learned from each cask shipment post-job debrief have been implemented, as appropriate
- No signoff to ensure procedure improvements have been implemented, as appropriate, after each cask shipment
- No signoff to ensure additional training or training deltas have been completed, as appropriate, after each cask shipment

Inspector: **Joe Waring**Approved: **Dennis Humphreys**
Team LeaderDate: 8/14/02

APPENDIX E
RL TEAM QUALIFICATION SUMMARIES AND ASSIGNMENTS

RL TEAM ASSIGNMENT MATRIX

Functional Area of Responsibility	Core Requirements	RL Team Member
Operations	1, 2, 4, 6, 9, 10, 11, 13, 15, 17	Jim Cook
Management	1, 2, 3, 4, 6, 15, 17	Joe Waring (Assistant Team Leader)
Maintenance	1, 2, 4, 6, 8, 9, 10, 13, 15, 17	Frank Roddy
Radiological Controls	1, 2, 4, 6, 9, 11, 13, 15, 17	
Training	1, 2, 3, 4, 5, 6, 15, 17	
Safety Documentation	1, 2, 4, 5, 6, 7, 9, 10, 15, 17	Ben Burton
Engineering and Startup Testing	1, 2, 4, 5, 6, 9, 10, 12, 15, 17	
Emergency Preparedness and Operations Drills	1, 2, 4, 6, 13, 15, 17	
Industrial Safety	1, 2, 4, 6, 15, 17	
Transportation, Packaging, and Shipping	1, 2, 4, 6, 13, 15, 17	Tom Lewallen
Welding	1, 2, 4, 6, 13, 15, 17	
Quality Assurance (OCRWM)	1, 2, 4, 6, 10, 11, 15, 17	
Fire Protection	1, 2, 4, 6, 15, 17	
Hoisting and Rigging	1, 2, 4, 6, 13, 15, 17	Theo Martin
S/RIDS	2, 4, 10, 14, 15, 17	Joe Waring
Environmental	1, 2, 4, 6, 15, 17	Theo Martin
CR-16		Dennis Humphreys
CR-17		Dennis Humphreys

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY**TEAM MEMBER NAME:**

Dennis Humphreys

FUNCTIONAL AREA(S) ASSIGNED:

Team Leader

SUMMARY OF TECHNICAL QUALIFICATIONS:

- Graduate Navy Nuclear Power Engineering Program
- Engineer-in-Training, passed exam 1995.
- RL Program Manager for Facility Startup and Restart
- RL Program Manager for Hoisting and Rigging
- Qualified/Certified Nuclear Chief Test Engineer, Mare Island Naval Shipyard
- Qualified/Certified Nuclear Test Engineer, Mare Island Naval Shipyard.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

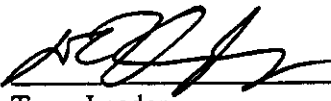
- Lead Auditor Qualified
- SNFP Fuel Retrieval System Readiness Assessment Team Leader
- Team member ISMS Phase I and II for FH and BHI
- Team member on several ORRs and RAs the past 7 years
- Assist Facility Representatives during surveillance for Hoisting and Rigging and Maintenance
- Team Member Conduct of Operations Assessments in 1995 – 1997 time frame
- Team Leader Conduct of Maintenance Assessment at West Tank Farms.

SUMMARY OF FACILITY FAMILIARIZATION:

Continual involvement with 324 for Hoisting and Rigging Issues since 1998

BASIS FOR ACCEPTABLE INDEPENDENCE:

Not directly associated with the program mission element side

ACCEPTABLE TO TEAM LEADER:
Team Leader8/14/02
Date

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY**TEAM MEMBER NAME:**

Jim Cook

FUNCTIONAL AREA(S) ASSIGNED:

Operations

SUMMARY OF TECHNICAL QUALIFICATIONS:

- BS Chemistry, University of Montana-Great Falls
- Certified as a Environmental Lead Quality Auditor
- Over 35 years experience in the nuclear industry

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Performed audit of the National SNF Program in Idaho Falls, ID
- Performed Readiness Evaluation of the Commercial Light Water Reactor Production of Tritium Program for PNNL in Richland, WA
- Performed contractor evaluations for the Pit-9 Remediation Project
- Performed RA for the disposal of tritiated waste at CEGB facilities in La Jolla, CA

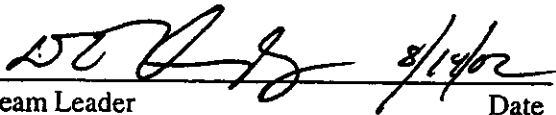
SUMMARY OF FACILITY FAMILIARIZATION:

Completed facility orientation training.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Independent Consultant, Global Technologies, Inc., with no responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER:

 8/14/02
Team Leader Date

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME:

Tom Lewallen

FUNCTIONAL AREA(S) ASSIGNED:

Transportation/Shipping/Packaging; Welding; Quality Assurance; Fire Protection

SUMMARY OF TECHNICAL QUALIFICATIONS:

- San Diego City College, Associate Degree, Quality Control and Reliability
- Over 35 years experience in Quality Assurance Program Management and Oversight Activities Including:
 - Developing and Managing QA programs for the DOE National Spent Fuel Program.
 - Developing and Managing QA Programs for the manufacturing of armor for the Army M1A1 Bath Tank.
 - Developing and managing QA Programs for the chemical processing of Spent Nuclear Fuel
 - Certified as Lead Auditor (OCRWM).

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Performed Audit of RWMC TRU Waste Program to determine compliance with WIPP QA Program and New Mexico Part B permit Quality Assurance and technical requirements
- Performed ES&H assessment at DOE Materials Evaluation Center in San Suzana, CA
- Performed QA audit of the OCRWM QA Program at the Yucca Mountain Project
- Numerous audits and assessments of DOE SNF/HLW Programs throughout the DOE complex.

SUMMARY OF FACILITY FAMILIARIZATION:

Completed Facility Orientation Training

BASIS FOR ACCEPTABLE INDEPENDENCE:

Independent Consultant, Global Technologies, Inc., with no responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER:


Team Leader Date

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: Ben Burton, PE

AREA ASSIGNED: Safety Analysis, Industrial Safety, Emergency Preparedness, Engineering, and Fire Protection.

SUMMARY OF TECHNICAL QUALIFICATIONS [Relevant to assigned areas(s)]:

- M.S. Mechanical Engineering, Washington State University
- B.S. Mechanical Engineering, University of Washington
- Registered Professional Engineer, State of Washington, State of Ohio
- Working level expertise in safety analysis, nuclear materials management, nuclear materials packaging, risk management, fire protection, ES&H and transport of nuclear material while working for DOE.
- Over 30 years experience in nuclear and fossil facility operations nuclear licensing, planning and scheduling, and maintenance.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Led DOE sponsored ORR at 325 Building for DOE-RL.
- QA Assessment team at DOE-RL.
- Fire Protection Assessment team at DOE-RL.
- Qualified Facility Representative for Purex, Plutonium Finishing Plant, and Fast Flux Test Facility.
- Conducted Criticality Safety Assessments for DOE at Plutonium Finishing Plant and Fast Flux Test Facility
- Participated review and comment the PFP, WESF, and FFTF Documented Safety Analysis and the Fire Hazards Analysis evaluation for DOE-RL.
- Certified as a Registered Environmental Manager by NREP.

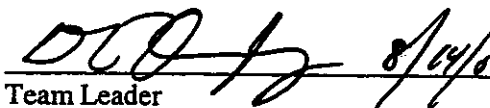
SUMMARY OF FACILITY FAMILIARIZATION:

Completed Facility Orientation Training and FEHIC Training.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Currently in cross qualification for 200 ASF, 200 EDP, and WESF, with no responsibility for 324 Building project activities.

ACCEPTABLE TO TEAM LEADER

 8/14/02
Team Leader Date

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY**TEAM MEMBER NAME:**

Theo Martin

FUNCTIONAL AREA (S) ASSIGNED:

Hoisting, Rigging, and Environmental

SUMMARY OF TECHNICAL QUALIFICATIONS:

- B.S., M.S. Degrees, and Post Graduate studies in Safety Engineering, Industrial Hygiene, and Environmental Management.
- Certified Environmental Specialist
- 18 Years professional experience
- OCRWM Auditing, surveillance methodology, and safety and health program assessment training courses.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:**Operational Readiness Reviews at other DOE sites:**

U.S. Navy: Damage Control system assessments
 Electrical distribution system assessments
 Electrical Safety program assessments
 Fire Protection Program assessments
 Post shipyard ship engineering system RAs

Hanford Site:

ORR legacy waste contain verification, CWC
RA LWPF startup
ORR TRU drum retrieval operations
UO3 SER assessment
327 FHA implementation plan correction action assessment
Assessment of BHI self-assessment of hear conservation program
Assessment of FHI FEB self-assessment of OS&H programs
Assessment of OSHA compliance at BHI Drill Rig sites
Assessment of FHI 200 E ETF septic tank filter replacement work site
Assessment of BHI OS&H and IH programs
Assessment of BHI asbestos abatement program @ 618-4 project
Assessment WESF CAT 3 SAR downgrade

SUMMARY OF FACILITY FAMILIARIZATION:

Mr. Martin worked in the 324 Building for 2 plus years.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Mr. Martin is not connected to the line organization for the 324 Building.

ACCEPTABLE TO TEAM LEADER:


Team Leader Date

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME:

Frank Roddy

FUNCTIONAL AREA(S) ASSIGNED:

Maintenance, radiological controls, and training

SUMMARY OF TECHNICAL QUALIFICATIONS:

- Certified Health Physicist
- Registered Professional Nuclear Engineer
- 38 years professional experience.

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:**Operational Readiness Reviews at other DOE sites:**

Fernald: Uranyl nitrate storage tank demolition
Thorium nitrate drum disposal operations

RFETS: Bldg 771 Pu nitrate tank draining
National Incentive Pilot Plant

**Savannah
River:** Consolidated Incineration Facility

Assessments at other DOE sites:

**Grand
Junction:** 10CFR835 compliance

Hanford: ORR CWC startup
RA PFP restart
ORR PFP thermal stabilization startup
WRAP line management assessment
ORR WRAP startup
K Basins emergency drill assessment
External dosimetry assessment
Hazardous waste/radwaste disposal moratorium assessment
HEPA filter assessment
Bechtel radcon instrument calibration, maintenance, and repair assessment
SNF line management assessment
Assessment of personnel entry and exit control – K Basins
Assessment of radcon posting – K Basins
Assessment of K Basin potential leakage
Assessment of FHI radcon records
Assessment of FHI self-assessment of radcon

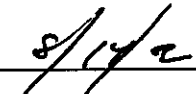
SUMMARY OF FACILITY FAMILIARIZATION:

Mr. Roddy has toured 324 Building on several occasions for the Solid Waste Disposal Box effort.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Mr. Roddy is not connected to the line organization for the 324 Building.

ACCEPTABLE TO TEAM LEADER:

 
Team Leader _____ Date _____

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY**TEAM MEMBER NAME:**

Joe Waring, Assistant Team Leader

FUNCTIONAL AREA(S) ASSIGNED:

Management and S/RIDS

SUMMARY OF TECHNICAL QUALIFICATIONS:

- BS Mechanical Engineering, Rensselaer Polytechnic Institute
- Qualified DOE Facility Representative (FR)
- 20 Years experience in the nuclear industry

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Performed numerous assessments/surveillances at the Plutonium Finishing Plant (PFP) as a Qualified DOE FR, 1999 to Present
- Performed ISMS Phase I Verification of PFP, 2000
- Performed Line Management Review of PFP *Magnesium Hydroxide Precipitation Process* Startup, 2000
- Performed Line Management Review of PFP *Bagless Transfer System* Startup, 2000
- Performed Line Management Review of PFP *Feed Shift for Plutonium Oxide Packaging into Bagless Transfer Cans* Startup, 2001
- Performed Line Management Review of PFP W-460 Project, *Stabilization and Packaging Equipment*, Startup, 2001
- Performed FR oversight of the following startup activities at PFP, 1999-2002:
 - Thermal Stabilization;
 - Outer Can Welder for DOE-STD-3013 Packaging;
 - Direct Discard of Plutonium Solutions;
 - Feed Shift for Plutonium Oxide Packaging into Bagless Transfer Cans;
 - W-460 Project, Stabilization and Packaging Equipment;
 - Bagless Transfer System;
 - Magnesium Hydroxide Precipitation Process; and
 - Polycube Stabilization.

SUMMARY OF FACILITY FAMILIARIZATION:

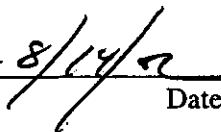
Completed Facility Orientation Training and FEHIC Training

BASIS FOR ACCEPTABLE INDEPENDENCE:

Currently in FR requalification process at PFP, with no responsibility for 324 Building project activities

ACCEPTABLE TO TEAM LEADER:


Team Leader


Date

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B. F. Burton	N2-36
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T. Martin	A5-17
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J.J. Waring	T5-54

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