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MANAGEMENT SYSTEM VERIFICATION FOR THE HANFORD SPENT NUCLEAR FUEL
PROJECT, PHASE I AND II**DISTRIBUTION**

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memorandum

DATE: November 19, 1999

REPLY TO
ATTN OF: S-3.1:M. Mikolanis:6-3771

SUBJECT: INTEGRATED SAFETY MANAGEMENT SYSTEM VERIFICATION FOR THE HANFORD SPENT NUCLEAR FUEL PROJECT, PHASE I AND II

TO: Mr. Keith Klein, Manager, Richland Operations Office
Mr. Robert Rosselli, Assistant Manager, Richland Operations Office

As Team Leader for the subject Integrated Safety Management System (ISMS) Verification, I am forwarding the Final Report, Volumes I and II. The verification was conducted in accordance with the Department of Energy (DOE) ISMS Guide 450.4-1A, the ISMS Verification Team Leader's Handbook, DOE-HDBK-3027-99, and with full consideration of your guidance and comments in your memorandum of January 14, 1999, which appointed me as Team Leader. As a result, a Review Plan and all preparations to have a qualified team were in place for the verification. The verification was conducted with excellent response and support from the DOE and contractor personnel at the Spent Nuclear Fuel (SNF) Project.

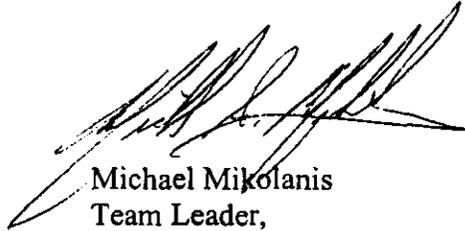
The team's recommendation regarding the SNF Project System Description (Phase I) is to approve it once the SNF Project addresses two issues. First, Fluor Daniel Hanford (FDH) should determine how ISM requirements will be implemented at the construction projects. Second, the SNF Project should include the construction projects in its System Description.

The team's recommendation regarding implementation of the ISM System is that it should be considered acceptable once FDH addresses two issues. First, the Project needs to define roles and responsibilities for safety while transitioning the construction projects to operational facilities. Second, the SNF Project needs to develop and implement a chemical management program.

The Final Report specified Noteworthy Practices and Opportunities for Improvement to further guide the project in continuous improvement. The Noteworthy Practices observed by the team are evidence of a commitment to ISMS that should be reinforced and continued. The implementation of ISMS and worker safety are being aggressively pursued by the SNF Project's leadership. The workforce is enthusiastic in support of ISM and welcomes the opportunity to participate in safely moving fuel through ISM.

The Opportunities for Improvement serve as focal areas for consideration in achieving future process improvement. Over the past two years, the approach to develop and implement ISM has significantly matured at the K-Basins. The listed Opportunities for Improvement are intended to identify additional areas for improvement and, in some cases, emphasize current actions identified by the SNF Project to improve ISMS.

If I can be of any assistance to you in clarifying this report, please contact me at (202) 586-3771. Thank you for the opportunity to conduct this verification.



Michael Mikolanic
Team Leader,
ISMS Verification SNF Project
Office of the Departmental Representative to the Defense
Nuclear Facilities Safety Board (S-3.1)

Attachments (Volumes I and II)

S

Spent Nuclear Fuel Project



Integrated Safety Management System Phase I/II Verification

Volumes I and II
Richland, Washington
November 1 - November 22, 1999



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U.S. DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE

Spent Nuclear Fuel Project

Integrated Safety Management System Phase I/II Verification



Volume I

Richland, Washington
November 1–November 22, 1999

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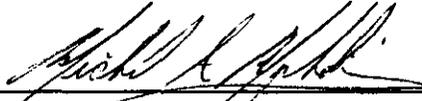
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SIGNATURE PAGE

I, by signature below, concur with the ISMS Verification team, Team Leader and Senior Advisor in the issues, Opportunities for Improvement, Noteworthy Practices, and recommendations of this report.



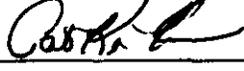
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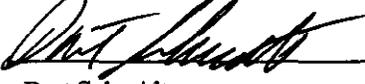
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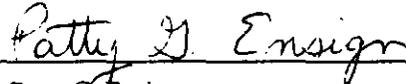
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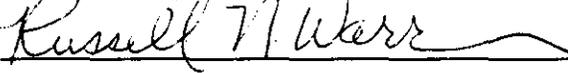
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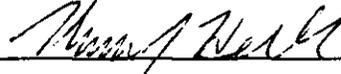
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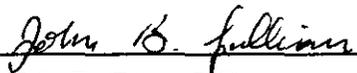
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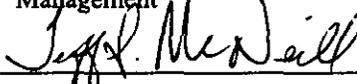
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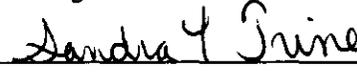
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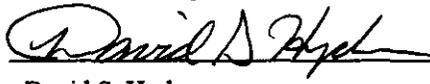
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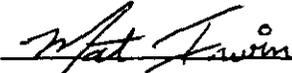
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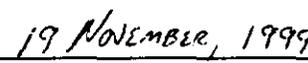
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EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE) commits to accomplishing its mission safely. To ensure this objective is met, DOE issued DOE P 450.4, *Safety Management System Policy*, and incorporated safety management into the DOE Acquisition Regulations ([DEAR] 48 CFR 970.5204-2 and 90.5204-78).

Integrated Safety Management (ISM) requires contractors to integrate safety into management and work practices at all levels so that missions are achieved while protecting the public, the worker, and the environment. The contractor is required to describe the Integrated Safety Management System (ISMS) to be used to implement the safety performance objective.

SCOPE

DOE, Richland Operations Office (RL) conducted an ISMS Phase I/II verification review of the Spent Nuclear Fuel (SNF) Project ISM System Description and related facility and activity-level implementation at the SNF Project facilities, including K Basins, Cold Vacuum Drying Facility, and the Canister Storage Building. This verification review was requested by the RL Manager.

This report documents the results of the review conducted to verify the following:

- The SNF Project facility-level system description and associated plans, manuals of practices, and procedures are consistent with the objectives, guiding principles, and core functions of ISM.
- The ISM System Description and associated plans, manuals of practices, and procedures are adequately implemented at the facility and activity level.
- The project management of the transition from construction to operations will satisfactorily integrate the new facilities into operations.

The general conduct of the review was consistent with direction provided by DOE G 450.4-1A, *Integrated Safety Management System Guide* and the *Integrated Safety Management System (ISMS) Verification Team Leader's Handbook* (DOE 1999a).

To conduct the verification review, the team was divided into four functional area subteams: Business, Budgets, and Contracts (BBC); Hazards Identification and Standards Selection (HAZ); Management (MG); and Operations (OP). The HAZ and OP subteams were augmented by six Subject Matter Experts. The subteams conducted their review over a period of 4 weeks on the Hanford Site. The reviews were conducted using Criteria and Review Approach Documents (i.e., Assessment Forms) that were based on the core functions and guiding principles from DOE P 450.4 and DOE G 450.4-1A. The functional area summaries are provided in Section 6.2 of this report and the details of the reviews are contained in the Assessment Forms in Volume II.

RESULTS

The verification team found that the SNF Project ISM System Description of September 9, 1999 was responsive to the requirements of the DEAR clause and DOE management direction for work activities conducted at the K Basins. At the K Basins, the ISM System Description provides a framework for understanding the mechanisms by which SNF safety of the public, worker, and environment is protected during operations at the K Basins. However, the ISM System Description does not address the flow down of ISMS requirements at the Cold Vacuum Drying Facility or the Canister Storage Building during construction and turnover for operations.

Line management at the SNF Project is clearly identified as responsible for safety, and managers have demonstrated their commitment to the safety of their workers and an overall understanding of their roles and responsibilities. Throughout the interviews and observations, individuals demonstrated competence in executing these responsibilities. At the K Basins, the SNF Project has developed processes that enhance the ability of personnel to identify, analyze, and control hazards. The use of the Automated Job Hazard Analysis improves the capability of planners, while the Enhanced Work Planning process significantly involves the workers in job planning. Attention to worker safety and the effectiveness of ISM is evidenced by the significant decrease that has been seen in worker injuries at the SNF Project. Shift Managers are attentive to their

responsibilities for the control and authorization of work. Finally, the SNF Project is utilizing a number of methods for feedback and improvement and is committed to the use of performance indicators to analyze results and effect continuous improvement.

However, the SNF Project has not achieved full implementation. The expectations, requirements, and processes for implementation of ISMS at the construction projects should be refined and strengthened. The Chemical Management System should be fully developed and implemented. Line management has demonstrated a strong sensitivity to safety concerns raised by the workforce. As the implementation of ISM at the Project continues to mature, this commitment and responsiveness should be expanded to other safety areas, such as chemical management and radiological controls, and enhancing management's presence in the facilities.

CONCLUSION

While the verification team found that the SNF Project ISM System Description of September 9, 1999 is responsive to the DEAR clauses and DOE management direction, the team identified weaknesses that should be corrected prior to considering the SNF Project ISM System Description to be complete and implemented.

The team recommends that the RL Manager approve the ISM System Description once Fluor Daniel Hanford, Inc. and the SNF Project address the following:

- The method of implementation of ISM requirements at the construction projects
- Incorporation of the construction projects in the SNF Project ISM System Description.

It should also be noted that the Project ISMS Description will need to be reconciled with the site ISMS Description following its upcoming revision as a result of the Hanford Site-wide Phase I verification.

The team recommends that the RL Manager consider the ISM System Description to be implemented once the SNF Project addresses the following:

- Define roles and responsibilities for safety while transitioning the construction projects to operational facilities
- Develop and implement a Chemical Management Program.

The Noteworthy Practices observed by the team are evidence of a commitment to ISMS that should be reinforced and continued. The implementation of ISMS and worker safety is being aggressively pursued by the SNF Project's leadership. The workforce is enthusiastic in support of ISM and welcomes the opportunity to participate in safely moving fuel through ISM.

The Opportunities for Improvement serve as focal areas for consideration in achieving future process improvements. Over the past 2 years, the approach to develop and implement ISM has significantly matured at the K Basins. The following Opportunities for Improvement are intended to identify additional areas for improvement and, in some cases, emphasize current actions identified by the SNF Project to improve ISMS.

Noteworthy Practices

- The K Basins has created an atmosphere that ensures worker involvement in work planning teams via the Automated Job Hazard Analysis and Enhanced Work Planning.
- The SNF Project's baseline management philosophy is to continuously maintain a life cycle baseline for the project and not subject it to changing budget exercises.
- The SNF Project lessons-learned procedure requires recipients to provide feedback as to whether or not the lesson learned applies, actions associated with addressing the lessons learned, and disposition of the lesson.

- SNF operations management has instituted a noteworthy policy for elevating fieldwork issues (30-minute rule) when challenges are encountered during performance of work. Furthermore, the Shift Manager's office demonstrates timely response to individual workforce identified safety concerns.
- A Management Self-Assessment dry-run process was implemented that exposes the management team to the expectations required to be met prior to declaring readiness for operations.

Opportunities for Improvements

- Implementation of ISMS flow down to construction subcontracts on the SNF Project is not adequate. Procedural guidance is preliminary and needs to be more fully developed to assure that flow down of requirements is clearly understood and met.
- ISMS implementation during startup activities should be strengthened by addressing roles and responsibilities for safety and authorization of work during the transition from construction to operations.
- The mechanisms and processes contained in the SNF Chemical Management Implementation Plan should be developed and implemented throughout the Project to ensure the safety of workers and compliance for chemical handling, storage and use. Currently, the Chemical Management System at the SNF Project has not been fully developed into an integrated program/system that is easily identifiable or documented in the facility's processes or procedures.
- Teaming and communication within the groups developing safety basis documentation should be enhanced using the successful approaches implemented within the K Basins. As the SNF Project exists today, communications and teaming between the K Basins, Cold Vacuum Drying Facility, and Canister Storage Building to support safety case assumptions, hazard analysis, accident analysis, and consequences is not effective. This is a previously

identified problem and is not being addressed by a feedback and improvement system.

- An independent assessment covering the construction projects, applicable management systems, and all related supporting activities needs to be performed as required.
- Baseline management at the task level of the SNF Project should be strengthened. A broad examination of these practices at the task level needs to be conducted. For instance, work control procedural guidance is not adequate in assessing impacts of changes at the task level in a context that is broader than scheduled.
- The Employee Job Task Analysis program should be enhanced by ensuring line management meets its responsibilities as required in data gathering, medical qualifications, and monitoring.
- The feedback data collection and trending processes can be enhanced to improve their effectiveness. Enhanced performance in this area can reduce the repeated identification of minor procedural and regulatory noncompliances.
- Line management involvement in radiological protection should be improved by increased management involvement in key oversight committees and an active field presence during work in radiological areas. Additionally, increased attention to planning and staffing for future radiological activities in the new construction facilities will enhance safety when the Project transitions to operations.

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VOLUME II

ASSESSMENT FORMS

REVIEW PLAN

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ACRONYMS

AB	Authorization Basis
AJHA	Automated Job Hazard Analysis
ALARA	as low as reasonable achievable
BBC	Business, Budgets, and Contracts (subteam)
CAM	Corrective Action Management
CM	Chemical Management
CRAD	Criteria and Review Approach Document
CSB	Canister Storage Building
CVD	Cold Vacuum Drying (Facility)
DEAR	Department of Energy Acquisition Regulations
DOE	U. S. Department of Energy
EC/CM	Environmental Compliance/Chemical Management
EJTA	Employee Job Task Analysis
ES&H	Environment, Safety, and Health
EWP	Enhanced Work Planning
FDH	Fluor Daniel Hanford, Inc.
FWS	Field Work Supervisor
HAZ	Hazard Identification and Standard Selection (subteam)
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
MG	Management (subteam)
OP	Operations (subteam)
PEP	Project Execution Plan
PHMC	Project Hanford Management Contract
PIC	person in charge
RL	DOE, Richland Operations Office
SME	Subject Matter Expert
SNF	Spent Nuclear Fuel
SSC	Structures, Systems, and Components

1.0 INTRODUCTION

The U. S. Department of Energy (DOE) Policy (DOE P 450.4) requires that safety be integrated into all aspects of the management and operations of its facilities. In simple terms, the DOE will "Do work safely." The goal of an institutionalized Integrated Safety Management System (ISMS) is to have a single integrated system that includes Environment, Safety, and Health (ES&H) requirements in the work planning and execution processes to ensure the protection of the worker, public, environment, and federal property over the life cycle of the Spent Nuclear Fuel (SNF) Project. The ISMS is comprised of the following:

1. Described functions, components, processes, and interfaces (system map or blueprint)
2. Personnel who perform those assigned roles and responsibilities to manage and control the ISMS.

Therefore, this review evaluated the "paper," "people," and "process" aspects of the ISMS to ensure the system is implemented and effective within the SNF Project.

2.0 PURPOSE

The purpose of the SNF Project ISMS Phase I/II verification review was to verify the status of ISMS programs and processes at the SNF facilities, including K Basins, Canister Storage Building (CSB), and the Cold Vacuum Drying (CVD) Facility. To accomplish this purpose, the SNF Project ISMS Phase I/II verification was organized to achieve the following:

- Verify that the SNF Project facility-level Integrated Safety Management (ISM) System Description and associated plans, manuals of practice, and procedures are consistent with the objectives, guiding principles, and core functions of ISM
- Verify that the SNF Project facility-level ISM System Description and associated plans, manuals of practice, and procedures are adequately implemented at the facility and activity level
- Verify satisfactory transition from construction to operations, including project management of this transition and plans and strategies for integrating the new facilities into operations.

3.0 BACKGROUND

The SNF Project supports the *Hanford Strategic Plan* (DOE-RL 1996) to safely clean up and manage legacy waste, protect the Columbia River Corridor, and deploy science and technology, while incorporating the ISMS central theme to "Do work safely" and protect human health and the environment. Specifically, the SNF Project was established to safely store SNF at the Hanford Site in anticipation of future final disposition.

The 105-K East Basin and 105-K West Basin (K Basins) are two DOE, Richland Operations Office (RL)-owned facilities in the 100-K Area of the Hanford Site, located in Richland, Washington. The K Basins contain 2,100 metric tons (2,314 tons) of irradiated fuel that is being prepared for shipment to an interim storage site in the 200 Area of the Hanford Site under the management of the SNF Project. The fuel will be removed from storage, inspected, and repackaged for shipment. The repackaged fuel will first be shipped from the K Basins to the CVD Facility, where water will be removed and then will be shipped to the CSB for interim storage. Subsequently, the K Basins will be decontaminated and decommissioned.

The scope of the SNF Project includes the following:

- Maintenance and preparation of the K Basins for removal and safe storage of the SNF, debris, sludge, and water (as necessary)
- Operation of new systems and facilities to condition and store the fuel prior to final disposition (i.e., CVD Facility and CSB)
- Relocation of the K Basins SNF (via the multi-canister overpack and cask/transportation system) to the interim storage facility
- Removal and pretreatment of the K Basins sludge for disposal
- Consolidation of the SNF from other Hanford Site locations (except the Low Level Burial Ground and Plutonium Finishing Plant SNF inventories) at the 200 East Area interim storage area
- Deactivation of the 100-K Area facilities (includes basin water removal) that are under the purview of the SNF Project for eventual decontamination and decommissioning by the Environmental Restoration program.

The *Project Hanford Management Contract Integrated Environment, Safety, and Health Management System Plan* (HNF-MP-003 [FDH 1999a]) represents the safety management system documentation required by DOE Acquisition Regulations (DEAR) clause 970.5204-2 for the Project Hanford Management Contract (PHMC). HNF-MP-003 (FDH 1999a) was approved by RL based on a review against the existing contractual requirements (derived from an earlier draft of the 970.5204-2 DEAR clause) for that document. The PHMC was recently modified to

incorporate the 970.5204-2 DEAR clause and HNF-MP-003 (FDH 1999a) is being revised accordingly.

Additionally, an ISM System Description document was required to address documentation and implementation of the Fluor Daniel Hanford, Inc. (FDH) ISMS plan at the SNF Project facility and activity level.

In January 1998, RL completed a Phase I ISMS verification of the FDH level and SNF Project K Basins Facility. The Criteria and Review Approach Documents (CRAD) developed for that assessment were developed using draft DOE ISM guidance documents (e.g., *Integrated Safety Management Systems (ISMS) Verification DOE Team Leader's Handbook, Draft* [draft version dated 1998]). Based upon the number and extent of gaps identified by both the contractor and the DOE ISM Review Team, the contractor ISMS was not considered to be adequately institutionalized.

4.0 SCOPE

The scope of this review is associated with the SNF Project and operations conducted by FDH and its lower-tiered contractors and subcontractors. Other than verifying processes that provide for the flow down of requirements, this review does not verify the implementation of ISM within the RL organization, but covers interfaces between DOE and the contractor at the SNF Project level.

As directed in the Verification Team Leader letter of appointment (Klein 1999), the results of external reviews of the SNF Project since January 1998 were considered in the development of the Review Plan to avoid unnecessary duplication of effort. These include an EH-10 Compliance Order Notification, EM-5 Baseline Program Review (DOE 1999b), General Accounting Office audits, Process Improvement Team Report (DOE-RL 1999), and various RL program reviews.

The objectives of this ISMS Phase I/II verification are to provide the following:

- Verify that SNF Project facility-level ISM System Description and associated plans, manuals of practice, and procedures are consistent with the objectives, guiding principles, and core functions of ISM and HNF-MP-003 (FDH 1999a).
- Verify that the SNF Project facility-level ISM System Description and associated plans, manuals of practice, and procedures are adequately implemented at the facility and activity level and provide an evaluation of the training, knowledge of management and staff with respect to the guiding principles and core requirements of ISM.
- Develop lessons learned from this verification effort to improve the effectiveness of future ISM reviews at the Hanford Site.

- As possible, use members of the FDH Facility Evaluation Board to allow FDH to develop a capability to evaluate implementation of ISMS at other FDH facilities. The Facility Evaluation Board performs an independent assessment function for FDH.

This review provides an evaluation of the institutionalization of ISM processes at the SNF Project facility and activity level. This includes a general evaluation of the training and knowledge of management and staff with respect to the ISMS principles, functions, mechanisms, and responsibilities.

RL is currently restructuring many of its business processes and aligning personnel within these "new" business processes. Accordingly, the scope of the review does not include a review of RL. RL's implementation of ISMS will be assessed during a future ISMS verification.

5.0 PREREQUISITES

Overall acceptance by DOE to proceed with the SNF Project ISMS Phase I/II verification was based on the following:

- Compliance with the requirements of the FDH DEAR clause H.5.E (DEAR 970.5202-2) was substantially demonstrated.
- Corrective actions with known deficiencies would not require or result in changes to the ISM System Description and related policies, plans, procedures, and products to the extent that significant re-review of the ISM System Description would be required.

6.0 INTEGRATED SAFETY MANAGEMENT SYSTEM ASSESSMENT RESULTS

6.1 INTRODUCTION

The following sections provide a summary of the ISMS Phase I/II verification results for each of the subteam functional areas. The summaries focus on the guiding principles of ISM defined in DOE P 450.4.

The guiding principles of safety management provide the essential criteria for evaluating line management's performance in establishing an effective safety management program, identifying the requirements that apply to work processes, and ensuring that the necessary analysis and controls processes have been established to ensure that work can be performed safely and in an environmentally sound manner. The principles are both a framework and a tool for analyzing strengths and weaknesses in the ISM System Description. Weaknesses subsequently found in program implementation can frequently be directly related to weaknesses in the implementation of the guiding principles.

6.2 FUNCTIONAL AREA SUMMARIES

6.2.1 Business, Budgets, and Contracts

The Business, Budgets, and Contracts (BBC) subteam assessed how the SNF Project ISMS was incorporated into work processes by performing document reviews and interviews with SNF Project personnel. The focus was on work planning, change control, prioritization, personnel competence, and requirements flow down to subtier contractors.

Programmatic and ES&H expectations are set and consistent with the DOE and SNF Project mission. Prioritization of work scope is used to develop the baseline schedule and is refined to reflect the impacts of the annual DOE prioritization process through baseline change control. Even though the SNF Project level change control management philosophy is considered strong, the "overall" change control procedure linkages to the task-level change process could be improved.

The flow down of ISMS requirements to subcontractors has not been implemented for construction activities. Flow down to other types of subcontractors is not clearly defined as required by management directives. Interviews indicate a lack of thought in the development of a process for flow down of ISMS requirements.

The allocation of resources to address safety, programmatic, and operational considerations was evidenced at the task level through procedures and discussions with interviewees. The balanced priorities are strengthened by the SNF Project fee structure through incentivization of ISMS core functions (i.e., identification and control of hazards, etc.). Although minor discrepancies were found, the principles of ISM are being applied in the contractor budgeting and resource assignment areas.

Line Management Responsibility for Safety and Environment: The SNF Project scope definition, prioritization, and resource allocation process addresses both ES&H and programmatic issues and involves line management input and approval of the results. Baseline changes require ES&H and programmatic consideration by line management.

Clear Roles and Responsibilities: SNF Project procedures delineate staff responsibilities in some cases. For example, in the Work Control procedure, which integrates ES&H involvement for setting emergent work priorities via a priority matrix, staff responsibilities were part of the process description. The Project Execution Plan (PEP) (FDH 1998) delineates roles and responsibilities clearly. However, in the flow down of requirements to subcontractors, line management roles and responsibilities for implementation of ISMS have not been defined.

Competence Commensurate with Responsibility: The competence of personnel who perform the definition, approval, and prioritization of work scope, and the allocation of resources is achieved by adherence to established personnel procedures, which are consistent with the objective of ensuring that personnel competence is commensurate with the assigned responsibilities. Established work planning processes are understood. However, ongoing training to continuously improve the skills necessary to write or define work scopes could be improved.

Balanced Priorities: The SNF Project adheres to the balanced priorities that flow down from RL, as evidenced through the procedures and practices. A major element of these priorities is safety. Those balanced priorities are further strengthened at the SNF Project level and via the fee structure, which fully incorporate the ISMS principles. These priorities are reviewed on an annual basis with the public, regulators, and tribal nations to ensure their input is considered. Furthermore, the SNF Project Integrated Management Decision Process, established in the Project Execution Plan (FDH 1998), calls for the development of several useful tools for SNFP prioritization. (i.e., Opportunity, Risk, and Work Scope Priority lists). However, the formulation of these lists are not yet well developed or institutionalized.

Feedback and Continuous Improvement: The methodology for providing feedback and improvement in scope definition, resource allocation, and prioritization is the baseline change control process. The plan for executing the Project scope of work is maintained current in a continuous manner via change justification and impact analysis. Changes are thoroughly reviewed and approved based on the documented drivers and impacts at the SNF Project level. Weaknesses identified include the rigor of baseline management at the task level.

Noteworthy Practices:

- The SNF Project's baseline management philosophy is to continuously maintain a life cycle baseline for the project and not subject it to changing budget exercises. (BBC.1-1)

Opportunities for Improvement:

- Baseline management at the task level of the SNF Project should be strengthened. A broad examination of these practices at the task level needs to be conducted. For instance, work control procedural guidance is not adequate in assessing impacts of changes at the task level in a context that is broader than scheduled. (BBC.1-2, BBC.1-3, BBC.3-2)
- Implementation of ISMS flow down to construction subcontracts on the SNF Project is not adequate. Procedural guidance is preliminary and needs to be more fully developed to assure that flow down of requirements are clearly understood and met. (BBC.1-5, MG.1a-1, MG.1a-2, SME.4-3)

6.2.2 Hazard Identification and Standard Selection

The Hazard (HAZ) functional area subteam's mission was to verify the contractor's ISMS provided for adequate identification, analysis, and categorization of hazards associated with the scope of work as defined by the contract between the DOE and the contractor. Additionally, the team was charged to evaluate the processes and mechanisms the contractor has put in place to identify standards and requirements that stipulate the controls necessary to mitigate or prevent the identified hazards. Two Subject Matter Experts (SME) were also assigned to the HAZ subteam; SME.4 focused on Occupational Safety and the SME.5 focused on Environmental Compliance (EC) and Chemical Management (CM).

Line Management Responsibility for Safety: Support and ownership for safety was clearly demonstrated by the safety walk-downs observed. Persons representing management, safety,

Line Management Responsibility for Safety: Support and ownership for safety was clearly demonstrated by the safety walk-downs observed. Persons representing management, safety, craft, and subcontractors performed these walk-downs. The SNF Project also uses a "Manager in the Field" program to provide visibility and demonstrate management involvement. However, the CM process is not fully developed into an integrated process/system. The process uses outdated industrial hygiene and safety documents for the hazardous communication program and chemical acquisition.

The Employee Job Task Analysis (EJTA) is the process that integrates line management, industrial hygiene and safety, employees, human resources, and the occupational medical contractor regarding determinations of the employee's physical and mental health status and their ability to safely and reliably perform job tasks and physical job requirements. A random review of SNF Project employee EJTA's indicated that line management was not fulfilling their responsibilities with respect to data gathering, occupational and medical qualification, and monitoring.

Clear Roles and Responsibilities: SNF Project procedures, including the SNF Project ISMS Description, define roles and responsibilities. Contractor functions relative to the identification of hazards are clearly identified in site- and facility-specific procedures, including identifying the responsibility and authority to carry out those functions. Other mechanisms used to ensure SNF Project responsibility for safety include processes such as the following: posting access to roofs "Obtain Shift Managers authorization prior to roof access," requiring approval of work packages developed by the Hanford Fire Department for fire systems inspection, testing and maintenance, and other subcontractor work.

The EC/CM organizations use the Training Implementation Matrix to manage staff qualifications and training. The position descriptions and process used to identify technical support staff qualifications are contained in the Human Resource administrative procedures. The Environmental Manager also uses an organizational matrix of roles and responsibilities to track each employee's job duties and ensure that documents or requests for assistance are distributed to the most knowledgeable staff member.

Competence Commensurate with Responsibility: Facility-level management has procedures and mechanisms in place to ensure that first-line supervisors and workers are competent to assess basic compliance with procedures that include hazard controls. Experienced and qualified teams are involved and integrated in hazard identification, analysis, and categorization at the facility and activity level. In other areas that require specific safety and/or health training for work execution (such as respirator training, scaffold user training, fall protection, fire extinguisher use, etc.), qualifications are addressed/controlled as part of the work package, procedure, Automated Job Hazard Analysis (AJHA), etc. One weakness was identified where criticality safety expertise was not specifically called out in a procedure, but rather was rolled into the more generic function of nuclear safety.

With regards to the Chemical Management System (CMS), the deficiencies noted in the inspection and during interviews indicate that many of the facility personnel have a basic understanding, but do not have the tools to ensure complete compliance with all the requirements

for CM. Although no documented incompatibility was identified during the assessment, the end user does not have the tools to ensure that the chemicals are safely stored.

Identification of Standards and Requirements: The SNF Project uses the Standards/Requirements Identification Document (S/RID) process (one of two DOE-approved methodologies) to identify the appropriate standards and controls for hazards inherent to the facilities under the SNF Project's purview. The SNF Project has an approved S/RID, and a Phase I verification of this document has been performed. The Project is beginning a Phase II verification of the implementation of these procedures. Procedures and mechanisms exist at the facility level that includes agreed-upon sets of safety standards and requirements, identify controls to prevent/mitigate hazards, establish boundaries for safe operations, and implement and maintain configuration control of Technical Safety Requirements and operational safety requirements. The facility's CM administrative procedures do not list all of the requirements to ensure compliance with the Hanford Site CMS.

Hazard Controls Tailored to Work Being Performed: The AJHA/Enhanced Work Planning (EWP) process demonstrated a comprehensive and integrated team approach that defined the scope of work, and identified hazards and controls, in addition to providing many opportunities for feedback and improvement to the existing work procedures. The EWP process also identified additional materials required, critical lift requirements, and nuclear safety concerns. The AJHA/EWP process observed identified new hazards and appropriate controls, recognized existing Authorization Basis (AB) commitments/ requirements, and demonstrated an effective team approach to work planning.

The communications and teaming was not effective between the K Basins, CVD Facility, and CSB subprojects in developing safety basis documentation. The lack of integration across the various subprojects in areas of safety case assumptions, hazards analysis, accident analysis, and consequences (specifically the analysis associated with the Multi-Canister Overpack), indicates that the core functions and guiding principles of ISM have not yet been fully implemented in this critical activity.

Feedback and Continuous Improvement: Opportunities are available to the workers to contribute to the feedback and improvement processes via the AJHA "post-job review" form/checklist specified in SNF Project procedures. The SNF Project EWP process is a "real time" feedback and improvement opportunity also implemented by workers, managers, SMEs, etc.

A concern exists that surveillances, tours/field walk-throughs continue to discover the same type of safety, health, and fire protection deficiencies. Although many are minor and appear to be isolated in nature, in aggregate, they indicate that requirements are not yet fully implemented. While these deficiencies were detected by established processes designed to assess the status and correct deficiencies, this is evidence of personnel not fully adhering to the implementing procedures or mechanisms for ensuring safety and health.

The feedback process for communicating the status of the Chemical Management Implementation Plan was not maintained. The plan used verification forms for tracking and closing out the gaps identified with the baseline review. These forms were not completed, even though several gaps were closed, such as the submittal of the implementation plan.

Worker Involvement: Planned work requires the establishment of an EWP team, an AJHA, and a physical walkdown of the work site. The procedure requires participation of engineering, maintenance, craft, radiological control, safety, nuclear safety, and planning and scheduling. Hazards are identified and controls stipulated by the AJHA tool, which requires organizational integration concepts to be applied when deriving the controls necessary to mitigate or prevent hazards inherent to the scheduled work activity.

Routine weekly safety walk-downs performed by persons representing management, safety, craft, and subcontractors have been implemented. The teaming demonstrated by this process has proven to be an excellent mechanism for demonstrating management ownership, for increasing general awareness of issues, and for providing instantaneous feedback on the success or failure of safety, health and fire protection programs.

Noteworthy Practices

- The K Basins has created an atmosphere that ensures worker involvement in work planning teams via the AJHA and EWP. (HAZ.1-1, HAZ.1-2, OP.2-1, SME.1-2, SME.2-1, SME.4-1)

Opportunities for Improvement

- The Employee Job Task Analysis program should be enhanced by ensuring line management meets its responsibilities as required in data gathering, medical qualifications, and monitoring. (HAZ.1-3) (SME.4-2)
- The mechanisms and processes contained in the SNF CM Implementation Plan should be developed and implemented throughout the Project to ensure the safety of workers and compliance for chemical handling, storage and use. Currently, the CMS at the SNF Project has not been fully developed into an integrated program/system that is easily identifiable or documented in the facility's processes or procedures. (SME.5-2, SME.5-3)
- The feedback data collection and trending processes can be enhanced to improve their effectiveness. Enhanced performance in this area can reduce the repeated identification of minor procedural and regulatory noncompliances that occurred during this verification. (MG.3-3, MG.3-8, MG.3-10, MG.3-12, SME.4-2)
- Teaming and communication within the groups developing safety basis documentation should be enhancing using the successful approaches implemented within the K Basins. As the SNF Project exists today, communications and teaming between the K Basins, CVD Facility and CSB to support safety case assumptions, hazard analysis, accident analysis, and consequences is not effective. This is a previously identified problem and is not being addressed by a feedback and improvement system. (HAZ.1-5)

6.2.3 Management

The Management functional area subteam assessed the institutionalization of the SNF ISM System Description through document reviews, interviews with SNF personnel, and field observation of work activities. The MG subteam review focused on 3 major areas and 16

criteria. The major areas were 1) the ISM System Description, 2) roles and responsibilities, and 3) feedback and improvement.

All senior managers interviewed demonstrated a keen awareness and dedication to the ISMS program and to the ISM principles. These interviews included line managers as well as support managers. All understood the principles that the line manager had responsibility for safety and that first-line supervision and worker involvement enhances the identification and development of safety controls.

The SNF Project ISM System Description does not adequately describe all aspects of the SNF Project. Specifically, the description appeared to be written for the K Basins and did not explicitly describe other SNF Projects (i.e., the "Greenfield" projects). The SNF Project does have a process to update the description as well as a process to measure system effectiveness. However, when the FDH ISMS Description is changed, reconciliation will be necessary to manage changes to the SNF Project ISM System Description.

The SNF Project utilizes a series of tools to provide feedback for both positive and deficient work activities. Some of these tools include EWP, AJHA, post-job reviews, lessons learned, management self-assessment, and corrective action management (CAM). Several concerns were identified and will need to be addressed to fully implement the ISMS feedback and continuous improvement expectation.

Line Management Responsibility for Safety: The SNF Project ISM System Description in part states that line management is responsible for implementing integrated safety management such that work is planned and executed in a safe manner in accordance with applicable requirements. This responsibility is also stated in HNF-PRO-074, *Safety Responsibilities* (FDH 1997), which outlines the responsibilities of both line management and supervisors for implementing safety. Section 3.0 holds line management responsible for ensuring that implementation of hazard controls is adequate to ensure work is planned, approved, and executed in a safe manner. The SNF Project Safety Guiding Principles hold management accountable for preventing injuries.

Clear Roles and Responsibilities: The *Spent Fuel Project Execution Plan* (FDH 1998) defines roles and responsibilities within the SNF Project. The PEP is a comprehensive description of the work scope, execution strategy, organizational structure, and roles and responsibilities. The PEP defines roles and responsibilities for safety for the different groups within the SNF Project organization and for management and workers.

The PEP defines the overall SNF Project organization that is responsible for the execution of all aspects of the project activities. The PEP defines the roles and responsibilities for all the functional organizations reporting directly to the Project Director. Roles and responsibilities are further defined through charters for those managers reporting directly to the Project Director and for managers reporting to the Operations Manager. The current SNF Project organization has changed since the PEP was approved; the organizational changes are relatively minor, with the exception of the position of Vice President, Spent Nuclear Fuels.

Competence Commensurate with Responsibility: The System Description references AP TN-8-001-07, *General Training Administration* (FDH 1999b), which provides specific training requirements. The procedure states in part that the SNF Project Director is responsible for ensuring Project personnel are adequately trained to perform their assigned work and that their training is maintained current. Line management is responsible for ensuring that their personnel meet established training and proficiency requirements. Line managers are required to periodically review qualifications and certification programs to ensure that these programs are current and address the safety analysis report, technical safety requirements, procedures, and regulations. The SNF Project Training Manager, in conjunction with Training Services, is responsible for providing line management with the support necessary to ensure that personnel are qualified to safely and effectively execute their job assignments. Interviews with senior and line managers demonstrated their ownership of the requirements of this procedure.

Balanced Priorities: The SNF Project uses an integrated planning process to identify and prioritize mission-related tasks. This planning process supports development of the Multi-Year Work Plan. All work for the SNF Project is planned and managed by Project Managers. The Project work breakdown structure divides the Project scope into discrete manageable work packages. The work breakdown structure has a coding structure that permits tracking of progress, costs, work hours, and schedule.

Identification of Standards and Requirements: A review of several AJHA and work packages revealed that standards and requirements are included as an integral part of the planning process. The Project has developed and is maintaining the SNF Project S/RIDs that contain the DOE-approved subset of ES&H requirements selected from DOE Orders, state and federal laws, and other sources. An S/RID Program Implementation Plan has been prepared and approved by DOE addressing past S/RID-related concerns. The Phase 2 S/RID assessment is scheduled for completion on April 30, 2000.

Hazard Controls Tailored to Work Being Performed: Worker input into the work activity occurs on several levels. The AJHA process specifies the need for worker participation in planning for a work activity. Stop-work authority is granted for all employees when an unsafe condition is identified, and a Worker Assessment form is provided to allow any employee to identify issues that potentially impact worker safety or a specific work activity. If a deficiency is identified, it is tracked via the Corrective Action Management (CAM) system. Other deficiency documentation processes available to workers include Test Deficiency Reports, Nonconformance Reports, and Radiological Problem Reports.

Provide Feedback and Continuous Improvement: The SNF Project uses a series of tools to provide feedback for both positive and deficient work activities. Some of these tools include post-job reviews, lessons learned, management assessment, Management Self-Assessment (MSA), and corrective action management (CAM). Use of these tools provides for worker involvement with input from various support organizations in the pre-planning and post-job reviews.

The SNF Project CAM/Lessons Learned collection process is not fully utilized and the total population of known deficiencies is not being evaluated for inclusion into the continuous improvement and lessons-learned processes. Although the SNF Project management self-

assessment program identifies numerous deficiencies, it does not identify the level of significance that is identified during external reviews. Coupled with the MSA program problems, Level 1, 2, and 3 managers do not spend sufficient time in the field working with their organizations to ensure their expectations for procedure compliance are met.

The critique process has improved from pre-compliance order activities; however, additional action is required to ensure that all issues identified during the critique are addressed during corrective action development.

Worker Involvement: All SNF Project managers recounted the benefits of employee involvement in that same safety process of hazard identification and development of hazard controls. Each manager interviewed was focused on results.

Noteworthy Practices

- The SNF Project lessons learned procedure requires recipients to provide feedback as to whether or not the lesson learned applies, actions associated with addressing the lessons learned, and disposition of the lesson. (MG.3-2)
- An MSA dry-run process was implemented that exposes the management team to the expectations required to be met prior to declaring readiness for operations. (MG.3-1)

Opportunities for Improvement

- The feedback and improvement data collection and trending process should be enhanced to improve their effectiveness. Enhanced performance in this area can reduce the repeated identification of minor procedural and regulating non-compliances. (MG.3-4, MG.3-5, MG.5-3)
- An independent assessment covering the construction projects, applicable management systems, and all related supporting activities needs to be performed as required by 10 CFR 830.120(c)(3)(ii), "Independent Assessment." (MG.3-6)

6.2.4 Operations

The Operations (OP) functional area subteam assessed work planning and execution through document reviews, interviews with SNF Project and subcontractor personnel, and observation of field activities. In addition, the OP team evaluated maintenance/work control, radiological control, emergency preparedness and startup as subject matter areas.

The SNF Project has established the necessary procedures and mechanisms to support work planning and execution in accordance with ISMS core functions and guiding principles. Senior managers were knowledgeable and committed to the ISMS program. The Operations organization has exhibited strong ownership for safety within SNF Project facilities and worker involvement is evident in all maintenance and operations work planning.

Maintenance/work control, radiological controls, startup and emergency preparedness programs have implemented ISMS, with a few identified weaknesses. The use of EWP, AJHA and pre-job briefings are effective tools, which are extensively used to support ISMS implementation for work control packages, operating procedures, and startup testing in the SNF Project operating facilities. Construction work and startup testing in new construction utilizes similar tools; however, there is an opportunity for improvement in the implementation of ISMS during the transition of new facilities from construction through startup to operations. This is evidenced by unclear roles and responsibilities for operations authorizations and integrated facility safety during the period of startup testing and turnover to Operations. Additionally, no detailed planning (below the high-level transition milestones defined within the baseline) for staffing and future radiological operations in the new construction facilities have been documented to allow for the visibility and management attention necessary to complete the transition to operations within the baseline schedule.

Line Management Responsibility for Safety: The SNF ISM System Description in part states that line management is responsible for implementing integrated safety management such that work is planned and executed in a safe manner in accordance with applicable requirements. For K Basins, the Shift Managers demonstrated a high degree of ownership regarding their responsibility for safety. This ownership was evidenced during morning meetings, authorization of work, prejob briefings, and response to identified safety issues. On two separate instances, the Shift Manager and Operations staff took immediate action to quantify and mitigate workforce identified safety issues in the areas of electrical safety and firearm safety.

For new construction, SNF Project Managers are responsible for construction safety, which is implemented by Fluor Daniel Hanford Northwest construction management procedures and contracts with subcontractors for construction. Responsibility for safety was evident in construction morning meetings, prejob briefings, and observed performance of work activities. Line management responsibility for safety during construction is adequate; however, during the transition from construction to operations, the roles and responsibilities have not been clearly defined. Current memoranda of understanding and transition plans provide adequate discussion of the jurisdictional control process of specific systems, structures, and components (SSC), but overall responsibility for safety and authorization of work during this transition is not addressed.

Line management involvement in radiological protection represents a weakness in ISMS implementation. This is evidenced by the fact that Access Control Entry System indicates that the only line manager (other than the shift manager) to enter the 105-KE contamination area in the last 5 months was the 105-KE facility manager. Furthermore, monthly radiological control checklists (Management Overview Program [MOP]) are not being completed as scheduled and SNF as low as reasonably achievable (ALARA) attendance is poor. Line management involvement in radiological protection should be improved by increased management involvement in key oversight committees and an active field presence during work in radiological areas.

Clear Roles and Responsibilities: The SNF PEP (FDH 1998) and SNF administrative procedures (AP) define roles and responsibilities within the SNF Project. Roles and responsibilities associated with work planning and execution can be found in the Work Control, Control of Equipment, and System Status and Routines, and Operating Practices procedures.

Observations and interviews indicate that personnel are aware of their roles and responsibilities for safety. One weakness was identified in the field understanding of roles and responsibilities of a person in charge (PIC) versus a field work supervisor (FWS). Field work is adequately supervised, but there is confusion over when the PIC role is invoked and with the integration of PIC terminology between the Work Control procedure and the PIC/FWS procedure.

Competence Commensurate with Responsibility: The General Training Administration procedure provides specific training requirements that supplemented by the remainder of the training series of procedures for specific training requirements for key personnel such as Shift Managers, Operators, Planners, Building Emergency Directors, Startup and Radiological Control. Job-specific qualification cards are established for each of these types of personnel that require specific training, required reading, and job performance requirements. Personnel interviews and field observations demonstrated commitment by line management for implementing an effective training and qualification program. This was reinforced by the competence and skills observed in the workforce. Strengths were identified in the areas of SNF specific emergency response training and an informal mentoring program for planners. A weakness was identified in qualified radiological staffing to support CSB and CVD Facility operations. Failure to hire the necessary personnel in time to complete all the required training could degrade the level of competence of radiological personnel.

Operations Authorizations: Authorization of work throughout the SNF Project has been institutionalized and implemented. For operating facilities, mechanisms are in place to establish the necessary controls and confirm readiness to perform scheduled work prior to authorization by the On-duty Shift Manager. The On-duty Shift Manager confirms implementation of necessary controls and releases all work within the K Basin facilities. In addition, all Shift Managers, PICs, and FWSs receive SNF-specific training on the AB to provide them with the information necessary to ensure compliance with the AB during the performance of work. Furthermore, the Operations Director has established a policy called the "30-minute rule" that establishes when higher-level management involvement should be requested. The policy states that if a job encounters a challenge that can not be readily resolved in 30 minutes or less, the next line of supervision should be notified. This process quantifies management expectations for the maximum time a work team should spend on a job challenge before retreating to a safe location and requesting additional management support.

Processes used to authorize new construction work are less formal; however, authorized work is specifically identified on the daily work schedule and the construction safety organization is actively involved in each day's work.

Feedback and Continuous Improvement: The SNF Project uses a series of tools to provide feedback and drive continuous improvement. Some of the tools used for feedback include performance indicators, EWP, AJHA, prejob briefings, post-job reviews, lessons learned, MSA, and CAM.

For work planning, operating procedure, and emergency scenario development, EWP and the AJHA tool drive worker involvement, which subsequently incorporates feedback and identifies opportunities for improvement during work execution. AJHA development activities and completed work packages provide evidence that feedback is received and utilized to drive

improvement in subsequent work activities.

The operating organization has established and is actively utilizing a suite of performance indicators to track key performance within operating SNF facilities. Through interviews with the Operations Director and his staff, it is clear that these indicators are utilized to focus resources and evolve as needed to address trends or new indicator needs.

Identification of Standards and Requirements: Review of multiple work packages demonstrates that standards and requirements are an integral part of the planning process. Identification of SSC standards and associated requirements is an element of test procedure development by the SNF startup organization. An extensive process has been instituted to develop test specifications to capture SSC requirements, test documents to demonstrate that SSCs operate within the requirements, and test summaries to document SSC performance. The SNF startup organization is currently focusing resources to improve the traceability of these SSC requirements from the origination of the requirement, through testing documents and into the documentation of test results.

Hazard Controls Tailored to Work Being Performed: Use of EWP and integration of the AJHA into work control packages and operating procedures are the two primary mechanisms for identification of hazards and tailoring of controls. Interviews and observations indicate that the selection of controls are appropriate for the associated hazards. Workers are involved in the selection and establishment of controls and are aware of their responsibility to stop work when necessary to maintain safety.

Worker Involvement: Work planning and execution include a number of opportunities for worker involvement. Operations morning meetings encourage personnel to identify resource and work needs to support a safe, productive work environment. Once work needs are identified, the EWP and AJHA process includes significant worker involvement in definition of the scope of work, identification of hazards and associated controls. Prior to execution of the work, the prejob briefing discusses the work scope and associated hazard controls and ensures that all personnel are knowledgeable of these requirements and prepared to perform the work. Finally, after work completion, workers are involved in the post-job evaluation of the work to provide feedback and identify improvements.

Noteworthy Practices

- SNF operations management has instituted a noteworthy policy for elevating fieldwork issues (30-minute rule) when challenges are encountered during performance of work. Furthermore, the Shift Manager's office demonstrates timely response to individual workforce identified safety concerns. (OP.2-1, SME.2-2)

Opportunities for Improvement

- ISMS implementation during startup activities could be strengthened by addressing roles and responsibilities for safety and authorization of work during the transition from construction to operations. (BBC.1-5, SME.3-2, SME.3-3, SME.3-4, SME.6-1)

- Line management involvement in radiological protection should be improved by increased management involvement in key oversight committees and an active field presence during work in radiological areas. Additionally, increased attention to planning and staffing for future radiological activities in the new construction facilities will enhance safety when the Project transitions to operations. (SME.3-2)

7.0 CONCLUSION AND RECOMMENDATIONS

The team recommends that the RL Manager approve the ISM System Description once the SNF Project addresses the following:

- The method of implementation of how ISM requirements at the construction projects
- Incorporation of the construction projects in the SNF Project ISM System Description.

The team recommends that the RL Manager consider the ISM System Description to be implemented once FDH addresses the following:

- Define roles and responsibilities for safety while transitioning the construction projects to operational facilities
- Develop and implement a Chemical Management Program.

8.0 LESSONS LEARNED

The following lessons learned by the verification team are reported to help improve the process for future ISMS Verifications.

- **Do not schedule future verification reviews back-to-back.** The FDH Phase I ISMS Verification immediately preceded the SNF Project Phase I/II ISMS Verification. This created problems associated with resources, including both team members and administrative support. This was most evident when both verification teams conducted their orientation during the same week. The use of team members on both verifications provided opportunity for continuity between the verifications, but resulted in some team members performing concentrated verification activities over a 6-week period.
- **Improvement needed in use of combined Phase I/II Verification CRADs.** In the development of the review plan for this verification, a substantial effort, was undertaken to integrate the Phase I and Phase II CRADs from the ISMS Team Leaders Handbook (DOE 1999a). However, there still proved to be multiple areas of scope duplication, overlap, and confusing criteria. Since RL plans to perform multiple Phase I/II verifications, a review focused on overlap and clarification of criteria will greatly enhance the review plan for the future verification.

- **Better integrate core functions and guiding principles into the review CRADS.** The objective statements and criteria within the CRADs are not clearly linked with the core functions and guiding principles. As a team goes through the process of rolling up the results of the review, a better linkage to the core functions and guiding principles would aid the process. This will also serve to help focus the efforts of the individual team members as they pursue their individual CRADs.
- **Establish the initial week interview schedule during the orientation week.** Due to a short (3-day) orientation week, some activities (such as establishing a hard interview list) were not completed. Attempts to establish this interview schedule during the period between the orientation and start of the actual verification proved futile. A dedicated effort by the Team Leader, subteam leads, and the contractor is needed to develop an effective list of interviews needed.
- **Expand the ISMS training for the verification team during the orientation week.** During the team orientation, the ISMS Executive Training Course was given; however, future training should include a discussion of the process the team will go through, examples of how to write CRADS so that the information can be rolled up effectively, and other various topics to aid the review process.
- **The use of Facility Evaluation Board members on the verification team proved to be very valuable.** Several members of the FDH Facilities Evaluation Board were team members of the SNF Project Verification. These members proved to be valuable assets and worked extremely well with the DOE team members. This relationship aided in the development of a well-balanced and effective team.

9.0 REFERENCES

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SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Business, Budgets, and Contracts	OBJECTIVE: BBC.1 DATE: 11/18/99
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OBJECTIVE

BBC.1 - Contractor procedures ensure that missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated. (CE I/II-2)

Criteria

1. SNF Project procedures translate mission expectations from FDH and DOE into tasks that permit identification of resource requirements, relative prioritization, and performance measures that are established consistent with DOE requirements (DEAR 970.5204-2, DOE P 450.5).
2. SNF Project procedures provide for FDH and DOE approval of proposed tasks and prioritization. Work planning procedures provide for feedback and continuous improvement.
3. SNF Project procedures provide for change control of approved tasks, prioritization, and identification of resources.
4. SNF Project procedures provide for flowdown of DEAR 970.5204-2, *Integration of Environment, Safety and Health into Work Planning and Execution* requirements into subcontracts involving complex or hazardous work.

NOTES:

- This criteria includes an actual review of lower-tier subcontractor mechanisms and methods for meeting ISMS contract requirements. Ensure alignment of their ISMS plans or equivalent to facility ISMS plans.
- "SNF procedures" refers to all procedure used by the SNF Project, including both the Project Hanford Management System and the SNF Policy and Procedure system.

Approach

Record Review

- Review the DOE implementing procedures.
- Determine if there is adequate guidance for DOE involvement in the clear definition of the scope of work.

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- Determine if the mechanisms for translation of the missions and policies from higher authority are appropriate, if a mechanism for assigning priorities has been established, and if performance objectives are reviewed and approved.
- Review personnel position descriptions, selection criteria, training programs, and training records to determine if the staff competency is adequate.
- Review mission prioritization procedures to determine if tailoring of resources is appropriate.
- Verify that the budget process allows adequate resources for standards selection, hazard controls, and work authorization processes to support work planning and scope definition.
- Review corporate/site manuals of practice that describe the budget and planning process and those documents that identify mission requirements, the approval of contractor plans, and those that address the assignment of budget priorities.
- Review corporate/site procedures for formally documenting change control procedures.
- Review how safety requirements are included in subcontracts as well as the flowdown of the DEAR clause into subcontracts for hazardous work.
- Select several mission tasks from the DOE programs and planning documents and track the tasks through the process to evaluate how the above criteria are met.
- Review future year planning and current year authorized work.
- Select several current year authorizations and track change control.
- Select several project-specific subcontracts and review for incorporation of the ISM DEAR clauses.

Interviews

- Interview project contractor personnel responsible for management of the budget process.
- Interview line managers responsible for Headquarters-directed mission accomplishment.
- Interview the ES&H manager to determine how the process for integration of safety into mission tasks is accomplished.

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- Interview managers at selected project levels to determine their understanding and implementation of the defined process for translation of mission into work authorization.
- Interview selected ES&H professionals and line managers to determine how safety is incorporated into the budget plans and authorization.
- Interview project contractor procurement personnel regarding subcontract flowdown requirements.

Observations

If possible, observe actual budgetary discussions (including meetings involving the development of the outyear planning documents) within and between DOE and the project contractor.

Record Review

- AP AQ-1-030, *Purchased Items and Services*, October 5, 1999
- AP MN-7-002-09, *Work Control*, July 1, 1999
- AP PC-1-037, *Project Deviation/Change Control Process*, May 10, 1999
- AP PC-17-001-00, *Estimating Process*, September 22, 1999
- AP RP-12-010, *ALARA Work Planning Process*, Rev. 0, January 25, 1999
- Contract No. DE-AC06-96RL13200, *Hanford Mission Planning Guidance (MPG) for FY 2001*, Amendment 2, Letter from J. C. Hall, Acting Manager, RL, to R. D. Hanson, President, FDH, March 6, 1999
- Contract No. DE-AC06-96RL13200-*Fiscal Year (FY) 2000 Baseline Updating Guidance for Multi-Year Work Plans (BUG-MYWP)*, Letter from Keith A. Klein, Manager, RL, and Richard T. French, Manager, Office of River Protection, to R. D. Hanson, President, FDH, June 21, 1999
- DE-AC06-96RL13200, Modification M086, *Project Hanford Management Contract*, Fluor Daniel Hanford, Inc., October 1, 1999
- DESH-9953636, Subcontract Number 96930-1, *Revision to Flow Down Requirements Related to the Integrated Environmental, Safety and Health Management System Plan*, Letter from D. W. Carver, Contracting Officer, DE&S Hanford, to R. M. Tanner, Project Director, SNF Project FDNW, May 27, 1999
- FDH-9955044, *Fiscal Year 2000 Multi-Year Work Plan Guidance*, Letter from L. R. Hafer, FDH, to Distribution/Hanford, July 21, 1999
- FDH-9953259, *Revision to Subcontract to Flow Down Requirements Related to the Integrated Environmental, Safety and Health Management System Plan*, Letter from R. J. Meyer, Contracting Officer, FDH to D. W. Carver, Contracting Officer, DE&S Hanford, Inc., May 13, 1999 (document work control dated May 18, 1999)
- FDNW Practice 134 500 8330, *Construction Work Package*, September 20, 1999
- HNF-3552, *Project Execution Plan*, Rev. 0-A, December 10, 1998

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- HNF-IP-1217, *Work Management Guidance*, September 30, 1998
- HNF-MD-016, *Annual Budget Submittal*, Rev. 0, March 31, 1997
- HNF-MD-029, *Hanford Site Technical Baseline Change Control*, Rev. 1, May 17, 1999
- HNF-MD-4821, *Guidance for Flow Down of ISMS Requirements to Lower Tier Subcontracts*, Rev. 0, July 30, 1999
- HNF-MP-001, *Management and Integration Plan*, Rev. 1, May 14, 1999
- HNF-MP-003, *Integrated Environmental Safety and Health Management System Plan*, Rev. 2, September 1, 1999
- HNF-MP-005, *Risk Management Plan*, Rev. 0, February 26, 1998
- HNF-PRO-186, *Preparing a Statement of Work for Services*, Rev. 2, September 24, 1999
- HNF-PRO-229, *Technical Procedure Standard*, Rev. 3, July 22, 1999
- HNF-PRO-522, *Multi-Year Work Planning*, Rev. 0, September 1, 1999
- HNF-PRO-533, *Change Control*, Rev. 0, February 26, 1998
- HNF-PRO-585, *Cost Estimating*, Rev. 0, March 26, 1999
- Integrated Priority List and the SNF Project Program Priority List, April 15, 1999
- Interoffice Correspondence, subcontract number 96930-1, *Revision to Flowdown Requirements Related to the ISMS Plan*, D. Kummer to D. Mobley, August 17, 1999
- Interoffice Correspondence, *Results of Review of FDNW for Compliance with ISMS Requirements*, R. Edmiston to G. Harvey, November 1, 1999
- Interoffice Correspondence, *Review Guidance for ISMS Documentation of Lower Tier Subcontractors*, R. Edmiston to G. Harvey, November 1, 1999
- MYWP-211, *SNF Project Multi-Year Work Plan*, September 30, 1999
- SNF-1951, *Spent Nuclear Fuel (SNF) Baseline Change Control*, December 18, 1997
- SNF-CO-9911635, *Revision to Flow Down Requirements Related to the Integrated Environmental, Safety and Health Management System Plan*, Letter from R. M. Tanner, Project Director to R. B. Willard, Contract Administrator, FDH, August 11, 1999
- *Spent Nuclear Fuel Project ISMS Description*, September 9, 1999.

Interviews Conducted

- Administrator, FDNW Contract
- Deputy Manager, SNF Project Contracts
- Deputy Manager, SNF Project Control
- Director, FDNW Project, SNF Project
- Director, SNF Project
- General Manager, FDNW
- Lead, SNF Project Performance Analysis and Support
- Manager, FDH Subcontracts
- Manager, SNF Project Controls
- Manager, SNF Project Integrated Scheduling
- Manager, SNF Project Planning

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- Manager, SNF Project Safety, Health, and Emergency Planning
- Manager, SNF Project Startup Integration
- Manager, SNF Project Training
- Planner/Scheduler, SNF Project K Basins
- Specialist, SNF Project Baseline Development and Process Improvement
- Vice President, SNF Project.

Observations

None.

Discussion of Results

Criterion 1: *SNF Project procedures translate mission expectations from FDH and DOE into tasks that permit identification of resource requirements, relative prioritization, and performance measures that are established consistent with DOE requirements.*

The SNF Project has a life cycle baseline for the Project, which was established in 1998. Due to the SNF Project's management philosophy of this baseline, the Multi-Year Work Plan (MYWP) is not rewritten each year. The MYWP is maintained on a real-time basis through change control, and detail planning for the execution year is rolled out based on the established baseline. Because of past problems with baseline control, a Baseline Review Board (BRB) (including both FDH and DOE SNF Project members) reviews all changes to the baseline at the project level prior to Project or higher approval. This is a strength of the SNF Project. The detail of the work tasks to be accomplished in a given year is developed by the responsible Line Manager and consolidated by Project Controls into the MYWP. SNF Project-specific procedures are focused on the lower-level work package definition and control process since the baseline is considered a "given." Annual direction received from DOE through FDH relative to funding levels and changes in priorities is handled as a directed change to the baseline. **(BBC.1-1)**

A weakness in the SNF Project approach is the lack of discussion in documentation of the connection between the Project baseline and the work control procedure. Line managers do not understand that a project baseline does not stop at a certain level but is made up of all the pieces, including the work packages at the lowest level. **(BBC.1-2)**

Prioritization is established in the baseline schedule and is refined to reflect the impacts of the annual DOE prioritization process through change control. As stated in the SNF Project ISMS Description, "Once a decision is made that a work item is to be conducted... the decision to do the work includes a prioritization decision to apply the necessary resources..." Performance measures established in the DOE contract with FDH are flowed down to the SNF Project. The policy of establishing measurable performance expectations is clearly established in the SNF Project ISMS Description and its implementing procedures.

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Criterion 2: *SNF Project procedures provide for FDH and DOE approval of proposed tasks and prioritization. Work-planning procedures provide for feedback and continuous improvement.*

A review of the contractor documents and interviews with SNF Project responsible personnel indicate that existing procedures and processes provide for FDH and DOE approval of proposed tasks and prioritization. There is little specific documentation of the prioritization process used to develop the Project Priority List other than a reference to the FDH Risk Management Plan in the ISMS Description. It starts with the balancing of priorities and subsequent development of the Integrated Priority List (IPL). The IPL has a feedback loop that allows for continuous improvement until its final submission to DOE-Headquarters on April 15 each year. Those priorities are reflected in the approved life cycle baseline as documented by the MYWP, which is ultimately approved by DOE.

The SNF Project work-planning process and procedures provide for feedback and continuous improvement to the baseline through the deviation notice process and baseline change request (BCR) process. The deviation process is an internal SNF Project process that facilitates early detection of issues that may require change to the baseline. That process is strictly controlled and linked to the SNF Project BCR process.

The SNF Project BCR process has DOE approval incorporated in the early stages of the process. DOE involvement occurs even at the project level thresholds when it is not formally required by FDH procedures. When the FDH procedure for baseline change is invoked, it has clear responsibility and involvement for approval from both FDH and DOE. It is inherent that the SNF Project baseline control process provides the mechanism for feedback and continuous improvement to the approved baseline.

Criterion 3: *SNF Project procedures provide for change control of approved tasks, prioritization, and identification of resources.*

The SNF Project level change control procedures do require ES&H considerations, but are not uniformly applied across the Project. Fundamental change control philosophies (the identification and consideration of drivers and associated impacts) are not applied at the task level of the Project as they are at the upper levels of the Project baseline, even though the management tools used at the task level are identical (scope definition, schedule, and resource allocation). The only factor that should be different at separate levels is the approval authority. The processes and procedures for controlling the work packages (AP MN-7-002, *Work Control*), the Project baseline (SNF-1951, *Spent Nuclear Fuel [SNF] Baseline Change Control*), and the technical requirements established by system engineering (HNF-MD-029, *Hanford Site Technical Baseline Change Control*) are all different and do not cross reference each other, even though changes in any area can potentially impact another. Procedures are not developed to capture the process flow as being executed. The concern is the level of rigor in which the causes (drivers) impacts are assessed. In addition, the existing procedures and associated forms do not

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provide the originator with sufficient guidance as to what should be furnished in the change package to meet the expectations of the approval authority. **(BBC.1-2)**

There are two unique aspects to the SNF Project change process: the BRB and the Deviation Notice. Even though the SNF Project Execution Plan makes reference to the BRB, the manner in which the BRB process is factored into the change control process is unclear. The change procedure refers to a DOE SNF Project approval of changes below the threshold requiring FDH approval, but does not mention that use of Project contingency must be approved by the BRB, of which DOE is a member. The SNF Project recognizes that the change procedure (SNF-1951) does not reflect current processes and a revision is currently underway. It should be noted that the Deviation Notice is a useful tool for early identification of problems at the lower level.

The control of task work packages in the 100-K Area that belongs to the SNF Project (except the CVD Facility) is addressed in the Project procedure, AP-MN-7-002. There are no governing requirements to assess cost (resource allocation), schedule (prioritization), and scope impacts as a result of a change. It is not clear how well these are controlled. The change forms (#BD-6000-194, "J-7 Work Change Notice" and the "Schedule Change Form") do not require the information necessary to assess all of these factors. Interviewees explained that if a change occurs, the current work package is suspended and notification of the change is provided to and approved by all those that approved the original package. Cost and schedule impacts are not known until the work package is placed back into the prioritization schedule. Since the cost (resource allocation), schedule (prioritization), and work definition impacts are not considered by the approval authorities prior to implementation, the control is weak. Furthermore, it is not clear in the work control procedure, AP-MN-7-002, which work package elements (such as resources, and scope definition), other than the schedule, are subject to control (meaning authority necessary to effect a change). **(BBC.1-3)**

In addition, the reference to HNF-IP-1217, *Work Management Guidance*, Section 1.0, paragraph 8.2.1, in AP-MN-7-002 is invalid because the reference to Westinghouse Hanford Company controlled manuals (or its replacements) specifically states that the manual is not applicable to work packages. Therefore, no requirements governing changes to work packages exist. **(BBC.1-4)**

Criterion 4: *SNF Project procedures provide for flow down of DEAR 970.5204-2, Integration of Environment, Safety and Health into Work Planning and Execution requirements into subcontracts involving complex or hazardous work.*

The requirement to flow down ISM to subcontractors is broadly described in a single paragraph in the SNF Project ISMS Description and reference is made to HNF-MD-4821, *Guidance for Flowdown of ISMS Requirements to Lower Tier Subcontracts*, dated July 30, 1999. Flow down of the ISMS to SNF Project subcontractors is a relatively new process and is experiencing implementation problems. The process established in the management directive (MD) requires

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the Buyers Technical Representative (SNF FDH) to make a determination as to the need for ISMS flow down and to document it through the use of a checklist.

The requirements of the MD have not been followed on the SNF Project. Current activity for new contracts or major modifications has been limited to staff augmentation or work performed exclusively offsite. Staff augmentation activities have been determined not to require ISMS flow down because the staff operates under the procedures and direction of FDH. However, this rationale was not formally documented and only referenced by a "no" response on the checklist without the justification required by the MD.

Another gap is in the area of the construction contract with FDNW. In a Letter of Direction dated May 13, 1999, FDH directed Duke Engineering & Services (DESH) to flow down DEAR clause 970.5204-2 into their Task Order Agreement with FDNW. On May 27, 1999 DESH issued a Letter of Direction to FDNW that stated "effective immediately," the DEAR clause requirements will be included in the FDNW contract and that FDNW is required to flow down the same requirements to lower-tier subcontracts involving complex or hazardous work on-site. The DESH Letter of Direction is considered by FDH SNF personnel to have incorporated DEAR requirements into the FDNW contract.

On August 1, 1999, a major contract change came into effect that converted DESH into a staff augmentation role with FDH self-performance of the SNF Project. The contract change made the FDH SNF Project directly responsible for construction activities performed by FDNW and its sub-tier contractors. Figure 1 depicts the contractual relationships for the SNF Project prior to August 1999, while Figure 2 depicts the contractual relationships put into place after August 1999.

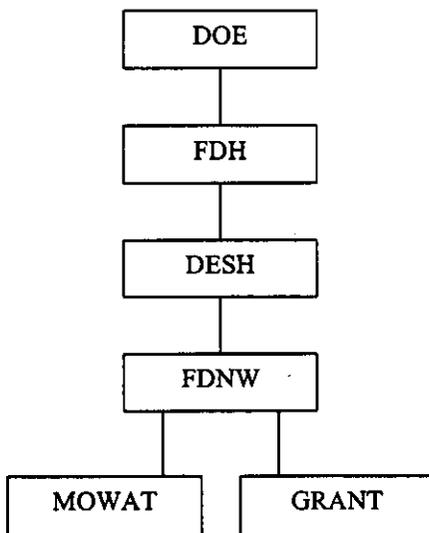


Figure 1. SNF Project Contractual Relationships Prior to August 1999

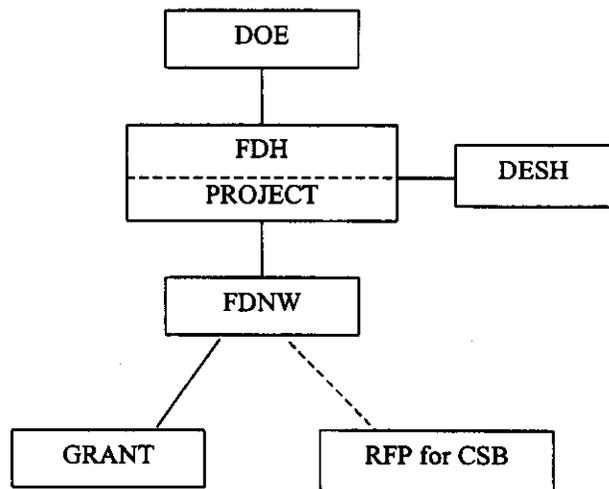


Figure 2. SNF Project Contractual Relationships After August 1999

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Interviews with FDH managers indicated that the FDH SNF Project has direct control of construction projects and is responsible and accountable for safety within the new facilities. However, interviews with FDNW managers indicated that until the facilities and their systems are formally turned over to FDH Operations, FDNW owns the buildings and is responsible for safety. During transition to operations when multiple organizations will perform work in the CSB/CVD, line management roles and responsibilities for safety, including interface points between the two organizations, have not been defined for the five functions of the ISM process. **(BBC.1-5)**

FDNW responded to the DESH Letter of Direction in a letter dated August 11, 1999 by requesting clarification on the following four significant issues: 1) a confirmatory review by FDH of the FDNW Integrated Safety and Health (IS&H) Plan and the FDNW environmental practices against the ISMS requirements; 2) the method to be used for identifying specific Hanford Site policies, plans, and procedures contained in the Project Hanford Management System that FDNW will be required to comply with; 3) identification of interfaces between FDH and FDNW for the ISMS compliance process; and 4) method of cost recovery. The letter further stated "When this information is available, we should jointly discuss the date(s) for the incorporation and implementation of the ISMS to specific task orders or groups of task orders."

A SNF Project internal memo regarding a response to the review of FDNW ISMS was sent (D. A. Kummer to D.C. Mobley) on August 17, 1999, initiating an independent review of the FDNW IS&H Plan. The FDH review was completed on October 4, 1999 and an internal memorandum (B. Edmiston to G. Harvey,) dated November 1, 1999, documents acceptance of the FDNW ISMS memo. However, that internal memo only addresses the first of four clarifications required by FDNW, and FDNW has not received formal approval from FDH of the FDNW IS&H Plan and environmental practices as meeting ISMS requirements.

FDH provided a copy of the just-completed review, which did not show that all of the ISMS core functions were satisfied by the FDNW documents referenced. A core function (define scope of work) is not covered in any of the FDNW practices cited. In addition, the method FDNW uses to flow ISMS requirements down to their subcontractors is not described. During an interview, a practice was referenced that provided coverage for work performed by FDNW employees. It was found that FDNW is not applying the same ES&H practices to two of their largest subcontracts, but are using practices that pre-date the establishment of ISMS. Neither FDH nor FDNW have evaluated the use of these practices against ISM requirements. **(BBC.1-6)**

Interviews with FDNW management indicated that clarification for the four above-mentioned issues has not yet been provided by FDH. Although FDNW and their lower-tier subcontractors are working to approved environmental, safety, and health programs, these mechanisms have not been reviewed to ensure the DEAR clause requirements have been met, and FDNW has not yet established a date for implementing ISMS for the SNF Project construction activities. **(BBC.1-6)**

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Conclusion

The SNF Project MYWP, along with associated procedures, ensures that the definition of work tasks and resource allocations are approved at the appropriate levels starting from SNF Project line managers to DOE approval. It was found that SNF Project baseline (MYWP) management is a strength of the SNF Project and that the same management philosophy could be used to strengthen the sitewide process. Programmatic and ES&H expectations are set and consistent with the DOE and SNF Project mission. In addition, prioritization is established in the baseline schedule and is refined to reflect the impacts of the annual DOE prioritization process through baseline change control.

SNF Project level change control procedures do require ES&H considerations, but the "overall" change control procedures are fragmented and not up-to-date. The disconnects start at the FDH change procedures and end at SNF Project work control procedures. The linkages amongst the procedures were weak.

The flow down of ISMS requirements to subcontractors has not been implemented for construction activities. Flow down to other types of subcontractors is not clearly defined as required by management directives. Interviews with FDH, SNF Project, and subcontractor (FDNW) personnel indicate there is a lack of thought in the development of a process for flow down of ISMS requirements. A great deal of work remains to be accomplished to fully define and document a process and implement it.

This objective has not been met.

Strengths:

- The SNF Project has a life cycle baseline that is only modified by formal change control. (BBC.1-1)

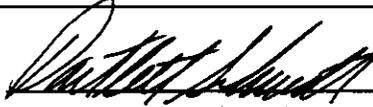
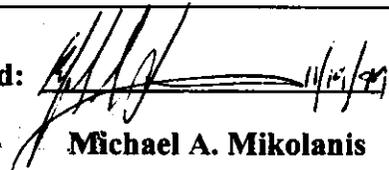
Concerns:

- There is a lack of a clear relationship between the project baseline and the work control process. (BBC.1-2)
- The change process for work packages does not include justification for the change and a complete impact analysis, nor does it apply to scope and cost (resources). (BBC.1-3)
- Invalid documents are referenced in the work package change process. (BBC.1-4)

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- During transition to operations when multiple organizations will perform work in the CSB/CVD, line management roles and responsibilities for safety, including interface points between the two organizations, have not been defined for the five functions of the ISM process. **(BBC.1-5)**
- Flow down of ISMS requirements to major construction subcontractors has not been implemented. **(BBC.1-6)**

Submitted:  Bartlett Schmidt <i>Team Member</i>	Approved:  Michael A. Mikolanis <i>Team Leader</i>
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OBJECTIVE

BBC.2 - Contractor budgeting and resource assignment procedures include a process to ensure the application of balanced priorities. Resources are allocated to address safety, programmatic, and operational considerations. Protecting the public, workers, and environment is a priority whenever activities are planned and performed. (CE I/II-6)

Criteria

1. The prioritization and allocation process clearly addresses both ES&H and programmatic needs. The process involves line management input and approval of the results.
2. Priorities include commitments and agreements to DOE, FDH, as well as stakeholders.
3. SNF Project procedures provide resources to adequately analyze hazards associated with the work being planned.
4. SNF Project procedures for allocating resources include provisions for implementation of hazard controls for tasks being funded.
5. Resource allocations reflect the tailored hazard controls.
6. The incentive and performance fee structure promotes balanced priorities.

Approach

Record Review

- Review corporate/site manuals of practice that describe the budget and planning process and those documents that address the assignment of budget priority as well as the procedures for their development.
- Review DOE procedures that identify mission requirements, balancing of resource allocations, and approval of contractor plans in the work authorization documents.
- Select several mission tasks from the DOE requirements and outyear planning documents to determine if they adequately address the assignment of resources with balanced priorities.
- Select several current year authorizations and review selected funded tasks at the individual task level to verify balanced priorities.

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Interviews

- Interview responsible DOE and contractor personnel who manage the budget process to determine their understanding of the priority for assigning resources.
- Interview line managers responsible for DOE mission accomplishment.
- Interview the ES&H manager to determine the process used for integration of safety into mission tasks. Interview selected managers at each level of corporate/site organizations to determine their understanding of the allocation of resources with appropriate priority.

Observations

If possible, observe actual budgetary discussions (including meetings involving the development of the outyear planning documents) within and between DOE and the contractor.

Record Review

- AP MN-7-002-09, *Work Control*, July 1, 1999
- AP PC-17-001-00, *Estimating Process*, September 22, 1999
- AP RP-12-010-00, *ALARA Work Planning Process*, January 25, 1999
- Contract No. DE-AC06-96RL13200, *Fiscal Year (FY) 2000 Baseline Updating Guidance for Multi-Year Work Plans (BUG-MYWP)*, Letter from K. A. Klein, Manager, DOE/RL and R. T. French, Manager, Office of River Protection, to R. D. Hanson, President, FDH, June 21, 1999
- Contract No. DE-AC06-96RL13200, *Hanford Mission Planning Guidance (MPG) for FY 2001*, Amendment 2, Letter from J. C. Hall, Acting Manager, DOE/RL, to R. D. Hanson, President, FDH, March 6, 1999
- DOE/RL-99-28, *Hanford Site Environment, Safety and Health Fiscal Year 2001 Budget-Risk Management Summary*, Rev. 0, May 13, 1999
- ES&H Instructions document created by Gene Reap during the October 1999 timeframe
- FDH-9955044, *Fiscal Year 2000 Multi-Year Work Plan Guidance*, Letter from L. R. Hafer, FDH, to Distribution/Hanford, July 21, 1999
- HNF-3552, *Spent Nuclear Fuel Project, Project Execution Plan*, Rev. 0-A, December 10, 1998
- HNF-MD-016, *Annual Budget Submittal*, Rev. 0, March 31, 1997
- HNF-MP-005, *Risk Management Plan*, Rev. 0, February 26, 1998
- HNF-PRO-357, *Completion and Closure of Performance Agreements*, Rev. 1, September 30, 1999
- HNF-PRO-518, *Work Breakdown Structure, Index, and Dictionary*, Rev. 0, July 22, 1999
- HNF-PRO-522, *Multi-Year Work Planning*, Rev. 0, September 1, 1999

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- HNF-PRO-585, *Cost Estimating*, Rev. 0, March 26, 1999
- Integrated Priority List and the SNF Project Program Priority List, April 15, 1999
- MYWP-211, *SNF Project Multi-Year Work Plan*, September 30, 1999
- *Spent Nuclear Fuel Project ISMS Description*, September 9, 1999.

Interviews Conducted

- Lead, SNF Performance Analysis and Support
- Manager, SNF Project Controls
- Manager, SNF Project Controls Deputy
- Manager, SNF Project Integrated Scheduling
- Manager, SNF Project Integration Projects
- Manager, SNF Project Planning
- Manager, SNF Project Subcontracts
- Planner/Scheduler, SNF K Basins
- Specialist, SNF Project Baseline Development/Process Improvement.

Observations

None.

Discussion of Results

Criterion 1: *The prioritization and allocation process clearly addresses both ES&H and programmatic needs. The process involves line management input and approval of the results.*

The SNF Project follows Hanford Mission Planning Guidance (MPG) for the budget formulation/planning years. The MPG is issued each year from DOE and this guidance flows down through FDH. The SNF Project provides prioritization and allocation input summarizing the individual work activities. Interviews indicate that the input process flows are effective as FDH is improving communications through weekly conference calls, which identify problems/resolutions and share lessons learned.

The SNF Project prioritization process occurs at the Work Breakdown Structure functional level where units of analysis are created. Line management has direct responsibility over each functional level within the SNF Project. The units of analysis are a consolidation of the Basis of Estimates (BOE). The BOEs are activity-based, allocating resources at the lowest task level. The BOEs directly flow into the development of the Multi-Year Work Plan (MYWP), which is ultimately approved by DOE and is the basis for authorizing work. The set priorities address ES&H and programmatic needs through the risk-ranking process and the MPG.

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It should be noted that an Integrated Management Decision Process is described in the Project Execution Plan, which includes the following priority lists: Prioritized Risk List, Prioritized Opportunity List, and SNF Work Prioritization List. These lists are used to prioritize work at the level lower than the Units of Analysis. The guidance governing the formulation of these lists is currently being developed and will define the prioritization criteria. Discussions with SNF Project personnel indicate that the new criteria will be consistent with FDH and DOE prioritization guidance.

For execution year work, the SNF Project procedure AP MN-7-002, *Work Control*, delineates staff responsibilities, which integrates ES&H involvement for setting emergent work priorities via a priority matrix. In addition, it demonstrates the management of resource allocations.

A review of AP MN-7-002 indicated that the procedure applied to all SNF work. However, it was later learned, through implied language, that this was not the case. The procedure applies to only a portion of SNF Project work and interviewees demonstrated a clear understanding of the applicability of the process and the implied language within the procedures. This is a noted procedure weakness, as the casual reader could not clearly understand when the procedure is applicable. It lacks the explicit language that defines applicability. (BBC.2-3)

A noted strength is the SNF Project Management Systems. SNF Project personnel have gone beyond the mission planning requirements and set up an efficient and effective data management system that enhances ISMS data. For example, FDH has established a Code of Accounts to capture crosscutting ES&H data. SNF Project personnel have taken the ES&H data and created useful management reports that track budget and actual costs. SNF Project line managers can more effectively manage ES&H data and any variances that apply. Another notable area is the development of a staffing plan within the SNF Project database. It represents a more effective and efficient means of managing the data and for challenging inconsistencies and notable resource spikes. (BBC.2-1)

Criterion 2: *Priorities include commitments and agreements to DOE, FDH, as well as stakeholders.*

Commitments and agreements to DOE, FDH, and stakeholders are documented by negotiated milestones and are institutionalized within the SNF Project MYWP. The SNF Project was formed to specifically address the urgent need to move metallic uranium SNF from the present, degraded wet storage conditions in the 105-K East and 105-K West Basins in the 100-K Area along the banks of the Columbia River. The SNF Project interviewees emphasized that due to the need for reducing risks to the workers, the public and the environment, the SNF Project is primarily schedule driven. The basis for that schedule is already agreed-upon commitments and agreements to DOE, FDH, and stakeholders through the Tri-Party Agreement, and DOE-Headquarters and RL milestones that mitigate those risks. Any changes or additions to the milestones are negotiated with stakeholders.

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In addition, each year the SNF Project's priority list is reviewed with the public, regulators, and tribal nations starting with the earliest draft form through final submission of the Integrated Priority List (IPL). The input from these multiple reviews is considered in the development and final submittal of the annual IPL.

Criterion 3: *SNF Project procedures provide resources to adequately analyze hazards associated with the work being planned.*

The SNF Project procedures (AP MN-7-002-09) explicitly require organization managers to provide personnel to perform the functions and duties delineated within the procedure. The functions and duties described in the procedure include analyzing hazards via the performance of Job Hazards Analyses, radiological and Unreviewed Safety Question screenings, and walkdowns for the work being planned.

Criterion 4: *SNF Project procedures for allocating resources include provisions for implementation of hazard controls for tasks being funded.*

The documents governing the cost-estimating process and multi-year work planning do not explicitly include provisions for implementation of hazard controls for tasks being funded. However, they do require that resources be allocated for all required work in general. The Hanford Site procedure for multi-year work planning explicitly requires that the guiding principles of the ISMS be incorporated into all levels of planning and baseline development. Also, the work control procedures provide the requirements for the implementation of hazard controls by performing the work in accordance with the work package.

Criterion 5: *Resource allocations reflect the tailored hazard controls.*

SNF Project administrative procedure AP MN-7-002 requires and ensures that hazards associated with emergent work be identified and analyzed. However, the SNF Project documents reviewed do not specifically mention allocation of resources for the purpose of implementation of tailored hazard controls. It was evidenced through SNF Project procedures that the work tasks are defined and thoroughly reviewed such that the hazards become tailored to the specific task. Therefore, the tailored hazard controls are developed through the assignment of responsibilities to a wide range of participants, pre-job walkdowns, overall ES&H and programmatic priorities, and fluctuating resources.

Criterion 6: *The incentive and performance fee structure promotes balanced priorities.*

SNF Project does not have procedures regarding fee structure. The Contractor's priorities are driven by the FDH contract (DE-AC06-RL13200, Modification M090) that reflects RL's fee structure. The systematic flow down within that contract incorporates RL's balanced priorities. The FY 2000 fee structure contains two integrated parts: 1) the project-specific performance

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incentives section, and 2) a comprehensive section that applies to FDH as a whole. The comprehensive section applies only a negative fee structure.

The FY 2000 fee structure incentivizes the central tasks/systems of SNF Project (i.e., cold and hot testing, declaration of readiness to move fuel, and actual fuel movement) through specific project performance incentives. Even though it is not explicitly stated, each of these SNF Project tasks requires that work be performed safely as contractually required through the comprehensive portion of the fee structure. The comprehensive structure explicitly incorporates protection of worker safety and health, public safety and health and the environment, which includes implementation of ISMS as well as communication to external and internal Hanford Site customers.

A strength that should be noted is the incentivization of the hot testing associated with the phased startup initiative. This is found in the project-specific performance incentive titled "Accelerate SNF Movement." As explained in interviews, this activity is not in the baseline, but will be incorporated to reduce the programmatic and ES&H risks of the SNF Project. This incentivized activity demonstrates ISMS principles via performing hot testing in a nonproduction environment to identify and correct the hardware and procedure problems (i.e., early detection method to identifying hazards and to put controls in place) and adjust requirements and designs (i.e., feedback loop). This is done ahead of the production mode of operations, which reduces and mitigates the risks to the worker, public, and the environment. **(BBC.2-2)**

In regards to subcontracts, the majority of the SNF Project subcontracts are not performance based and are awarded to offsite vendors. The subcontracts are primarily schedule driven, which supports regulators and stakeholders commitments to reduce risks. Even though the balanced priorities are not explicit in subcontracts, they are inferred through the fee structure.

Conclusion

A review of the SNF Project procedures and plans, and interviews with personnel demonstrated that the SNF Project complies with the DOE Mission Planning and Baseline Updating Guidance that ensures the application of balanced priorities. The SNF Project fee structure further supports the balanced priorities through incentivization of ISMS core functions (i.e., identification and control of hazards, etc.). The fee structure also ensures that public, worker, and environment safety is a high priority through applying negative incentives. It is noted that enhancements exist in managing the ES&H data through the SNF Project management systems. The SNF Project should consider institutionalizing those enhancements in Project systems.

The allocation of resources to address safety, programmatic, and operational considerations was evidenced at the task level through procedures and discussions with interviewees. However, the following discrepancy was found. The SNF Project work control did not explicitly state its applicability. This discrepancy is considered to be minor and does not reflect the general application of ISM. Therefore, it is concluded that the objective has been met.

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Strengths:

- SNF Project personnel have gone beyond the requirements and set up an efficient and effective data management system that enhances ISMS data. **(BBC.2-1)**
- The SNF Project currently has a fee structure in place that supports ISMS core functions. Early detection in identifying and controlling hazards, as well as an integrated feedback loop, was evidenced in the incentivized hot testing activity. **(BBC.2-2)**

Concerns:

SNF procedure AP MN-7-002 lacks the explicit language that defines applicability.
(BBC.2-3)

Submitted: <i>Patty G. Ensign</i> Patty G. Ensign Team Member	Approved: <i>[Signature]</i> 11/19/99 Michael A. Mikolanis Team Leader
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OBJECTIVE

BBC.3 - The contractor procedures and practices ensure that personnel who define the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities. (CE I/II-6)

Criteria

1. SNF Project procedures ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.
2. Personnel who actually participate in definition of the scope of work and allocate resources demonstrate competence to prioritize and approve work with tailored hazard controls.

Approach

Record Review

- Review organizational documentation to determine the personnel positions with responsibility associated with this objective.
- Review the position description for those positions.
- Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions.
- Review any training or qualification material including corporate/site manuals that support gaining or verifying competence to fill the positions.

Interviews

Interview selected individuals and managers whose responsibilities include defining the scope of work and allocation of resources to determine competence in prioritizing and approving work with tailored hazard controls.

Observations

None.

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Record Review

- AP TN-8-001-07, *General Training Administration*, March 24, 1999
- Applicant Evaluation for Planner/Scheduler
- Employee Record Change for Planner/Scheduler
- HNF-MP-001, *Management and Integration Plan*, Attachment 1, A1-7, "Environmental Safety and Health Policy," Rev. 1, June 23, 1997
- HNF-MP-011, *Sitewide Qualification and Training Plan*, Rev. 1, April 6, 1999
- HNF-POL-EMPLOY, *Employee Training Policy*, Rev. 0, May 16, 1997
- HNF-PRO-021, *Employment and Personnel Placement*, Rev. 1, November 1, 1999
- HNF-PRO-046, *Compensating Exempt and Salaried Non-exempt Employees*, Rev. 0, July 15, 1998
- HNF-PRO-050, *Managing Employee Performance*, Rev. 1, August 25, 1999
- HNF-PRO-074, *Safety Responsibilities*, Rev. 1, July 1, 1997
- HNF-PRO-079, *Job Hazard Analysis*, Rev. 4, September 1999
- Job Descriptions for Planner/Scheduler (Sr., I, II, & III)
- Personnel Requisition for Planner/Scheduler.

Interviews Conducted

- Buyers Technical Representative (Safety Engineer)
- Deputy Manager, Project Control
- Lead, Performance Analysis and Support
- Manager, Integrated Scheduling
- Manager, Nuclear Safety
- Manager, Planning
- Manager, Project Control
- Manager, Training
- Planner/Scheduler
- Specialist, Baseline Development and Process Improvement (Senior Program Administrator)
- Specialist, Spent Nuclear Fuel Project Human Resource.

Observations

None.

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Discussion of Results

Criterion 1: *SNF Project procedures ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.*

The FDH and SNF Project plans, procedures, and policies reviewed clearly ensure that personnel shall have the competence commensurate with the assigned responsibilities, except for the Environmental, Safety, and Health Policy in HNF-MP-001 and HNF-PRO-050, *Managing Employee Performance*. (BBC.3-1) Though none of the documents reviewed were specific to the definition, prioritization, and approval of work and allocation of resources, the procedures that were identified as governing the acquisition of personnel with these responsibilities satisfy the criteria (HNF-PRO-021, *Employment and Personnel Placement* and HNF-PRO-046, *Compensating Exempt and Salaried Non-exempt Employees*). The procedure that outlines safety responsibilities, HNF-PRO-074, *Safety Responsibilities*, explicitly requires the managers and supervisors to “ensure workers are properly trained and qualified for the job assigned to them.” However, the list of employee responsibilities does not include a requirement for the employees themselves to maintain their competency. It is also not included in the list of “Master Safety Rules” (Appendix A of HNF-PRO-074).

Criterion 2: *Personnel who actually participate in definition of the scope of work and allocate resources demonstrate competence to prioritize and approve work with tailored hazard controls.*

The personnel executing the planning on the SNF Project appear to be competent. The credentials sought are well defined in the hiring process and support the position description. It was demonstrated that the applicant evaluation addresses these items. In discussions with the personnel, processes were well understood. It was not evident, however, that training for writing/defining work scopes is provided or encouraged. (BBC.3-2)

Conclusion

The acquisition of personnel to perform the definition, approval, and prioritization of work scope, and the allocation of resources is conducted in accordance with established procedures and consistent with the objective of ensuring that personnel competence is commensurate with the assigned responsibilities. Established work planning processes are understood. Ongoing training to continuously improve the skill of writing/defining work scopes is weak. Individual personnel are not held responsible for maintaining their own competency. This objective has been met.

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Strengths:

None.

Concerns:

- HNF-MP-001 and HNF-PRO-050 do not require personnel to maintain competence that is commensurate with the assigned responsibilities. **(BBC.3-1)**
- Training for writing (defining) work scopes is lacking. **(BBC.3-2)**

Submitted: <i>Russell N. Warren</i> Russell N. Warren <i>Team Member</i>	Approved: <i>[Signature]</i> 11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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FUNCTIONAL AREA: Hazards Identification and Standard Selection	OBJECTIVE: HAZ.1 DATE: 11/18/99
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OBJECTIVE

HAZ.1 - The full spectrum of hazards associated with the Scope of Work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the ES&H and worker protection hazards are integrated with personnel assigned to analyze the processes. (CE-I/II-3, CE-I/II-8)

Criteria

1. Procedures and/or mechanisms are in place and used by personnel to ensure hazards associated with the work throughout the facility have been identified and analyzed. The resulting documentation is defined, complete, and meets DOE expectations. The execution of these mechanisms ensures personnel responsible for the analysis of environmental, health and safety concerns are integrated with those assigned to analyze the hazards for the facility or activity. These mechanisms ensure direction and approval from line management and integration of the requirements.
2. Procedures and/or mechanisms are in place and used by personnel that describe the interfaces, roles and responsibilities of those personnel who identify and analyze the hazards of the scope of work. Personnel assigned to accomplish those roles are competent to execute those responsibilities.

Approach

Record Review

- Review the documents that govern the conduct, review, and approval of facility or activity hazard analysis and documentation such as Process Hazards Analysis (PHA), Preliminary Hazards Review (PHR), Preliminary Safety Analysis Report (PSAR), job hazards analysis (JHA), and Work Control Permits (WCP).
- Verify that these records conform to the hazard analysis requirements.
- Coordinate the review of work-related documents such as JHAs, and WCPs with the OP and SME functional area reviewers.

Interviews

- Interview personnel responsible for the identification and analysis of work hazards.
- In nuclear facilities, for example, this should include personnel responsible for unreviewed safety question (USQ) determination, lock and tag preparation, procedure technical reviews, etc.

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and Standard Selection**

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Observations

If possible, observe the actual preparation and field implementation of the analysis of hazards. In nuclear facilities, this should include an Unreviewed Safety Question Determination, preparation of a JHA, SAR/TSR, or Criticality Safety Evaluation, etc.

Record Review

- 00-SFO-005, *Contract No. DE-AC06-96RL13200 – K Basins Safety Analysis Report (SAR), WHC-SD-WM-SAR-062, Proposed Revision (Rev.) 3L, and K Basins Technical Safety Requirements (TSR), WHC-SD-SNF-TSR-001, Proposed Rev. 1, October 14, 1999*
- 98-AMW-026, *Contract No. DE-AC06-96RL-13200 – Issuance of the Spent Nuclear Fuels (SNF) Project K Basins Authorization Agreement (AA), Letter from RL Manager to R. D. Hanson, FDH, September 24, 1998*
- 99-AMW-026, *Contract No. DE-AC06-96RL-13200 – Process Improvement Team (PIT) Report for the Spent Nuclear Fuel (SNF) Project, Letter from RL Manager to R. D. Hanson, FDH, August 30, 1999*
- 99-SFD-188, *Contract Number DE-AC06-96RL13200 – K Basins Safety Analysis Report (SAR), WHC-SD-SAR-062, Proposed Revision (Rev.) 3K, and K Basins Technical Safety Requirements (TSR), WHC-SD-SNF-TSR-001, Rev. 0-G, Unreviewed Safety Question (USQ) and Justification for Continued Operation (JCO), October 8, 1999*
- 99-SNF/NHW-026, "Supervisor Employee Job Task Analysis Communication on De-Enrollment," April 15, 1999
- 99-SNF/NHW-039, *Issuance of the Spent Nuclear Fuel Project Health and Safety Plan for the K Basins Interim Remedial Action Project, HNF-4547, Rev. 0, July 15, 1999*
- AP 1-008-07, *Management Observation Process, Page Change B, September 8, 1999*
- AP 1-039-00, *ISMS Description Configuration Control, September 9, 1999*
- AP EP-5-002-02, *Administration of NEPA, Change B, 7/08/99*
- AP EP-5-009-02, *Environmental Permitting, May 13, 1999*
- AP EP-5-018-03, *Environmental Basis Performance Assurance Process, November 3, 1999*
- AP MN-7-002-09, *Work Control, Change B, October 22, 1999*
- AP MN-7-008-00, *AJHA Process, June 10, 1999*
- AP NS-4-001-12, *Unreviewed Safety Questions, September 13, 1999*
- AP NS-4-005-10, *Spent Nuclear Fuel Safety Basis Performance Assurance Process, Change B, October 7, 1999*
- AP NS-4-015-01, *Hazard and Safety Assessment, May 10, 1999*
- AP TN-8-001-07, *General Training Administration, Change B, June 8, 1999*
- AP TN-8-020, *Unreviewed Safety Question Evaluator Training, Change A, October 21, 1998*
- AP MS-1-002-05, *Administration of Administrative Procedures, July 29, 1999*
- AP MS-1-026-00, *Authorization Agreement, June 18, 1999*
- AP NS-4-013-04, *Safety Basis Document Implementation Process, September 16, 1999*
- Automated Job Hazards Analysis Checksheets

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- *Department of Energy Baseline Review of the Richland Spent Nuclear Fuel Project*, Office of Environmental Management, DOE, Washington, D.C., June 1999
- *RL Interim Safety Evaluation Report for Multi-Canister Overpack (MCO) Topical Report*, from W. B. Scott, DSI to Independent Review Panel, November 15, 1999
- *Employee Job Task Analysis (18)*
- *FDH-9953614 R4, Contract No. DE-AC06-96RL13200 – Spent Nuclear Fuel Multi-Canister Overpack Topical Report, HNF-SD-SNF-SARR-005, Revision 1*, October 15, 1999
- *FDH-9958056, Contract Number DE-AC06-96RL13200 – U.S. Department of Energy, Richland Operations Office Monthly Project Review, October 20, 1999, Spent Nuclear Fuel Project*, Letter from R. B. Wilkinson to P.G. Loscoe, November 1, 1999
- *FDH-9958311 A, Contract Number DE-AC06-96RL13200 – Approval of Revision 1 to the Spent Nuclear Fuel K Basins Authorization Agreement (HNF 5356)*, Letter from R. D. Hanson, FDH, to K. A. Klein, RL, November 8, 1999
- *Fluor Daniel Operating Practice 000.000.1000, Section 5.4, Fluor Daniel Operating System and ISO 9001/2*, 19 July, 1999
- *Fluor Daniel Northwest Safety Practices, Section 635 Safety*, April, 28, 1999
- *Future Authorization Basis implementation activities, plans, and strategies*
- *HNF-3552, Spent Nuclear Fuel Project, Project Execution Plan, Rev. 0-A*, February 22, 1999
 - Exhibit 3.7, “Charters”
 - Section 1.11.3, “Permits”
 - Section 3.5, “Training and Qualification”
 - Section 13.0, “Safety, Health and Environment”
 - Section 13.5, “Industrial Hygiene”
 - Section 13.6, “Environmental”
 - Section 15.2, “Safety Envelope (SAR Implementation)”
- *HNF-POL-EMPLOY, Employee Training Policy, Rev. 0*, May 16, 1997
- *HNF-PRO-062, Identifying and Resolving Unreviewed Safety Questions, Rev. 0*, July 1, 1997
- *HNF-PRO-074, Safety Responsibilities, Rev. 1*, July 1, 1997
- *HNF-PRO-079, Job Hazard Analysis, Rev. 4*, September 9, 1999
- *HNF-PRO-111, Occupational Medical Qualification and Monitoring, Rev. 0*, July 1, 1997
- *HNF-PRO-168, Employee Training, Rev. 0*, February 16, 1998
- *HNF-PRO-265, Standards/Requirements Identification Document Process, Rev. 3*, April 16, 1999
- *HNF-PRO-2701, Authorization Envelope and Authorization Agreement, Rev. 0*, July 29, 1999
- *HNF-PRO-440, Engineering Document Change Control Requirements, Rev. 3*, (includes Waiver 1) August 29, 1999
- *HNF-PRO-700, Safety Analysis and Technical Safety Requirements, Rev. 1*, December 29, 1997
- *HNF-PRO-701, Safety Analysis Process - Existing Facility, Rev. 0*, October 15, 1997

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- HNF-PRO-702, *Safety Analysis Process - Facility Change or Modification*, Rev. 0, October 15, 1997
- HNF-PRO-703, *Safety Analysis Process - New Project*, Rev. 0, October 15, 1997
- HNF-PRO-704, *Hazard and Accident Analysis Process*, Rev. 1, September 2, 1999
- HNF-PRO-705, *Safety Basis Planning, Documentation, Review, and Approval*, Rev. 1, February 27, 1998
- "ISMS Questions for the Day," Outlook Mail archival database maintained by SNF Project Director Administrative Support:
 - October 22 through November 4, 1999
 - October 7 through October 21, 1999
 - September 20 through October 6, 1999
 - November 5, 1999 through November 22, 1999
 - Candidate ISMS Question of the Day, Paul Day to Carol Clark, November 2, 1999
- National Spent Nuclear Fuel Program Corrective Action Request CAR No: 99-NSNF-AU-044-I-001, September 8, 1999
- NSDI-02, *Review of Design Changes to Spent Nuclear Fuel Project Safety Basis Documents*, Rev. 2, December 10, 1998
- Record of Decision for the U.S. Department of Energy Hanford 100-KR-2 Operable Unit K Basins Interim Remedial Action, Washington EPA ID# WA3890090076, September 22, 1999
- SD-SNF-HC-001, *K Basins Fuel Encapsulation and Storage Hazard Classification*, Rev. 0, December 16, 1997
- SD-WM-SAR-062, *K Basins Safety Analysis Report*, Rev. 3J, July 20, 1999
- SNF-3446, *Spent Nuclear Fuel Project - Criteria Document Spent Nuclear Fuel Final Safety Analysis Report*, Rev. 2, September 13, 1999
- SNF-5262, *Turnover to Operations*, Rev. 0, October 20, 1999
- SNF Project Employee Handbook (Orange Book), Rev. 0, September 1998
- SNF Project Greenfield Construction Projects Work Packages
- SNF Project K Basins Work Packages
- USQ Screenings/Evaluations.
 - K-99-1201, "Deletion of HNF-1SD-SNF-PLN-012, "Spent Nuclear Fuel Project Integrated Safety Management Plan."
 - FDH Letter To P.G. Loscoe, RL, from R. B. Wilkinson, "Closure of Unreviewed Safety Question K-99-0280, Floor/Wall Separation and Associated Justification for Continued Operation," FDH-9956568, dtd, September 23, 1999
 - 98-SFD-187, Contract No. DE-AC06-96RL13200- K Basins Safety Analysis Report (SAR) WHC-SD-WM-SAR-062, Proposed Revision 3F, and K Basins Technical Safety Requirements (TSR) WHC-SD-SNF-TSR-001, Proposed Revision 0-D, Drain Valve Unreviewed Safety Question (USQ) and Justification for Continued Operation (JCO), September 18, 1998.

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Interviews Conducted

- Canister Storage Building (CSB) Facility Operations Manager
- CSB Shift Operations Manager
- Design Authorities of Cask and Cask Transport
- Design Authorities of Greenfield Projects (CSB)
- Design Authority, Cask and Cask Transport
- Design Authority, CSB Facilities
- Engineer, K Basins Nuclear Safety (Independent Safety)
- Engineer, QA Programs
- Engineer, SNF Project Facilities Criticality Safety
- Engineer, SNF Project Nuclear Safety, Criticality
- Engineers, AB Implementation(2)
- Engineers, K Basins Nuclear Safety (2)
- Evaluators, Unreviewed Safety Question(2)
- Industrial Hygienists (2)
- K Basins Nuclear Safety Lead
- Lead, K Basins Nuclear Safety
- Lead, Safety Control
- Manager, Environmental Protection
- Manager, K Basin Nuclear Safety
- Manager, Nuclear Safety Program
- Manager, Process Engineering
- Manager, QA Programs/Project
- Manager, Quality Assurance
- Manager, Safety and Health, Emergency Preparedness
- Manager, Self Assessment Management Systems
- Nuclear Safety Program Manager
- Representative, K Basins Criticality Safety
- Representative, K Basins Criticality Safety
- Safety Analyst, K Basins
- Safety Analyst, K Basins Safety Analysis Report (SAR) Upgrades
- Safety, Health and Emergency Planning Manager
- SAR Implementation Support Engineer (Joint Test Group)
- SAR Implementation Support Engineer (S/RIDs)
- SAR Implementation Support Lead
- SAR Production Manager
- Scheduler, SNF Project Operations Baseline
- Scheduler, Subprojects Control
- Specialists, Operational Readiness Review (ORR) Operations
- Staff Engineers, Environmental Protection (2)

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- Staff, K Basin Nuclear Safety
- Staff, Self-Assessment Management Systems (2)
- Support, Safety Analysis Report Implementation
- Trench Competent Person.

Observations

- Pre-job Safety Briefs (2)
- Enhanced Work Planning Session, Activity 1KE-99-7701
- Work Integration Team Meeting
- Industrial Safety Compliance Inspections (3)
- Management Observation Process – Safety Inspection and Procedure Compliance
- Plan of the Day (POD) Management Meetings (2)
- MCO Cask Drop at Canister Loading Station Analysis
- Plant Review Committee Meeting
- Safety Analysis Manager's Meeting
- Automated Job Hazards Analysis (AJHA) Metrics Development.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms are in place and used by personnel to ensure hazards associated with the work throughout the facility have been identified and analyzed. The resulting documentation is defined, complete, and meets DOE expectations. The execution of these mechanisms ensures personnel responsible for the analysis of environmental, health and safety concerns are integrated with those assigned to analyze the hazards for the facility or activity. These mechanisms ensure direction and approval from line management and integration of the requirements.*

The SNF Project ISMS Description was reviewed to assess whether appropriate procedures and or mechanisms are in place to ensure hazards associated with the work throughout the facility have been identified and analyzed. Hazard areas identified are nuclear, criticality, chemical, environmental, and industrial. Additional information relative to hazard identification is provided in the Subject Matter Expert (SME) and Operations (OP) assessment forms.

The primary vehicle for specifying key conditions for conducting work safely and efficiently at the SNF K Basins Project is the Authorization Agreement, 98-AMW-026, *Contract Number DE-AC0696RL13200 – Issuance of the Spent Nuclear Fuel (SNF) Project K Basins Authorization Agreement (AA)*. The SNF K Basins Project Authorization Envelope establishes the limits of safe operation for SNF K Basins Project activities, but does not cover all subprojects, including the Cold Vacuum Drying Facility (CVD) and CSB. The SNF Project facilities are Hazard Category 2 Nuclear facilities. The existing facilities are the K Basins and the new facilities, also known as Greenfield projects, are the CSB, CVD, and the 200 Area Interim Storage Area (ISA). While the “Greenfield” projects are not yet under operational

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control, these Category 2 facilities require incorporation into the Authorization Agreement (AA) in accordance with HNF-PRO-2701. The SNF Project established Standards/Requirements Identification Documents (S/RID) that defined the set of safety standards derived from the appropriate List A/List B requirements from the FDH contract (Section J, Appendix C). The development, maintenance, and assessment of the S/RIDs are specified in HNF-PRO-265, *Standards/Requirements Identification Document Process*.

An annual AA update was issued as FDH-9958311 A, *Contract Number DE-AC06-96RL13200 – Approval of Revision 1 to the Spent Nuclear Fuel K Basins Authorization Agreement (HNF-5356)* on November 8, 1999. This annual update, coincidentally, addressed some of the concerns identified during the Phase I portion of this verification, and incorporates the key conditions for conducting work safely and efficiently at the SNF Project, yet still does not cover the Greenfield projects (CSB, CVD, ISA) and transportation projects (MCO and SARP). Revision 1 of the S/RIDs does capture construction safety requirements for the new subprojects. The Authorization Agreement states that it will be updated to include the CSB, CVD, ISA, and transportation subprojects prior to authorization for startup of those facilities/activities. To meet the annual update requirement established for Authorization Agreements, the revision 1 of the AA needs to be approved by November 22, 1999.

A review of the initial SNF Project hazard categorization documentation and the subsequent approved and draft AB documents indicates that the mechanisms for identification of hazards and the selection of controls for safety class and safety significant structures, systems, and components is sound and consistent. The process for selecting hazards, identification of hazards, and their controls is understood and institutionalized by the safety analysis engineers.

The new SNF Project nuclear facility hazards are identified, mitigated, and controlled through a safety analysis process identified in SNF-3446, *Spent Nuclear Fuel Project - Criteria Document Spent Nuclear Fuel Project Final Safety Analysis Report*. The safety analysis process for the SNF Final Safety Analysis Report (FSAR) is structured to allow staggered reviews for the SNF FSAR and each of the SNF Project facility FSARs. The new facility FSARs are the CSB FSAR, CVD, FSAR, and the ISA FSAR. These facility FSARs will be annexes to the SNF Project FSAR. HNF-SD-SARR-005, *Multi-Canister Overpack Topical Report*, provides the safety documentation covering the design and related analysis of the multi-canister overpack (MCO). Information in HNF-SD-TP-SARP-017, *Safety Analysis Report for Packaging (Onsite) Multi-Canister Overpack Cask*, is also included in the SNF Project FSAR via reference to the safety analysis report for packaging. The SNF FSAR supports decisions to authorize remaining procurements, construction, installation, acceptance testing, and the startup operation of all SNF Project facilities and their systems and equipment. (Additional information relative to startup is provided in the SME.6 Assessment Form.)

SNF-3446 is the SNF Project FSAR criteria document and is prepared under the guidance in HNF-PRO-705, Section 2.2, Item 1, *Safety Basis Planning, Documentation, Review and Approval*. The SNF-3446 criteria document also invokes the nuclear safety procedures identified

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in the references listed above for the identification of hazards, and development and maintenance of the SNF Project safety basis documents. HNF-PRO-700, *Safety Analysis and Technical Safety Requirements*, HNF-PRO-701, *Safety Analysis Process - Existing Facility*, and HNF-PRO-703, *Safety Analysis Process - New Project*, define the specific requirements for the development, implementation, and maintenance of the SNF Project Authorization Bases (AB) documentation. HNF-PRO-704, *Hazard and Accident Analysis Process*, provides the guidance for the actual hazard and accident analysis that form the basis for the hazard controls. The process for amending the SNF Project facility AB is described in HNF-PRO-702, *Safety Analysis Process - Facility Change or Modification*. The SNF Project facilities are directed to use the USQ process (HNF-PRO-062, *Identifying and Resolving Unreviewed Safety Questions*) to assure that changes are within the current AB or to get DOE approval for the change. Further direction is given by HNF-PRO-440, *Engineering Document Change Control Requirements*, to control the development, review, approval, release, and incorporation of changes to engineering documents. Interviews with safety engineers, safety analysts, and the criticality safety engineers responsible for the development of the AB documentation for the SNF Project facilities (i.e., K Basins, CSB, CVD, 200 Area ISA, and the MCO Topical Report) indicated heavy reliance on the HNF-PROs for directing their work and the performance of hazards analysis. Interviews with process engineering and safety engineers identified a recent National Spent Nuclear Fuel Program Office Audit Corrective Action Request (CAR) relative to the quality assurance pedigree of the hazards analysis (HA) computer software, hardware and associated engineering configuration management and validation/verification requirements. The SNF Project has assembled an integrated team from Lockheed Martin Services, Inc.; FDH; and Process Engineering staff to resolve the CAR.

The current SNF Project nuclear facility is operated and controlled via SD-WM-SAR-062, *K Basins Safety Analysis Report*. To support existing operations and ongoing in-basin installation and testing of the newer systems, structures, and components (SSC) for future fuel repackaging and movement to the 200 Area for interim storage, several processes exist that assure hazards are identified, controlled and the AB is maintained current. Numerous Safety Analysis Documents (SAD) have been developed to support design, procurement, construction, and eventually in-basin installation. This process has been rigorously controlled via an institutionalized "SAR-like" process (existing SAR, phased-SADs, Technical Safety Requirements, USQs, and Safety Evaluation Reports) to amend and control the AB for the facility as approved by the Approval Authority. Procedures exist that adequately describe the mechanisms for maintaining the existing AB and delineate appropriate operational processes for implementing changes to the existing AB and S/RIDs.

The K Basins Nuclear Safety Manager and respective analytical support team were observed following the AP NS-4 series and applicable desk instructions for implementing Revision 3K of the K Basins SAR. In addition to implementation of Rev. 3K, procedure AP-NS-4-005 includes a comprehensive monthly requirement to review approved AB documentation and map the SAR and TSR commitments/requirements in a forward-looking matrix to ensure that the approval bases for the operating facility are identified and required surveillances and maintenance actions

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are tracked and scheduled. The monthly review of the approved AB documentation, per AP-NS-4-005, included determinations relative to adequacy of process standards, administrative controls, and source documents (i.e., JCOs, SERs, S/RIDs and TSRs). In addition to the review of current AB documentation, a "USQ-like" screening was observed against the new SNF Project facility draft AB documents that are currently in final comment review and submittal to the approval authority. This "USQ-like" process demonstrated successful commitment to maintain configuration control of the draft AB documentation before approval, but also supported the maintenance of the integrated hazards analysis for the SNF Project facilities and the proposed SNF Project FSAR per SNF-3446. It is noted that the "USQ-like" review observed was only an administrative review (imbedded reference change control in existing draft AB documents). The "USQ-like" process contains the mechanisms and interfaces to review a technical change requiring more rigor and complexity.

SNF Project Operations procedures maintain the current AB flow down from the HNF-PROs for hazard and accident analysis and the USQ processes, yet there are no flow down procedures from the Hanford Site-wide HNF-PROs for any of the nuclear safety analysis processes. The SNF Project K Basin facilities are directed to use the USQ process to assure that changes are within the current AB. Further direction is given by HNF-PRO-440, *Engineering Document Change Control Requirements*, to control the development, review, approval, release, and incorporation of changes to engineering documents. AP NS-4-005, *Safety Basis Performance Assurance Process*, AP NS-4-013, *Safety Basis Document Implementation Process*, AP NS-4-015-01, *Hazard and Safety Assessment*, and NSDI-02, *Review of Design Changes to Spent Nuclear Fuel Project Safety Basis Documents*, further document the process of identification and controlling the hazards at the SNF Project K Basins facilities.

The implementation process for the new and revised SNF Project AB documentation is described in AP NS-4-013. A draft implementation strategy is being prepared that proposes a comprehensive process for Safety Basis implementation at each SNF Project facility, focusing on the following: 1) administration of Safety Basis Implementation; 2) implementing documents; 3) implementing equipment (includes verification of operability); 4) training and qualification; and 5) an SNF Project Technical Requirements relational database tracking system. One shortfall in this draft strategy allows deferral of completion of the USQ-like review and allows the proposed activity to be performed to avoid delays in the project schedule. This results in schedule-driven safety versus an integrated approach to safety since there are no criteria included in the strategy for balancing safety changes against schedule impacts. As the SNF Project AB documentation is implemented, a rigorous Management Self Assessment (MSA) is performed to independently validate the adequacy of the implemented AB documentation and preparations to declare readiness for operations. Both the implementation and MSA process were observed via interviews and field observations for phased startup initiative (PSI) activities related to cold and hot testing of Revisions 3K (Drain Valves) and 3L (Integrated Water Treatment System and Fuel Retrieval System) of the K Basins SAR. The implementation process for hazard identification and categorization in existing and new AB documentation is appropriately institutionalized at the SNF Project.

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The SNF Project FSAR process described in SNF-3446 specifies the need to identify facility interfaces with other SNF Project and Hanford Site facilities, and integrate the hazards analysis of the SNF Project facilities, thereby identifying appropriate controls to ensure that overall SNF Project and site safety is addressed. While the teaming approach at the activity level is implemented, the teaming approach at the facility level lacks communications and teaming across the various subprojects in areas of safety case assumptions, hazards analysis, accident analysis, and consequences. This issue was identified by several safety analysts during interviews and is documented in DOE's phased SERs for each subproject. The Multi-Canister Overpack (MCO) Topical Report is a critical and integral component of each of the subprojects safety case. As a result, cross subproject integration and teaming are essential for successful safety case development and defense. This is a previously identified problem and is not being addressed by a feedback and improvement system (HAZ.1-3) A draft integrated hazards baseline is being developed to address interface controls among the various subprojects.

The use of integrated teams at the activity level is well documented and institutionalized in MN-7-008 and MN-7-002 and was demonstrated effectively during the drain valve grouting work performed at the K-Basins. (HAZ.1-2) However, during the ISMS orientation in-briefs, neither the Deputy Operations Manager, the Nuclear Safety Manager, the Maintenance Manager, nor the KE Facility Operations Manager were able to definitively cite the requirements or drivers for use of the teaming approach. Similarly, there was a lack of awareness of the procedural drivers for the preferential selection of hazard control strategies (i.e., SSC selection criteria). In fact, most managers at the in-brief conceded incorrectly that the use of teams may not be institutionalized.

Procedure AP-NS-4-015 lists attributes and functional areas and expertise for teams that may be needed for hazards assessments, but does not include criticality in the list (it just more generically lists nuclear safety). Coincidentally, during interviews conducted with the CSB safety analysts, design agents, and reviewers tasked with reviewing hazards to a proposed sampling station cooler in the CSB, it was pointed out that while the team considered and agreed that use of glycol as a cooling agent did not pose any hazards, there were no criticality experts on the team to identify that glycol serves as an excellent moderator which was precluded from use in the CSB by the SAR. (HAZ.1-4)

At the "activity level," hazards identification and the controls necessary to mitigate the hazards identified for specific work activities are institutionalized through the work planning and JHA process. The SNF Project currently maintains several facility-specific hazard baseline documents in various stages of institutionalization. The various work control and JHA processes, are described in HNF-PRO-079, *Job Hazards Analysis*, AP MN-7-002, *Work Control*, and AP MN-7-008, *AJHA Process*. These procedures identify the processes that ensure before any work is performed, associated hazards are recognized and evaluated, and appropriate controls are implemented to ensure employees, the public, and the environment are protected and work can be performed safely. This includes the invocation of the appropriate SMEs, planners,

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supervisors, and craft workers as an integrated work team. This integrated team also uses AP EP-5-018, *Environmental Basis Performance Assurance Process*, which is an excellent tool for capturing and incorporating environmental requirements into their work planning and hazard identified process. Discussions relative to the use, breadth, and application of AP EP-5-018 can be found in the SME.5 assessment form.

The work planning and JHA process has a built-in proceduralized feedback and improvement process as part of the performance of the scope of work within the work package, and identifies that work packages and field job performance is not completed until the post-job feedback and improvement checklist is submitted by the work team. The construction projects use a "JHA-like" process. Procedures in the construction projects do not specifically address a "JHA-like" process, but the process is institutionalized at the construction projects. More discussion on the "JHA-like" process is in the SME.2 and SME.4 assessment forms.

Worker involvement is visible from the senior management level. Three distinct programs are employed to allow employee actions to have an impact on the SNF Project environment, health, and safety program. These three programs are the (1) VPP Steering Teams, (2) President's Zero Accident Council and associated Employee Zero Accident Councils, and (3) worker/employee involvement mechanism called "Key to Safety" and "Safety Excellence" programs. Specific descriptions on each of the above worker involvement activities are provided in SME assessment forms.

The Management Observation Process (MOP) described in AP MS-008 includes processes identified as management by walking around and the Manager in the Field (MIF). The MIF process in the MOP was observed. The MIF participated as an observer of an AJHA/EWP integrated team. The AJHA/EWP team was comprised of a planner, scheduler, cognizant engineer, fieldwork supervisor, and appropriate craft and SME disciplines, including industrial safety and radiation protection. The AJHA/EWP process observed indicated a comprehensive and integrated team approach that defined the scope of work, identified hazards and controls, in addition to providing many opportunities for feedback and improvement to the existing work procedures.

The EWP session also identified additional materials required, critical lift requirements, and nuclear safety concerns. The AJHA/EWP process observed during the MIF identified new hazards, identification and analysis of appropriate controls for the new hazards identified, recognition of existing AB commitments/requirements, and an effective team approach to work planning.

An effective work planning process relies upon data from the EWP and Employee Job Task Analysis (EJTA) at the SNF Project. The EJTA program defines the processes for determining and obtaining necessary employee medical qualifications and monitoring based on job requirements, hazards, and exposures, and the overall risk associated with their assigned work scope, as described in HNF-PRO-111. The information collected on the EJTA represents a

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compilation of hazards and exposures associated with routine work activities, as well as hazards associated with nonroutine work activities that can be predicted or anticipated. The EJTA is the process that integrates line management, industrial hygiene and safety, employees, human resources, and the occupational medical contractor regarding determinations of the employee's physical and mental health status and their ability to safely and reliably perform job tasks and physical job requirements. Completion of revised or updated EJTA's was committed to by the SNF Project Director prior to K Basins Designation as a *Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)* site on June 25, 1999. Accomplishment and maintenance of the EJTA commitment would address one of the SNF Project Health and Safety Plan requirements. The Health and Safety Plan and its provisions became effective on the date the U.S. Environmental Protection Agency issued the Record of Decision (ROD) for the K Basins Interim Remedial Action. A sampling of SNF Project employee EJTA's was performed during this verification, and the results indicate inconsistent implementation of the EJTA process as described in HNF-PRO-079, Section 3.4 relative to data gathering, occupational medical qualification, and monitoring. **(HAZ.1-3)** Interviews with managers also identified a lack of recognition relative to the long and short-term financial cost savings for the employee, employer, and the DOE that is represented by the EJTA process and an effective occupational health monitoring program. This lack of recognition relative to the importance of the EJTA will be exacerbated further as SNF Project personnel transition from engineering duties to operations technical support in preparation of the PSI and a declaration of readiness for operations.

During the observation of the MIF, the performance of a formal industrial safety inspection by an SNF Project industrial safety SME at the water treatment facilities 183-KE and 185-K, the 1720-K Building, and during the excavation work performed at 100-K was observed. The formal safety inspection, as related by the manager assigned as the MIF, is the beginning of a new weekly joint management observation and safety inspection addressing SNF Project employee identified concerns relative to lack of formality in the facility safety inspection process. The safety inspection and management observation process, as observed, recognizes management's responsibility to safety, identification of workplace hazards, analyses of controls, and provided many management and employee opportunities for feedback and improvement with the operating staff of the facilities. A "Pre-job safety brief" was provided by the excavation subcontractor, and hazards were appropriately identified in the AJHA and the area and work control permits for the scope of work.

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Criterion 2: *Procedures and/or mechanisms are in place and used by personnel that describe the interfaces, roles and responsibilities of those personnel who identify and analyze the hazards of the scope of work. Personnel assigned to accomplish those roles are competent to execute those responsibilities.*

HNF-3552, HNF-PRO-704, and SNF-3446 identify interfaces, roles and responsibilities for Operations, Engineering, and Nuclear Safety. HNF-3552, Section 15.0 identifies line management responsibilities for safety and the interfaces with Nuclear Safety to provide dedicated execution of all project nuclear safety commitments. The HNF-PROs 700 series (listed in the Documents Review section) identify the interfaces for safety analysis organizations through the development and implementation of existing and new SARs. Roles and responsibilities and interfaces are also proceduralized and institutionalized in the nuclear safety procedures at the operational level. The involvement of appropriate environmental, safety, and health personnel, as well as workers in the identification of hazards, is captured via AP MN-7-002 and AP MN-7-008 for the SNF Project K Basin work. A JSA process is used in the SNF Project Construction projects, but is not formalized in any work control or planning process (see SME.2 and SME.4 Assessment Forms.)

The AJHA and JSA processes discussed above are being used extensively by the SNF Project in both the Operations and Engineering departments. This process assures appropriate interfaces are considered, recognized, and included in maintenance work control, operating and preventive maintenance procedure development. Opportunities are available to the workers to contribute to feedback and improvement processes via the AJHA "post-job review" form/checklist specified in SNF Project procedures. The SNF Project EWP process is a "real-time" feedback and improvement mechanism implemented by workers, manager, subject matter experts, etc. The procedures that govern the AJHA were being implemented in the AJHA/EWP session discussed above. (HAZ.1-1)

HNF-3552, Section 7.0 identifies the interfaces, roles and responsibilities for those project teams in the SNF Project Engineering organization. The SNF Project Engineering organization, relative to the identification of hazards, has interfaces with operation support, subproject/construction support, technical-issue management, nuclear safety, and fire protection.

The Engineering Department, as a result of a previous lessons-learned relative to the SAR development process, uses an "ISMS work planning workshop" process to integrate and interface with the safety analysts and design authorities within each subproject. This process is not proceduralized, but the mechanisms were discussed during interviews with individual engineering managers, design authorities, and safety analysts. This ISMS work planning process assisted in identifying discrepancies in the SAR development, as well as the development of functional requirements into the design, and appropriate analysis of the functional requirements in the safety analysis process.

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Managers and SNF Project personnel were interviewed to determine what procedures and/or mechanisms are in place that describe roles and responsibilities of those personnel who identify and analyze the hazards of the scope of the work. The SNF Project requires professional support services from independent experts with unique pedigrees in engineering design and safety analysis development. Requests for proposals are issued with a statement of work and requisite qualifications; e.g., experience and education. Competency is maintained via an annual required reading competency checklist/matrix designed specifically for the area of concentration for the designers or safety analysts, including managers or management leads, and Technical Safety Requirement (TSR) writing.

Conclusion

An approved Authorization Agreement for the K Basins exists. The Authorization Agreement does not define the authorization envelope for the CSB, CVD, and ISA projects. Hazards are identified and procedures and processes are in place to effectively and accurately implement the requirements of the Authorization Envelope, when defined.

Procedures and or mechanisms exist that describe the work and set the stage for the scope and depth of hazards identification and analysis. Mechanisms also exist for determining the level of detail and clearly defining the work to be performed, its complexity, and the potential risk of the associated hazards. Worker participation in work planning was evident in the EWP process and through use of the AJHA tool. Procedures incorporate worker involvement in the work planning process and in the preparation and review of planning documentation and job hazard analysis, including proposed work methods, hazards, and controls. The ISMS work planning process is implemented at the task- and activity-level via the AJHA tool, JSAs. The use of teaming approaches serves to integrate all hazards information and the controls required for the scope of work into a tool that supervisors, management, and workers can use in the field.

Teaming approaches (i.e., interface control) across the various subprojects require improvement, particularly in regards to integration of the SNF Project safety case assumptions. Poor teaming and communications across the subprojects results in a disconnection of interface controls and lack of integration of the subproject safety analysis reports, and precludes complete development and adequate defense of the safety case. This is a previously identified problem and is not being addressed by a feedback and improvement system.

Personnel assigned to accomplish their roles are competent to execute their responsibilities in accordance with the requirements and DOE expectations. Procedures and mechanisms in place for determining the basis for selecting individual qualifications for specific positions/job responsibilities via position/job descriptions, resumes, and other periodic recertification/retraining opportunities.

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Opportunities are available to the workers to contribute to feedback and improvement processes via the AJHA "post-job review" form/checklist specified in SNF Project procedures. The SNF Project EWP process is a "real time" feedback and improvement opportunity also implemented by workers, managers, subject matter experts, etc.

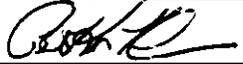
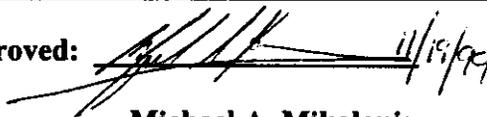
This objective has been met.

Strengths:

- ISMS work planning tools, like the AJHA, EWP, and JSA are effectively institutionalized in procedures and processes, and in day-to-day practice at the SNF Project. **(HAZ.1-1)**
- The internal subproject teaming activities at the activity-level among the various organizational disciplines for work control, hazards analysis, and nuclear safety/engineering design issue resolution are well documented and institutionalized. **(HAZ.1-2)**

Concerns:

- The EJTA process is inconsistently implemented and is poorly linked to the work control process as described in HNF-PRO-079. **(HAZ.1-3)**
- Recognition of the importance and distinction of criticality safety expertise as opposed to nuclear safety expertise is not clearly delineated in AP NS-4-015. **(HAZ.1-4)**
- Communications and teaming across the subprojects necessary to support safety case assumptions, hazard analysis, accident analysis, and consequences is poorly implemented. Poor teaming and communications across the subprojects results in a disconnection of interface controls and lack of integration of the subproject safety analysis reports, and precludes complete development and adequate defense of the safety case. This is a previously identified problem and is not being addressed by a feedback and improvement system. **(HAZ.1-15)**

Submitted:  Carter Kirk <i>Team Member</i>  Thomas J. Hull <i>Team Member</i>	Approved:  Michael A. Mikolanis <i>Team Leader</i>
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OBJECTIVE

HAZ.2 - An integrated process has been established and is used to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensures adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace.
(CE I/II-4, CE-I/II-5)

Criteria

1. Procedures and/or mechanisms are in place to develop, review, approve and maintain current and implement all elements of the facility Authorization Basis Documentation with an integrated workforce.
2. Procedures and/or mechanisms that identify and implement appropriate controls for hazards mitigation within the facility or activity are developed and used by workers and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.
3. Standards and requirements are appropriately tailored to the hazards.
4. Procedures and/or mechanisms are in place to develop, maintain, and utilize (and effectively and accurately implement) Authorization Agreements (AA).
5. Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the Authorization Basis.

Approach

Record Review

- Review a sample of hazard control documents to verify safety controls are provided for the hazards identified and that the control strategy encompasses a hierarchy of the following:
 - hazard elimination
 - engineering controls
 - administrative controls
 - personnel protective equipment.
- Typical documents include AAs, Safety Analysis Reports (SAR), Technical Safety Requirements (TSR), Health and Safety Plans (HASP), Radiological Work Permits (RWP), operating procedures, etc.

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- Review procedures and mechanisms to ensure accurate and effective implementation of Authorization Basis documentation.
- Sample actual implementing documentation.
- Coordinate the review of work-related documents, such as RWPs and operating procedures with the OP and SME functional area reviewers.

Interviews

Interview personnel responsible for developing and implementing hazard controls and/or Authorization Basis Documentation at the facility level. This should include personnel such as those responsible for SAR/TSR preparations and implementation, as low as reasonably achievable (ALARA) review requirements, PHA activities, etc.

Observations

Observe the actual processes development, review, approval, and implementation of SAR/TSR, AA, and other Authorization Basis documents as available.

Record Review

- AP MN-7-002-09, *Work Control Process*, July 1, 1999
- AP MN-7-008-00, *AJHA Process*, June 10, 1999
- AP MS-1-010-05, *S/RID Self Assessments*, October 12, 1999
- AP MS-1-026-00, *Authorization Agreements*, June 18, 1999
- AP NS-4-001-12, *Spent Nuclear Fuel Unreviewed Safety Questions*, September 13, 1999
- AP NS-4-002-04, *Process Standards Administration*, June 28, 1999
- AP NS-4-003-05, *Process Change Authorization Administration*, September 30, 1999
- AP NS-4-005-10, *Spent Nuclear Fuel Safety Basis Performance Assurance Process*, July 27, 1999
- AP NS-4-013-04, *Safety Basis Implementation Process*, September 16, 1997
- AP NS-4-015-01, *Hazard and Safety Assessment*, May 10, 1999
- AP TN-8-020, *Unreviewed Safety Question Evaluator Training*, October 21, 1998
- HNF-1721, *Spent Nuclear Fuel Project Standards/Requirements Identification Document Implementation Plan*, Rev. 1, August 26, 1999
- HNF-PRO-062, *Identifying and Resolving Unreviewed Safety Questions*, Rev. 0, July 1, 1997
- HNF-PRO-074, *Safety Responsibilities*, Rev. 1, 1997
- HNF-PRO-079, *Job Hazard Analysis*, Rev. 4, September 9, 1999
- HNF-PRO-265, *Standards/Requirements Identification Document Process*, Rev. 2, April 13, 1999

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- HNF-PRO-430, *Safety Analysis Program*, Rev.1, October 15, 1997
- HNF-PRO-700, *Safety Analysis and Technical Safety Requirements*, Rev. 1, December 29, 1997
- HNF-PRO-701, *Safety Analysis Process-Existing Facility*, Rev. 0, October 15, 1997
- HNF-PRO-702, *Safety Analysis Process-Facility Change or Modification*, Rev. 0, October 15, 1997
- HNF-PRO-703, *Safety Analysis Process-New Project*, Rev. 0, October 15, 1997
- HNF-PRO-704, *Hazard and Accident Analysis Process*, Rev. 1, August 24, 1999
- HNF-PRO-705, *Safety Basis Planning, Documentation, Review and Approval*, Rev. 1, February 27, 1998
- NSDI-02, *Review of Design Changes to SNF Project Safety Basis Documents*, December 10, 1998.

Interviews Conducted

- Area Safety Manager, FDNW Construction Services
- Deputy Manager, 105-KE Facility Operations
- Engineer, Industrial Safety
- Engineer, Nuclear Safety
- Engineer, Safety
- Manager, 105-KE Facility Operations
- Manager, Canister Storage Building (CSB) Operations
- Manager, Facility Engineering
- Manager, Facility Engineering, Electrical & Chemical
- Manager, Facility Engineering, Mechanical
- Manager, Nuclear Safety
- Manager, Planning
- Manager, Safety Analysis
- Manager, SAR Production
- Manager, Self Assessment and Management Systems
- Manager, SNF Construction
- Manager, Technical Integration
- Manager, Work Release Center
- Nuclear Chemical Operator
- Planner (2)
- Standards/Requirements Identification Document (S/RID) Program Manager
- Shift Manager, CSB Operations
- Shift Manager, CVD Operations
- Shift Manager, KE
- Shift Manager, KW
- Specialist, Senior Safety.

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Observations

None.

Discussion of Results

The SNF Project consists of several subprojects in various stages of completion. The K Basins are the Project's existing facilities that are being modified to allow the transfer of fuel out of the basins. The Cold Vacuum Drying Facility (CVD) is under construction for the purposes of treating and packaging fuel for transport and storage in the CSB, which is also under construction. The CVD and the CSB are also known as the "Greenfield" projects. This distinction is important because it determines which set of procedures and/or mechanisms the overall SNF Project uses for achieving the core functions and guiding principles of ISM.

Criterion 1: *Procedures and/or mechanisms are in place to develop, review, approve and maintain current and implement all elements of the facility Authorization Basis Documentation with an integrated workforce.*

The K Basins subproject developed facility-specific procedures to maintain and approve changes to facility authorization basis documents. AP NS-4-001, *Spent Nuclear Fuel Unreviewed Safety Questions*, defines the SNF Project processes to comply with DOE Order 5480.21 and HNF-PRO-062, *Identifying and Resolving Unreviewed Safety Questions*. Used in conjunction with AP NS-4-002, *Process Standards Administration* and AP NS-4-003, *Process Change Authorization Administration*, these procedures establish clear roles and responsibilities with regard to ensuring that all activities conducted within the K Basins remain within the set of standards and requirements established by the facilities' authorization basis. With the exception of categorical exclusions developed and approved by the Plant Review Committee, all Engineering Change Notices, procedure changes, and planned work packages are subject to a Unreviewed Safety Question (USQ) screening and or evaluation. This set of procedures provides the K Basins subproject with monitored integration capability to ensure that the safety envelope created by the set of Authorization Basis documents, as defined in the SNF project Authorization Agreement, is maintained.

The SNF Project tracks field changes made to "Greenfield" construction projects and field changes to the K Basins facility modifications, such as the Integrated Water Treatment System and the Fuel Retrieval System, through a USQ-like procedure as outlined in NSDI-02, *Review of Design Changes to SNF Project Safety Basis Documents*. This practice provides flexibility for field changes while allowing the changes to be tracked and evaluated during the transition from Preliminary Safety Analysis Report to Final Safety Analysis Report.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: **Hazards Identification
and Standard Selection**

OBJECTIVE: **HAZ.2**
DATE: 11/18/99

Preoperational development of Authorization Basis documentation at the CVD, CSB, and necessary modifications to the K Basins to allow the removal of spent nuclear fuel are performed in accordance with HNF-PRO-430, *Safety Analysis Program* and HNF-PROs 700-705. Within these procedures are sections that address roles and responsibilities and parallel functional review and approval processes. This set of procedures provides the basic set of requirements to be met to satisfy DOE expectations regarding Authorization Basis development for the "Greenfield" projects. This process is discussed further in the HAZ.1 Assessment Form.

Personnel interviewed at K Basins demonstrated an adequate knowledge in the implementation of the SNF Project USQ procedures. USQ screeners/evaluators are required to attend training that provides instruction consistent with DOE expectations for individuals involved in USQ determinations. A random review of approximately 5% (60/1,200) of the USQ screens done in calendar year 1999 indicated a consistent application of the SNF USQ procedure. Personnel indicated that USQ screens were applied with such frequency as to almost be an impediment to progress. This could become an issue as schedules and budgets tighten. However, there was no indication that the procedure was being skirted or circumvented.

Criterion 2: *Procedures and/or mechanisms that identify and implement appropriate controls for hazards mitigation within the facility or activity are developed and used by workers and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.*

Work within the K Basins is controlled by AP-MN-7-002, *Work Control Process*. Actual work is separated into three categories: routine work, "skill of the craft," and planned work.

Routine work and "skill of the craft" work have standing job hazard analysis checklists that were produced using the Automated Job Hazard Analysis (AJHA) tool. These tasks have been reviewed against the Authorization Basis by an integrated functional team to ensure work is bounded by existing controls that comprise the safety envelope for the K Basins.

Planned work requires the establishment of an Enhanced Work Planning (EWP) team, an AJHA, and a physical walkdown of the work site. The procedure requires synchronized participation between engineering, maintenance, craft, radiological control, safety, nuclear safety, and planning and scheduling. Hazards are identified and controls stipulated by the AJHA tool, which requires organizational integration concepts to be applied when deriving the controls necessary to mitigate or prevent hazards inherent to the scheduled work activity.

Interviews with participants in the EWP process and the AJHA indicated that the EWP and the AJHA provided effective methodologies to identify hazards and stipulate controls. A random review of work packages that were developed using AP MN-7-002 confirmed that hazards related to work activities had been analyzed and controls stipulated to the extent practical for work activities in the K Basins (see SME.4 and SME.5 Assessment Forms). SMEs in Safety and Health (SME.4) and Radiological Controls and Protection (SME.3) observed actual work

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Hazards Identification and Standard Selection	OBJECTIVE: HAZ.2 DATE: 11/18/99
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activities to verify that established controls were implemented. Additionally, the Operations subteam and the SME for Maintenance and Work Control (SME.2) performed the same function.

Criterion 3: *Standards and requirements are appropriately tailored to the hazards.*

The SNF Project utilizes the S/RID process, which is one of two DOE-approved methodologies to identify the appropriate standards and controls for hazards inherent to the facilities under the project's purview. The governing procedure for this process is HNF-PRO-265, *S/RIDs Process*. By definition, the S/RIDs reflect the graded approach and by utilizing the process as written, the set of standards and requirements for a facility is tailored to match the hazards inherent to facility operations. The SNF project developed and approved AP MS-010, *S/RID Self Assessments*, which defines the functional logistics relating to review and approval, as well as maintenance of SNF Project-specific S/RIDs documentation and provides the integrated flexibility to ensure the document remains current and complete.

HNF-1721, *Spent Nuclear Fuel Project Standards/Requirements Identification Document Implementation Plan* (Rev. 1, dated August 26, 1999) is the approved S/RID for the SNF Project. A Phase I Assessment has been completed that verified 95% of all identified standards and requirements have implementing procedures developed by the responsible functional area managers.

The SNF Project is proceeding with a Phase II S/RIDs verification of implementation of the Project's approved S/RID. This verification, along with the management self-assessment program, is being used to prepare the Project for a DOE Operational Readiness Review (ORR). According to project personnel, an effort is underway to combine these two related activities to maximize project resources.

Criterion 4: *Procedures and/or mechanisms are in place to develop, maintain, and utilize (and effectively and accurately implement) Authorization Agreements (AA).*

AA documentation for the SNF Project is maintained in accordance with MS-1-026-00, *Authorization Agreement*. The responsibilities of line management are defined along with review and approval functions relating to changes and annual updates of the AA. The SNF Project has decided to amend its existing AA as new nuclear facilities become operational (CVD and CSB). As a result, this procedure does not address development of new AAs. A revision to the SNF Project AA was recently transmitted to DOE for approval. Further discussion of the SNF Project AA is contained in the HAZ.1 and MG.1a Assessment Forms.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Hazards Identification and Standard Selection	OBJECTIVE: HAZ.2 DATE: 11/18/99
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Criterion 5: *Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the Authorization Basis.*

The K Basins subproject Office of Nuclear Safety is responsible for development, maintenance and revision of the only current authorization basis in the SNF Project. The current set of procedures, AP NS-4-005, *Spent Nuclear Fuel Safety Basis Performance Assurance Process* and AP NS-4-013, *Safety Basis Implementation Process*, provides the K Basins subproject with systematic integration capability to ensure that the safety envelope created by the set of Authorization Basis documents is maintained. Programmatic interfaces required by the work control procedure ensures that positive configuration control of the current Authorization Basis document is not lost during construction upgrades performed to facilitate the removal or fuel from the fuel storage basins.

By implementing the SNF Project procedures AP NS-4-005 and AP NS-4-013, K Basins Facility Managers identify Authorization Basis commitments, such as TSR surveillances and verification of limited conditions for operations. These managers then transmit these commitments to shift managers who ensure that work packages for basin activities contain proper controls to maintain these commitments. Additionally, all work in the K Basins is subject to USQ screening, as required by AP NS-4-001 and AP MN-7-002, to verify all work conducted remains within the safety envelope created by the K Basin Authorization Basis.

Conclusion

The SNF Project has developed procedures and mechanisms that allow for the development, maintenance, review, and approval of Authorization Basis and AA documentation. Additionally, procedures and processes are in place that require the identification of hazards at the facility and activity level prior to the authorization and release of work. This set of procedures and mechanisms has established an integrated process to identify hazards and stipulate controls for SNF Project operations, construction, and activities.

Relative to establishing a facility Authorization Basis, AA, and identifying standards and requirements, ISM is established and implemented by the SNF Project procedures, policies and flow downs from the HNF-PRO system, which appears to be adequately implemented. Work package reviews and field observations indicate that the implementation of this system extends to the activity level.

This objective has been met.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

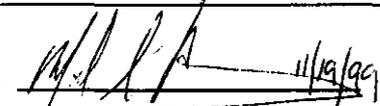
FUNCTIONAL AREA: Hazards Identification and Standard Selection	OBJECTIVE: HAZ.2 DATE: 11/18/99
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Strengths:

None.

Concerns:

None.

Submitted:  Steve Bertness <i>Team Member</i>	Approved:  11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**

OBJECTIVE: **MG.1a**

DATE: 11/18/99

OBJECTIVE

MG.1a - The contractor policies and procedures ensure that the ISM System Description is maintained, implemented, and that implementation mechanisms result in integrated safety management.

(CE I/II-1)

NOTE: This MG.1a objective should be addressed at the program/project level – not by functional area managers. Demonstrate alignment/linkage of SNF Project ISMS program description with the *Project Hanford Management Contract Integrated Environment, Safety Management System Plan* (FDH 1999, Appendix B). This objective should focus on the SNF Project “system description” to determine adequacy as a roadmap for implementation of ISMS at the SNF Project.

Criteria

1. The contractor has mechanisms in place to direct, monitor, and verify the integrated implementation of the ISMS as described in the ISMS Description. Implementation and integration expectations and mechanisms are evident throughout all facility/activity organizational functions.
2. The contractor has assigned responsibilities and established mechanisms to ensure that the ISMS Program Description is maintained current and that the annual update information is prepared and submitted.
3. The contractor has established a process that establishes, documents, and implements safety performance objectives, performance measures, and commitments in response to DOE program and budget execution guidance. The ISMS describes how system effectiveness will be measured.

Approach

Record Review

- Review the ISM System Description and the direction concerning the guidance on the preparation, content, review and approval of the ISMS at the SNF Project.
- Review corporate/site procedures for the implementation review, and maintenance of the ISM System Description and associated items, including provisions for the annual review and update to DOE.
- Review charters and “output documentation” from any ISMS coordinating committees.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.1a DATE: 11/18/99
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- Review contractor assessment activities incident to determination of the adequacy of implementation of ISMS.
- Review implementation planning efforts and any “gap analysis” reports, which may have been developed. Review the process established to measure the effectiveness of the ISMS to ensure that the methods support the establishment, documentation, and implementation of safety performance objectives that support DOE program and budget execution guidance.

Interviews

- Interview contractor managers who are responsible for the development and maintenance of the ISM System Description.
- Interview contractor line managers who are, or will be responsible for administering the mechanisms of the ISMS.
- Interview chairpersons and key members of any ISMS coordinating committees, if established.
- Interview managers, supervisors, and workers to determine if they are aware of and understand the various performance measures/indicators. What do the measures mean to them? Do they feel the measures are valuable for ensuring continuous improvement?

Observations

None.

Record Review

- 9955093/99-AMW-024, *Results of K Basins Phase 1 Integrated ES&H Management System (ISMS) Gap Analysis Closure Documentation*, Letter from DOE-RL to FDH, July 21, 1999
- 99-SFD-155, *Contract No. DE-AC06-96RL13200 – Request for Approval of Spent Nuclear Fuel (SNF) Project Standards/Requirements Identification Document (S/RID)*, Letter from K. A. Klein, DOE-RL to R. D. Hanson, FDH, August 6, 1999
- 99-SNF/RBW-062, *Spent Nuclear Fuel Project Monthly Performance Report – September 1999*, Interoffice Correspondence from R. B. Wilkinson, FDH, to Distribution, October 22, 1999
- 99-SNF/RWB-048, *Spent Nuclear Fuel Project FY00 Management Assessment Plan*, Letter from R. B. Wilkinson, FDH, to Distribution, September 14, 1999
- 99-SNF/SJD-016, *FY 1999 Management Assessment Program Annual Report*, Interoffice Correspondence from S. J. Dechter to R. B. Wilkinson, FDH, October 27, 1999
- AP MS-1-007-02, *Goals and Performance Indicators*, April 3, 1999

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**

OBJECTIVE: **MG.1a**

DATE: 11/18/99

- AP MS-1-031-00, *DESH Interface with FDH Policies and Procedures*, February 10, 1998
- AP MS-1-036-02, *Management Assessments*, July 8, 1999
- AP MS-1-039-00, *ISMS Description Configuration Control*, September 9, 1999
 - Section 12.7, “Management Oversight and Assessment Programs”
 - Section 13.0, “Safety, Health and Environment”
- AP MS-11-008-01, *Quality Trending*, March 24, 1999
- FDH-9858321 R1, *Implementation Status of the Spent Nuclear Fuel Project K Basins Authorization Agreement*, Letter from R. D. Hanson, FDH, to J. D. Wagoner, RL, December 3, 1998
- FDH-9955419, *Contract No. DE-AC06-96RL13200 – Direction for Implementation of Integrated Environment, Safety and Health Management System*, Letter from G. A. Harvey, FDH, to Distribution, August 5, 1999
- HNF-3552, *SNF Project Execution Plan*, Rev. 0-A, February 22, 1999
- HNF-MP-003, *Integrated Environment Safety and Health Management System Plan*, Rev. 2, September 1, 1999
- HNF-PRO-074, *Safety Responsibilities*, Rev. 1, July 1, 1997
- HNF-PRO-075, *Safety Communications*, Rev. 2, December 31, 1997
- SNF-5262, *Plan for the Turnover of Spent Nuclear Fuel (SNF) Construction Projects for Operations*, October 11, 1999
- *Spent Nuclear Fuel Project – ISMS Description*, Rev. 0, September 9, 1999.

Interviews Conducted

- Deputy Manager, SNF Project Controls
- Director, SNF Project
- General Manager, FDNW
- Manager, Canister Storage Building (CSB) Construction Project
- Manager, Operations
- Manager, Operations/Facility, CSB
- Manager, Performance Improvement and Regulatory Services
- Manager, Self-Assessment
- Manager, SNF Project Controls
- Manager, SNF Project Operations
- Manager, SNF Quality Assurance
- Manager, Startup Integration
- Project Director, FDNW
- Vice President, SNF Project.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.1a DATE: 11/18/99
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Observations

- SNF Movement Critical Path Meeting, November 3, 1999
- Conference call (daily SNF staff meeting), November 5, 1999.

Discussion of Results

NOTE: *Demonstrate alignment/linkage of SNF Project ISM System Description with the Project Hanford Management Contract Integrated Environment, Safety Management System Plan (FDH 1999, Appendix B).*

The SNF Project ISM System Description was reviewed to determine if alignment/linkage to the HNF-MP-003, *Integrated Environment Safety and Health Management System Plan*, was present. Specific linkages were found throughout the SNF Project ISM System Description. Specifically, Section 3.0 describes the guiding principles and core functions set forth in the HNF-MP-003, discusses how they are applied within the SNF Project, and lists the implementing documents. Additional sections include references to HNF-MP-003 expectations (if any), a discussion of how the topic of the section is implemented, and a list of applicable documents. The HNF-MP-003 contains site, facility, and activity-level expectations that define a requirements-based safety management system. The facility and activity-level expectations were linked within the SNF Project ISM System Description.

However, it should be noted that during the DOE verification of the FDH ISM System Description, the review team found that HNF-MP-003 does not provide adequate program crosswalk to subcontractor implementing documents. Additionally, the management system that had been implemented to satisfy ISMS was found to be overly complex and difficult to follow. The review team concluded that FDH had not effectively demonstrated that mechanisms were in place to direct, monitor, and verify the integrated implementation of ISMS in accordance with their ISM System Description (HNF-MP-003).

Due to the current FDH restructuring effort, several actions are underway to redefine the FDH business management system. This effort will result in the development of a Management Systems Requirements Plan (which will eventually replace HNF-MP-001, *Management and Integration Plan*), facility transition plans, and facility/organizational project execution plans. A significant portion of this effort will directly affect implementation mechanisms relative to ISMS, especially at the project/facility level. When the FDH ISM System Description is changed, a reconciliation will be necessary to manage changes to the SNF Project ISM System Description. **(MG.1a-1)**

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.1a DATE: 11/18/99
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Criterion 1: *The contractor has mechanisms in place to direct, monitor, and verify the integrated implementation of the ISMS as described in the ISMS Description. Implementation and integration expectations and mechanisms are evident throughout all facility/activity organizational functions.*

Through interviews and review of the ISM System Description, the mechanisms within the SNF Project to direct, verify, evaluate, maintain, and improve the integrated implementation of the ISMS were identified. The SNF management assessment procedure, AP MS-1-036, *Management Assessment*, is the tool used to look at the total picture of how well the description met customer requirements and expectations. The document ensures that "At least annually, SNF Project managers conduct assessments specific to ISMS. Assessment topics shall include each of the guiding principles and core functions described in the *Integrated Environment, Safety and Health Management System Plan*, HNF-MP-003. The SNF Project, Project Director, and Contracting Officer's Representative shall ensure senior management participation in the ISMS assessments, in reviewing the assessment results, and in directing corrective action and improvements." Senior management is personally involved with the management assessment program and all management topics have been linked to the ISMS core functions and/or guiding principles.

Each SNF Project manager interviewed adequately described the integrated implementation of ISMS in accordance with their ISM System Description. All senior managers that were interviewed demonstrated a keen awareness and dedication to the ISMS program and to the principles of ISM. These interviews included line managers as well as support managers. All understood the principle that the line manager had responsibility for safety and that first-line supervision and worker involvement supported the identification and development of safety controls. All managers recounted the benefits of employee involvement in that same safety process of hazard identification and development of hazard controls. Each manager interviewed was focused on results.

SNF Project oversight activities, as well as the incorporation of lessons learned from the Phase I verification and the follow-up Phase I/Phase II Gap Analysis, has improved the completeness of the SNF Project ISM System Description.

However, the SNF Project ISM System Description does not specifically describe "all" aspects of the SNF Project. For example, ISM expectations/standards for a variety of SNF Project construction and startup-related activities were not explicitly addressed in the description. Furthermore, "Greenfield" projects were not described nor were the relationships of subcontractor companies supporting the SNF Project. (MG.1a-2)

SNF-5262, *Plan for the Turnover of Spent Nuclear Fuel (SNF) Construction Projects for Operations*, describes the overall flow of a SNF construction project from physical construction to the Operations organization and obtaining authorization for operating the newly constructed facility and/or system. This plan was not referenced in the ISM System Description. However,

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.1a DATE: 11/18/99
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the description of the process for turnover from construction, startup testing, acceptance for beneficial use, and ultimately to operations was provided during the interview. SNF managers were able to describe roles and responsibilities associated with the CSB, including staffing requirements, at the project level. An explanation of the relationships of the major companies supporting the CSB project was also provided.

Within the SNF Project ISM System Description, there are statements related to how the SNF Project communicates the ES&H policy to the SNF Project workforce and lower-tier subcontractors. This is communicated through the use of SNF Project policies and implementing procedures, and through staff meetings, employee briefings, check-in procedures, and training programs (e.g., Hanford General Employee Training). HNF-3552, *SNF Project Execution Plan*, Section 13.0, "Safety, Health and Environment," is the SNF Project safety policy.

HNF-PRO-074, *Safety Responsibilities*, and HNF-PRO-075, *Safety Communications*, describe employee and manager responsibilities with respect to safety and methods of communication. HNF-PRO-074 includes the "Master Safety Rules" and the "Worker Bill of Rights," which are required by HNF-PRO-075 to be posted in the work place. Employee Zero Accident Council meetings, pre-job safety briefings, and periodic employee safety meetings were found to be several methods of communicating this safety policy. Also, a SNF critical path management meeting was observed and found to serve the integration needs of the multiple SNF Project activities. The meeting focused on project status, schedule validation, resource challenges, stakeholder commitments, and safety.

Criterion 2: *The contractor has assigned responsibilities and established mechanisms to ensure that the ISMS Program Description is maintained current and that the annual update information is prepared and submitted.*

Several minor discrepancies were identified within the SNF ISM System Description. Most of these were self-identified by the SNF Project either during their self-evaluation conducted in June 1999 or as a part of their continual review of the description. One discrepancy related to out-of-date references (Section 3.6.4), a second related to the need to describe control of the SNF Authorization Agreement (Section 1.4), and a third listed an incorrect procedure number (Section 3.11.1). **(MG.1a-3)**

The SNF Project ISM System Description is maintained and controlled in accordance with the SNF Administrative Procedure MS-1-039-00, *SNF ISMS Description Configuration Control*. This procedure requires the ISM System Description to be reviewed and updated at least annually as required by the DEAR clause.

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FUNCTIONAL AREA: **Management Oversight**

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DATE: 11/18/99

Criterion 3: *The contractor has established a process that establishes, documents, and implements safety performance objectives, performance measures, and commitments in response to DOE program and budget execution guidance. The ISMS describes how system effectiveness will be measured.*

During interviews, a process, including responsibilities, for producing and maintaining the SNF Project performance indicator program was described. Performance indicators are established per HNF-3552, Section 12.3.2, "Project Performance Measures and Indicators." Two SNF administrative procedures were discussed: 1) AP MS-1-007-02, *Goals and Performance Indicators*, and 2) AP-11-008-01, *Quality Trending*. A corrective action was identified during the SNF Phase 1 verification report for Gap F22 to include a requirement in AP-1-007 for a performance measure to evaluate the effectiveness of the team approach to work planning. AP MS-1-007-02 describes the establishment of performance objectives and measures, but does not specify the composition of those performance measures. Per RL Letter 9955093/99-AMW-024, *Results of K Basins Phase 1 Integrated ES&H Management System (ISMS) Gap Analysis Closure Documentation*, dated July 21, 1999, "Performance Indicators (PIs) are considered marginally adequate as they currently exist across the DOE Complex. What currently exists at SNF Project is considered acceptable for the present. The [DOE Safety Management Implementation Team] SMIT is chartered with development of guidance for PI's, and SNF Project PI's will be revised, as appropriate to follow and or implement the guidance." The RL letter considered closure of this gap satisfactory pending future SMIT guidance.

The September 1999 SNF Project Performance Report was reviewed. This was the first issue of the monthly report and contained only those performance indicators that were fully developed. Many additional indicators had not yet been defined or fully developed. When fully developed, the performance indicators will include the following:

- Cumulative recordable case rate
- FY 1999 injury/illness cases
- FY 1999 injury/illness cases by organization
- Management self-assessment appraisal activity
- Monthly schedule to work adherence
- Safety work request status
- Occurrence report events
- Total radiation exposure
- Personnel contamination event rate
- Radiological problems by type
- Management assessment activity
- Standards/Requirements Identification Document (S/RID) Phase I assessments
- Critical path performance tracking
- Schedule status
- Total project baseline.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.1a DATE: 11/18/99
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Interviews with senior management demonstrated an understanding of the purpose and goals for utilizing performance indicators. The performance indicators are used to measure those areas that have the greatest impact on the SNF Project.

ISMS implementation is scheduled and tracked in the SNF Project schedule and is included as an element in Performance Agreement between FDH and RL.

Conclusion

It was determined from this review that the SNF Project ISM System Description does not adequately describe all aspects of the SNF Project. Specifically, the description appeared to be written for the K Basins and did not explicitly describe other SNF activities (i.e., the "Greenfield" projects). The SNF Project does have a process to update the description as well as a process to measure system effectiveness. Furthermore, when the FDH ISM System Description is changed, a reconciliation will be necessary to manage changes to the SNF Project ISM System Description.

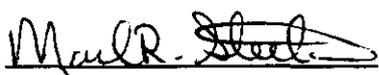
The objective has not been met.

Strengths:

None.

Concerns:

- A reconciliation will be necessary to manage changes to the SNF Project ISM System Description once the FDH ISM System Description is changed. (MG.1a-1)
- The SNF Project ISM System Description does not describe all aspects of the SNF Project. (MG.1a-2)
- Several minor discrepancies were identified within the SNF Project ISM System Description. (MG.1a-3)

Submitted:  Mark R. Steelman <i>Team Member</i>	Approved:  11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.1b DATE: 11/18/99
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OBJECTIVE

MG.1b - An integrated process has been established and is used to identify and prioritize specific mission discrete tasks, mission process operations, modifications and work items. (CE I/II-1, CE-I/II-2)

Criteria

1. Procedures and/or mechanisms that require line management to identify and prioritize mission-related tasks and processes, modifications, and work items are in place and used by personnel.
2. Procedures and/or mechanisms are in place and used by personnel that define the roles and responsibilities for the identification and prioritization of mission-related tasks and processes, facility or process modification, and other related work items.
3. Procedures and/or mechanisms are in place and used by personnel that ensure identified work (i.e., mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.

Approach

Record Review

- Review the facility or activity long-range planning documentation. This should include such items as the following: summary schedules, plans of the week, long-range maintenance schedules, modification schedule, etc.
- Review the procedures and mechanisms that line managers utilize to identify and prioritize mission-related tasks and processes, modifications, and work items.
- Review organizational documentation to determine the personnel positions with responsibility associated with this objective.
- Review the position description for those positions.
- Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions.
- Review any training or qualification material including in training and qualification manuals that support gaining or verifying competence to fill the positions.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**

OBJECTIVE: **MG.1b**

DATE: 11/18/99

- Review the procedures and/or mechanisms that are used by the facility or activity to ensure that identified work is accomplished in accordance with established standards and requirements.

Interviews

Interview management personnel responsible for the identification and prioritization of work. This should include personnel, such as those responsible for long-range planning documentation, schedule preparation, etc.

Observations

Observe work definition and planning activities such as plans of the week meetings, long-range scheduling meetings, etc.

Record Review

- Exempt Job Description, Manager, SNF Integrated Schedule, March 10, 1999
- Exempt Job Description, Operations Manager II, March 10, 1999
- HNF-3552, *Spent Nuclear Fuel Project, Project Execution Plan, Rev. 0-A*, February 22, 1999
- HNF-PRO-092, *Fall Protection, Rev. 1*, July 1, 1997
- P3 Scheduling Database, November 1998
- SNF-1951, *Spent Nuclear Fuel (SNF) Baseline Change Control*, December 18, 1997
- Spent Nuclear Fuel Project Baseline Summary Notebook – FY 2000
- Spent Nuclear Fuel Project Level III Current Schedule, October 21, 1999
- Spent Nuclear Fuel Scheduling Standards Notebook, March 10, 1999
- Unreviewed Safety Question Screen, USQ K-99-1262, *Remove Equipment away from the Isolation Door Support Brackets in 105KE Discharge Chute*, October 23, 1999
- Work Packages:
 - K-99-02721/S, *105KE/KW Monthly Hoist and Rigging Inspections*, September 9, 1999
 - K-99-03415, *Repair Sample Line EF-6 Support*, 170KE, October 25, 1999
 - K-99-03425/W, *Move Wasted Equipment in Discharge Chute 105KE*, October 25, 1999
 - K-99-3124/3, *100K Weekly Loss of Water/Leak Calculation*, September 25, 1999.

Interviews Conducted

- Clerk, K Basins Work Control Center
- Deputy Manager, SNF Project Controls
- Director, SNF Project
- Estimator/Planner/Scheduler, K Basins
- Manager (Acting), SNF Integrated Scheduling

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**

OBJECTIVE: **MG.1b**

DATE: 11/18/99

- Manager, Canister Storage Building Construction Project
- Manager, Operations
- Manager, Operations/Facility, Canister Storage Building
- Manager, Performance Improvement and Regulatory Services
- Manager, SNF Project Controls
- Manager, SNF Project Operations
- Manager, Startup Integration
- Scheduler, SNF Project Controls Integration Support
- Vice President, SNF Project.

Observations

- Deficiency Evaluation Group Meeting, November 8, 1999
- SNF Integrated Work Control Meeting, November 9, 1999
- SNF Weekly Critical Path Scheduling Meeting, November 3, 1999.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms that require line management to identify and prioritize mission-related tasks and processes, modifications, and work items are in place and used by personnel.*

The SNF Project uses an integrated planning process to identify and prioritize mission-related tasks. This planning process supports development of the Multi-Year Work Plan (MYWP). Details of this process are described in HNF-3552, *SNF Project Execution Plan*, Section 4.0, "Project Controls," Section 5.0, "Change Management," and Exhibits 2-4, 4-1, 4-2, 4-35-1, and 5-2. All work for the SNF Project is planned and managed by Project Managers. The Project work breakdown structure (WBS) divides the Project scope into discrete manageable work packages. The WBS has a coding structure that permits tracking of progress, costs, work hours, and schedule.

The SNF Project program cost, scope, and schedule baseline is contained in the MYWP. In developing the integrated higher-level program and project schedules displayed in the MYWP, lower-level program and project schedules are used. A review of the SNF Level III Current Schedule revealed that subproject activities are scheduled down to level 4. For example, WBS number 1.03.01.02 is used for subprojects associated with the 100 Area. Within that WBS number, the Level III Current Schedule identifies WBS number 1.03.01.02.10.20.25.65 (Drain Valve Unreviewed Safety Question). Within that WBS number, it further defines four discrete tasks associated with the drain line valve modification (105-KE and 105-KW) Justification for Conditional Operation/Site Evaluation Report conditions, and implementation of the 100-K Safety Analysis Report/Technical Safety Report Revision. Each of these WBS numbers and

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FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.1b DATE: 11/18/99
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associated work scope items could be traced back to the originating Integrated Site Baseline/Integrated Priority List. The FDH MYWP directive delineates line management responsibilities and the process for managing the MYWP.

From the MYWP, the SNF project completes a priority listing of work based on mission, compliance, cost, and risk-containment objectives. At SNF working levels, a risk-based prioritization process is used to establish a technically defensible logic for work planning and execution. This process is intended to balance priorities by using risk-based planning and resource allocation to meet regulatory requirements and control safety and environmental hazards during the execution of work. The risk-based prioritization of work ensures that the most significant hazards are identified and mitigated in the most cost-effective manner.

To validate the above description of the SNF process for identifying and prioritizing tasks, interviews were conducted with several SNF Project personnel. Several work packages were reviewed. These were K-99-3124/3, *100K Weekly Loss of Water/Leak Calculation*; 1K-99-03415, *Repair Sample Line EF-6 Support*; 170KE, 1K-99-03425/W, *Move Wasted Equipment in Discharge Chute 105KE*; and K-99-02721/S, *105KE/KW Monthly Hoist and Rigging Inspections*. Two of the four work packages could be mapped back to their respective cost account charge numbers (CACN) and WBS number(s). (1K-99-02721/S and K-99-3124/3 CACN (391/FA10) and WBS number 1.03.01.02.10.20.15.15). The other two were in process and had not been assigned a CACN. This bottom-up review was discussed with several SNF Project Controls personnel. These activities were easily mapped to the SNF P3 Scheduling Database.

The SNF Project Director described the process for developing work, prioritizing work, and providing appropriate resources for performing the work. The current plan-of-the-day schedule was reviewed and found to contain the appropriate attributes for prioritizing work.

Operations line management, through the Operations representative in the Work Control organization, assigns priority for work at the activity level. Work is then scheduled and planned according to its priority. Safety designated items receive special attention and are prioritized based on their safety significance. On a daily basis, Operations line management reviews those work items with the highest priorities. This review is used to help resolve resource and scheduling conflicts. This senior management review is used to communicate management expectations.

A transition plan has been developed for transition from construction to operations at the SNF subprojects and is included in the Integrated Site Baseline. The transition plan is maintained at a high-level and is resource loaded based on assumption.

A SNF critical path management meeting was observed and found to serve the integration and prioritization needs of the multiple SNF Project activities. The meeting focused on project status, prioritization of work, schedule validation, resource challenges, stakeholder

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commitments, and safety. The purpose of the meeting was to discuss current status of work activities and critical work activities for the following week. The process used for the meeting included prioritizing work based on factors such as performance agreements, regulatory commitments, and requirements. Additionally, resources were discussed and prioritized based on workload and scheduled commitments. A work integration team meeting was also observed and found to be a useful tool used by K Basin project disciplines to discuss T1 through T4 schedules and potential impacts to these schedules. The meeting focused on priorities of work activities and integration of resources to accommodate the work. Problems and solutions were discussed and developed to accommodate resource constraints and schedule impacts during the meeting.

Criterion 2: *Procedures and/or mechanisms are in place and used by personnel that define the roles and responsibilities for the identification and prioritization of mission-related tasks and processes, facility or process modification, and other related work items.*

HNF-3552 establishes the execution philosophy and delineates the roles and responsibilities for management of the SNF Project, including the identification and prioritization of mission-related tasks. This is primarily accomplished within the Project Controls organization, which includes the definition of work priorities and funding requirements. In addition, the SNF Scheduling Practices Notebook delineates prioritization through the development of the Level 3 schedule logic as well as performance reporting. A review of position descriptions associated with key management and project controls personnel indicate that SNF Project personnel are trained and have the requisite background to carry out responsibilities associated with prioritization of work.

Criterion 3: *Procedures and/or mechanisms are in place and used by personnel that ensure identified work (i.e., mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.*

A review of several Automated Job Hazard Analysis (AJHA) and work packages revealed that standards and requirements are included as an integral part of the planning process. For example, an AJHA for fall protection for work associated with providing a new support for the EF-6 exhaust stack sample line defined requirements contained in HNF-PRO-092, *Fall Protection*, and 29 CFR 1926, Subpart M, "OSHA Construction Standard for Fall Protection." As discussed with the FDH Standards/Requirements Identification Document (S/RID) Project Manager, FDH has developed and is maintaining the SNF Project S/RID that contain the DOE-approved subset of Environmental, Safety, and Health requirements selected from DOE Orders, state and federal laws, and other sources. An S/RID Program Implementation Plan has been prepared and approved by DOE addressing past S/RID-related concerns. The Phase 2 S/RID assessment is scheduled for completion on April 30, 2000.

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Conclusion

The SNF Project has several processes in place that enable project personnel to identify, plan, prioritize, and schedule work activities from the macro (site) down to the individual work package (facility-specific activity) levels.

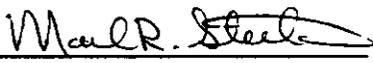
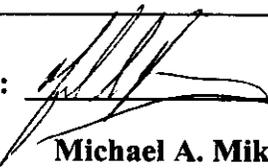
The objective has been met.

Strengths:

None.

Concerns:

None.

Submitted:  Mark R. Steelman <i>Team Member</i>	Approved:  11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**

OBJECTIVE: **MG.2**

DATE: 11/18/99

OBJECTIVE

MG.2 - Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Managers at all levels demonstrate a commitment to ISMS through policies, procedures, and their participation in the process. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety. (CE I/II-8)

Criteria

1. Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.
2. Facility or activity procedures specify that line management is responsible for safety.
3. Procedures and/or mechanisms are in place that ensure personnel who supervise work have competence commensurate with their responsibilities.
4. Procedures and/or mechanisms are in place that ensure personnel performing work are competent to safely perform their work assignments.

Approach

Record Review

- Review facility or activity manuals of practice that define roles and responsibilities of personnel responsible for safety.
- Review position descriptions and other documentation that describe roles and responsibilities related to ensuring safety is maintained.
- The review should consider personnel in line management and staff positions and should evaluate whether line managers are responsible for safety.
- Review the procedures established to ensure that managers and the work force is competent to safely perform work.
- Review the records of qualification and certification as applicable.

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Interviews

- Interview selected personnel at all levels of facility or activity management that are identified by the record review above.
- Verify their understanding and commitment to ensuring that safety is maintained for all work at the facility or activity.
- Interview a selected number of supervisors and workers (see definition) to determine their understanding of competency requirements and their commitment to performing work safely.

Observations

Observe scheduled activities that demonstrate that clear roles and responsibilities are established and understood, that line managers are actively involved with decisions affecting safety, and that managers and workers are competent to perform their duties. Activities, such as weekly planning meetings, plans of the day, event critiques, safety training, and safety meetings are typical events that may provide good examples of the safety training and decision-making process.

Record Review

- AP MS-1-039-00, *ISMS Description*, September 9, 1999
- AP TN-08-007-04, *Technical Staff Training Requirements*, March 24, 1999
- AP TN-8-001-07, *General Training Administration*, March 24, 1999
- AP TN-8-014-03, *Person in Charge (PIC) and Field Work Supervisor*, July 27, 1999
- *Designation FDH Contracting Officer's Technical Representative for Spent Nuclear Fuel*, FDH Interoffice Correspondence, October 21, 1999
- HNF-3352, *Spent Fuel Project Execution Plan*, Rev. 0-A, February 22, 1999
- HNF-MP-001, *Management and Integration Plan*, Rev. 1, May 14, 1999
- HNF-MP-003, *Integrated Environment Safety and Health Management System Plan*, Rev. 2, September 1, 1999
- HNF-MP-011, *PHMC Sitewide Qualification and Training Plan*, Rev. 1, April 6, 1999
- HNF-PRO-058, *Critique Process*, Rev. 2, July 7, 1999
- HNF-PRO-074, *Safety Responsibilities*, Rev. 1, July 1, 1997
- HNF-PRO-075, *Safety Communications*, Rev. 2, December 31, 1997
- HNF-PRO-079, *Job Hazard Analysis*, Rev. 4, September 9, 1999
- HNF-PRO-170, *Analyzing Training Requirements*, Rev. 1, June 30, 1998
- HNF-PRO-4616, *Supervision of Field Work Activities*, Rev. 2, June 30, 1999
- LTO-CVD-99-001, *Operations Shift Manager Qualifications/Stipend Process*, October 10, 1999
- SNF Field Work Supervision Qualification

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- SNF Project Job Descriptions
- SNF Project Mission Statement
- SNF Project Safety Guiding Principles
- *SNF Project Training Self-Assessment Report*, December 1998
- SNF-4948, *Spent Fuel Quality Assurance Program Plan*, Rev. 0, August 18, 1999
- SNF-5262, *Plan for Turnover of SNF Construction Projects for Operations*, October 11, 1999
- Various Training Reports.

Interviews Conducted

- Acting Project Director, SNF Project
- Manager, Cold Vacuum Drying (CVD) Facility
- Manager, CSB Construction, FDNW
- Manager, CSB Project
- Manager, CVD Facilities Operations
- Manager, Nuclear Safety
- Manager, Performance Improvement & Regulatory Services
- Manager, Radiological Control
- Manager, SNF Construction
- Manager, SNF Project Basket Production, DynCorp
- Manager, Startup Integration
- Manager, Storage Subprojects
- Manager, Training
- Shift Manager, Canister Storage Building
- Shift Manager, CVD
- Vice President, SNF Project.

Observations

- SNF Project Movement Critical Path Meeting, November 3, 1999
- Deficiency Evaluation Group- Projects
- Work Integration Team Meeting
- Weekly Safety Meeting – MCO Basket Subproject.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.*

MS-1-039-00, *ISMS Description*, refers to HNF-3352, *Spent Fuel Project Execution Plan (PEP)*, as defining roles and responsibilities within the SNF Project. HNF-3352 is a comprehensive

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FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.2 DATE: 11/18/99
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description of the work scope, execution strategy, organizational structure, and roles and responsibilities. HNF-3352 defines roles and responsibilities for safety for the different groups within the SNF Project organization and for management and workers.

HNF-3352, Section 13.1 defines the responsibility for safety for both managers and workers. The responsibility of senior management is to be active and visible in all aspects of the safety program. Senior management is to be routinely involved in safety meetings and be present in the workplace. Line management is directly responsible for protecting the workers, the public, and the environment. Line management is to demonstrate their commitment to and responsibility for safety by being present in the work place and responsive to worker safety concerns. All employees are responsible for performing work in a safe, proper, and efficient manner. All employees have the authority to stop work when it is unsafe to proceed. The responsibilities outlined in HNF-3352 are consistent with HNF-PRO-075, *Safety Communications*, and HNF-PRO-074, *Safety Responsibilities*.

HNF-3352 defines the overall SNF Project organization that is responsible for the execution of all aspects of the project activities. Currently, the HNF-3352 states that all project activities are aligned under the direction of the SNF Project Director. HNF-3352 defines the roles and responsibilities for all the functional organizations reporting directly to the Project Director. Roles and responsibilities are further defined through charters for those managers reporting directly to the Project Director and for managers reporting to the Operations Manager. The current SNF Project organization has changed since HNF-3352 was approved, the organizational changes for the most part are relatively minor, with the exception of the position of Vice President (VP), SNF Project.

Neither the HNF-3352 nor HNF-MP-001, *Management and Integration Plan* addresses the recently created position of VP, SNF Project. Within the revised organization chart, the VP and Project Director are shown in the same box. Both the VP and the Acting Project Director were interviewed, and both could clearly articulate the division of roles and responsibilities between their respective positions. The job descriptions for the VP and Project Director hold both accountable for executing the work in a manner that ensures the safety of the work force, general public, equipment, and the environment. (MG.2-1)

HNF-3352 does not adequately describe the roles and responsibilities of the Startup Testing group. There have been two memoranda written to define the relationships and responsibilities of the Startup group, and a third revision is being prepared. The roles and responsibilities between various groups (Construction, Operations, Engineering and Startup) need to be resolved. (See SME.6 Assessment Form)

Interviews with line managers indicated they have a proficient understanding of their responsibilities for ensuring safety in the execution of their work. Senior and line managers emphasized worker safety and individual accountability. The Acting Project Director articulated his goal of inculcating the principles of ISMS into the everyday thought processes of employees.

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OBJECTIVE: **MG.2**

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All the managers interviewed took their responsibility for safety seriously and demonstrated a commitment to ISMS. The managers spoke positively of the team aspects of ISMS and that it made good business sense.

An interview was conducted with the SNF Construction Manager, CSB Project Manager, and the FDNW Construction Manager to verify how the various roles are integrated and how the safety responsibilities at the construction site are executed. All three managers understand their responsibilities for safely managing work. The SNF Construction manager stated that there can only be one owner of a facility and until the "Greenfield" facilities are turned over to Operations, his organization was the owner.

Both the SNF Construction Manager and the CSB Project Manager stated that while they were responsible for overall management of the project, the FDNW Construction Manager has day-to-day responsibility. The FDNW Construction Manager agreed with their statements. The FDNW Construction Manager clearly stated that any group (Construction, Startup, Operations) wishing to do work must comply with the FDNW requirements. FDNW is responsible for authorizing all work within the facility; this generally involves assessing all the proposed work and making a determination of what work can be safely executed without creating a hazard for other on-going work. Work execution and work priority conflicts between organizations are resolved by the FDNW Managers, in consultation with the CSB Project Manager. A follow-up interview with the FDH CVD Project Manager confirmed the same understanding as to the FDNW role and responsibilities CVD project.

Criterion 2: *Facility or activity procedures specify that line management is responsible for safety.*

The SNF Project ISM System Description states in part that line management is responsible for implementing integrated safety management such that work is planned and executed in a safe manner in accordance with applicable requirements. This responsibility is also stated in HNF-PRO-074, which outlines the responsibilities of both line management and supervisors for implementing safety. Section 3.0 of HNF-PRO-074 holds line management responsible for ensuring that implementation of hazards controls is adequate to ensure work is planned, approved, and executed in a safe manner. As noted in the recent FDH ISMS Phase I Verification, HNF-PRO-074 does not specifically reference the FDH ISMS plan. The SNF Project Safety Guiding Principles hold management accountable for preventing injuries.

HNF-3352, Section 13.0, "Safety Health and Environment" hold line management directly responsible for protecting the public, workers, and the environment. Line management is responsible for providing the necessary resources to effectively address safety considerations. The SNF Project management is responsible for the safety of employees by implementing the requirements for assessing work-related hazards in accordance with HNF-PRO-079, *Job Hazards Analysis*, and AP MN-7-004, *Pre-job Briefings*.

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Interviews were conducted with line management organizations from FDH, FDNW and DynCorp. FDH retains the responsibility for the overall safety at the construction sites and at the fabrication shop. DynCorp provides management and fabrication services for the MCO baskets. The fabrication shops are located in the 300 Area. FDNW is responsible for safety at the CSB and CVD construction sites. The FDNW and DynCorp managers clearly understood that they are responsible for safety.

The DynCorp manager holds a weekly safety meeting with all shop personnel. The meeting was well run and the importance of safety was stressed. The manager did a good job getting everyone involved in the meeting. Upcoming activities were discussed and comments and ideas for improvement were solicited from the shop personnel. The importance of proper control of material and scrap to maintain a clean shop and controlling costs was discussed. The manager also discussed the on-going health monitoring of the welder working on copper. The welder will be fitted with a mask to monitor his exposure to fumes resulting from brazing copper and will remain on-mask for that activity until the test results come back. The manager ordered this process to ensure the health of the welder.

Criterion 3: *Procedures and/or mechanisms are in place that ensure personnel who supervise work have competence commensurate with their responsibilities.*

The SNF Project ISM System Description references AP TN-8-001-07, *General Training Administration*, which provides specific training requirements. The procedure states in part that the SNF Project Director is responsible for ensuring Project personnel are adequately trained to perform their assigned work and that their training is maintained current. Line management is responsible for ensuring that their personnel meet established training and proficiency requirements. Line managers are required to periodically review qualifications and certification programs to ensure that these programs are current and address the safety analysis report, technical safety requirements, procedures, and regulations. The SNF Project Training Manager, in conjunction with Training Services, is responsible for providing line management with support necessary to ensure that personnel are qualified to safely and effectively execute their job assignments. Interviews with senior and line management demonstrated their ownership of the requirements of this procedure.

AP TN-8-014-03, *Person in Charge (PIC) and Field Work Supervisor Qualifications Programs*, applies to the training and qualifications of personnel performing the duties of job sponsor and fieldwork supervisor. The PIC and Field Work Supervisor must meet minimum entry level education and experience requirements. They are provided with general facility training, initial training, and continuing training. The procedure requires the use of qualification cards, which must be signed by the Training Coordinator and line management.

A line of inquiry as to the qualifications, certification and training of recently hired shift managers was pursued with the CVD Operations Manager and the SNF Training Manager. The CVD Operations Manager has issued long-term order, LTO-CVD-99-001, which defines the

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requirements and process for a Shift Manager to become provisionally qualified and to eventually become fully certified. The Shift Manager's qualifications are provisional until the CVD is turned over to Operations and the shift managers can go through systems checkouts. The LTO followed the process outlined in TN-8-001, *General Training Administration*, and TN-9-005, *Facility Operations Personnel Training Requirements*. In determining the training needs for a Shift Manager assigned to CVD, the Operations Manager stated that he and his staff, based on their knowledge of the facility, equipment, process flow and safety analysis report analyzed the functional and job requirements for each position. From that analysis, specific training requirements for working at the CVD were identified. As the responsible manager, he worked with the training department to set the training objectives and the performance measures for each CVD-specific training course. He reviewed all training material and approved all test questions in the test bank. The training process includes in-field training and testing. Job performance measurements (JPM) are established and in-field tests are conducted to measure an operator's response to simulated field conditions. In-field tests will include faulted conditions to test operator's response to off-normal conditions. The job descriptions, qualifications, required reading list, and qualification cards for shift managers were consistent with assuring the shift managers were qualified to supervise work.

An interview with the SNF Training Manager confirmed the CVD Operations Manager description of the training process. The Training Manager affirmed that line management is responsible for identifying training needs, setting training objectives, and approving test bank questions.

The Training Manager described a new process that SNF is just now implementing to get senior management involvement in training. The Senior Training Council provides a formal structure for senior management to have direct involvement with the primary training and qualifications program, their respective line managers, and the training department. A SNF Project Training Advisory Committee was also recently established. This committee provides a formal structure for line management to control the content, schedule, administration, and effectiveness of their training programs. These committees have not been in place long enough to make an assessment of their effectiveness.

Interviews conducted with Shift Managers for the CSB and CVD confirmed that the processes for training and qualifications were being followed. Both managers understood their qualifications requirements and status. Their respective required reading lists were up to date.

Criterion 4: *Procedures and/or mechanisms are in place that ensure personnel performing work are competent to safely perform their work assignments.*

The SNF Project ISM System Description requires personnel to be trained and qualified to perform the work to which they are assigned. AP TN-8-001-07, *General Training*

Administration, contains requirements for the Training Implementation Matrix, which defines and describes the application, selection, and certification requirements for personnel appointed to

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the SNF Project. The responsible line manager is responsible to work with Training Services to ensure an appropriate training program is developed for each employee.

For specific job evaluations, HNF-PRO-079, *Job Hazard Analysis*, and AP MN-7-004, *Pre-job Briefings*, assure that hazards are identified, controls are developed, and the employees are informed of the hazards and work controls.

The SNF Training Manager provided an overview of the training process for new hires to the SNF Project. The process starts with the position description, which determines the entry-level education and experience requirements. The Operations Managers and the Training Department have completed the functional and job analysis and determined the basic training and qualification requirements for Shift Managers, Operating Engineers, and Operators. A review of the training records, required reading list and qualifications records indicated that the basic SNF training process is being followed.

The SNF Training Department recently completed a self-assessment to assess the criteria associated with the Operational Readiness Review and existing training programs. The assessment documented that the training program is meeting the basic requirements, but there was room for improvement. The report noted a need for improvement in line management involvement in training. Based on interviews with line managers and the training department, this issue has been corrected. Interviews with line managers and their personnel demonstrate line management involvement and a structure that has the potential to assure workers have the training to be competent to perform their work safely.

Conclusion

The SNF Project has sufficient procedures and/or mechanisms, such as the SNF Project Execution Plan, SNF ISMS Description, job descriptions, and SNF administrative procedures, which clearly define line management roles and responsibilities for safety. Interviews with various SNF line managers confirmed they understood their responsibility for safety. There are sufficient procedures and/or mechanisms, such as SNF administrative procedures and HNF procedures that require functional and job analysis to identify the educational, experience and training requirements to safely perform work. A review of personnel qualification records, training records and interviews confirmed that the process is being followed to ensure supervisors and workers are competent to safely perform their assignments.

This objective has been met.

Strengths:

None.

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FUNCTIONAL AREA: Management Oversight	OBJECTIVE: MG.2 DATE: 11/18/99
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Concerns:

HNF-3352 and HNF-MP-001, *Management and Integration Plan*, need to be updated to address the position of VP, SNF Project. (MG.2-1)

Submitted: <i>John B. Sullivan</i> John B. (Brian) Sullivan <i>Team Member</i>	Approved: <i>[Signature]</i> 11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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FUNCTIONAL AREA: **Management Oversight**

OBJECTIVE: **MG.3**

DATE: 11/18/99

OBJECTIVE

MG.3 - An integrated process has been established that ensures that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process. (CE I/II-7)

Criteria

1. Procedures and/or mechanisms are in place and used by personnel to collect feedback information, such as self-assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities.
2. Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels, as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is used to provide feedback and improvement during future similar or related activities.
3. Procedures and/or mechanisms are in place and used by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational, oversight, and assessment information into improvement processes and appropriate lessons learned.
4. Procedures and/or mechanisms are in place and used by managers to consider and resolve recommendations for improvement, including worker suggestions.
5. Procedures and/or mechanisms are in place, which include a process for oversight that ensures that regulatory compliance is maintained as required by rules, laws, and permits such as the *Price Anderson Amendment Act*; *National Environmental Policy Act of 1969*; *Resource Conservation and Recovery Act of 1976*; and the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, etc.
6. Procedures and/or mechanisms are in place and used by personnel to evaluate and analyze safety class, quality control, and procurement at the Facility and activity level.

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Approach

Record Review

- (PI) Review procedures to ensure that a process is established to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process.
- (PII) Review the performance monitoring documentation for the feedback and continuous improvement process. This should include such documents as occurrence reports, shift orders, deficiency reports, post-job reviews, safety observer reports, employee concerns programs, and reports of self-assessments.
- (PII) Review procedures for work to determine that adequate feedback and improvement mechanisms are in place at the individual maintenance or activity level.
- (PII) Review actual data from these processes to evaluate the effectiveness of the implementation of these mechanisms.
- (PII) Review the performance measures and performance indicators established to determine that these tools provide information that is truly a direct indicator of how safely the work is being planned.

Interviews

Interview personnel responsible for administering the feedback and continuous improvement progress. This should include personnel such as those responsible for occurrence reporting, lessons learned preparation, shift orders preparation, worker concerns program, self-assessment, and oversight. Interview personnel responsible for capturing and utilizing feedback and improvement information during individual maintenance or other work activities.

Observations

Observe development and utilization of feedback and continuous improvement activities. This should include such things as conducting post-job critiques, monitored evolutions, post ALARA reviews, conducting a self-assessment or independent assessments, etc.

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OBJECTIVE: **MG.3**

DATE: 11/18/99

Record Review

- AP MN-07-002-09B, *Work Control*, July 1, 1999
- AP MN-07-008-00, *AJHA Process*, June 10, 1999
- AP MS-01-007-02, *Goals and Performance Indicators*, April 3, 1999
- AP MS-01-032-01, *Commitment Management*, April 19, 1999
- AP MS-01-036-02A, *Management Assessment Program*, July 8, 1999
- AP MS-02-015-08, *Occurrence Reporting*, September 2, 1999 (On Hold)
- AP NS-1-019-02, *Reporting a Noncompliance with Codified Nuclear Safety Requirements*, Rev. 0, August 22, 1997
- DOP-10-024-03, *Test Deficiency Reports*, Rev. 3, November 5, 1999
- HNF-MP-599, *FDH Quality Assurance Program Plan*, Rev. 3, March 10, 1999
- HNF-PRO-052, *Corrective Action Management*, Rev. 2, August 3, 1999
- HNF-PRO-060, *Occurrence Reporting*, Rev. 2, September 3, 1999
- HNF-PRO-067, *Managing Lessons Learned*, Rev. 1, November 24, 1998
- HNF-PRO-2243, *Nuclear Safety Requirement Noncompliances*, Rev. 0, March 1, 1998
- HNF-PRO-246, *Management Assessment Program*, Rev. 2, October 25, 1999
- HNF-PRO-268, *Control of Purchased Items and Services*, Rev 5, October 19, 1999
- HNF-PRO-298, *Non-Conformance Reporting*, Rev. 2, October 6, 1999
- HNF-PRO-388, *Radiological Problem Reports*, Rev. 1, December 3, 1998
- HNF-PRO-410, *Resolving Employee Concerns*, Rev. 0, March 1, 1998
- HNF-PRO-4294, *Performance Indicators*, Rev.0, December 1, 1999
- HNF-PRO-653, *Deficiency Tracking System*, Rev. 1, July 12, 1999
- MS-2-016-03, *Managing SNFP Lessons Learned*, Rev. 3, June 08, 1999
- QA-11-004, *Non-conformance Reporting*, Rev. 2, November 12, 1999
- SNFP-MD-012, *Corrective Action Management*, Rev. 0, July 12, 1999.

Interviews Conducted

- Deputy Director, Project Interface and Compliance
- Director, Cold Vacuum Drying (CVD) Facility
- Director, Construction Projects
- Director, Quality Assurance
- Lessons Learned Coordinator
- Manager, Corrective Action Management
- Manager, Management Surveillance Activity
- Manager, Operations (KE)
- Manager, Operations (KW)
- Manager, Operations Support

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- Manager, Performance Improvement and Regulatory Services
- Occurrence Reporting Lead
- Regulatory Compliance Officer
- Shift Manager, Operations (KE)
- Vice President, Performance Assurance.

Observations

- Automated Job Hazard Analysis – KW
- Operations Deficiency Evaluation Group Meeting
- Projects Deficiency Evaluation Group Meeting.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms are in place and used by personnel to collect feedback information, such as self-assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities.*

Procedures and mechanisms are in place and used by personnel to collect feedback information. SNF Project has implemented AP MS-2-016-03, *Managing SNFP Lessons Learned*, to implement HNF-PRO-067, *Managing Lessons Learned*. The procedure provides guidelines for processing incoming lessons-learned documents and for generating lessons learned from events that occur. However, the procedure does not provide an expectation as to what events feed the lessons-learned process. For example, paragraph 5.2, "Generating a Lessons Learned," states "sources that should be screened for applicability should include occurrence reports, critiques, root cause analyses, etc." The procedure does not ensure onsite activities, such as Enhanced Work Planning (EWP)/Automated Job Hazard Analysis (AJHA), post-job reviews, and classroom and mock-up training are fed into the lessons-learned program. **(MG.3-3)**

SNF Project has implemented AP MS-1-036, *Management Assessment Programs*, to implement HNF-PRO-246, *Management Assessment Program*, to identify improvement opportunities during the management review process. Management assessments are scheduled quarterly and are assigned to each program manager. The procedure states that deficiencies identified during this process will be addressed in accordance with HNF-PRO-052, *Corrective Action Management*. As such, evaluation and trending of assessment results will be documented.

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The SNF Project has implemented AP MS-1-020, *Readiness Determination Process*, to establish a process to prepare the Project for Operational Readiness Reviews (ORR) and subsequent operations. The procedure specifies that any pre-start and post-start deficiencies will be addressed with a corrective action plan. Initially, the deficiencies were entered into the Problem Investigative Process for trending. With the latest revision to HNF-PRO-052, these issues are now being evaluated by a Deficiency Evaluation Group (DEG). This provides tracking, trending, and lessons learned determination if the risk rank value is greater than zero.

FDH has established the Facility Evaluation Board (FEB) to perform independent program assessments across the site. This has been formalized in the FEB Charter issued on November 14, 1997. The charter establishes the expectation of an independent oversight group that utilizes established performance objectives and criteria. The FEB evaluates activity level performance and programmatic or functional areas of Environment, Safety, Health & Quality (ESH&Q) when required. The Charter does not distinguish between operational facilities and Greenfield activities.

Worker input into the work activity occurs on several levels. The EWP and AJHA processes specify the need for worker participation in planning for a work activity. These processes are implemented by AP MN-7-002, *Work Control*, and AP MN-7-008, *AJHA Process*, respectively. Stop-work authority is granted for all employees when an unsafe condition is identified. Additionally, a Worker Assessment (WA) form is provided to allow any employee to identify issues that potentially impact worker safety or a specific work activity. If a deficiency is identified, then it is tracked via the corrective action management (CAM) system.

Other deficiency documentation processes available to workers include Test Deficiency Reports (TDR), Non-Conformance Reports (NCR), and Radiological Problem Reports (RPR).

OP-10-024-03, *Test Deficiency Reports*, establishes a process by which nonconformances that are identified during the testing program are identified, resolved, tracked and closed. The procedure does not provide a process by which a TDR is evaluated to determine if a process type testing deficiency exists, and as such, should be evaluated by the DEG in accordance with HNF-PRO-052 in addition to resolving the TDR. As a result, appropriate testing deficiencies are not factored into the Site and Project lessons-learned program. (MG.3-4)

The NCR process, as implemented through HNF-PRO-298, *Non-conformance Reporting*, and AP QA-11-004, *Non-conformance Reports*, was recently modified to provide a distinction between nonconformance items that require resolution through the normal NCR resolution process and those that also have SNF Project process-related issues that need to be evaluated as part of a DEG. The NCR coordinator determines what level of evaluation is to be performed. The fundamental criterion on which the evaluation is based is whether or not the nonconformance was identified at the first SNF Project barrier (i.e., Quality Control inspection after fabrication or receipt inspection of new material from offsite vendors). As noted in Criterion 5, all NCRs receive a Price Anderson Amendment Act (PAAA) evaluation.

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The SNF Project implements a RPR program through HNF-PRO-388, *Radiological Problem Reports*. A waiver to the procedure was issued in August 1999, to facilitate the interface between the RPR program and the CAM system. This new process allows for the documentation of radiological deficiencies, evaluation by the DEG of the issues, and then tracking and trending by DTS for those items that receive a risk/ranking greater than zero. The DEG process provides a feedback loop into the lessons-learned program.

Occurrence reports are managed in accordance with HNF-PRO-060, *Reporting Occurrences and Processing Operations Information* and AP MS-2-015-08, *Occurrence Reporting and Processing of Operations Information*. The process specifies that the initial notification reports be sent along with appropriate critique reports to the DEG for evaluation. If the risk rank value is greater than zero, then the Deficiency Tracking System (DTS) provides tracking, trending, and evaluation for lessons learned.

The Employee Concerns Program is functional and appropriately documented. It is implemented on the SNF Project through HNF-PRO-410, *Resolving Employee Concerns*. The requirement to maintain anonymity is appropriate and issues are worked to closure.

SNF Project has two high-level management self-assessment activities. These activities provide information relative to the implementation of program requirements across the project. The programs are Management Assessment (MA) and Management Self-Assessments (MSA).

The MA program provides an evaluation of the implementation of program requirements and is the responsibility of program managers to perform. During discussions, it was stated that other than the results of some training reviews entered into the CAM system via the Worker Assessment form, no issues have been identified that were "significant" enough in nature to be captured in the CAM process. It should be noted that internal and external assessments continue to find issues that are significant in nature. As such, the rigor with which MAs are performed needs to be improved. **(MG.3-5)**

The MSA program provides a very detailed look at the projects preparation for operations. It will serve as a primary element in the Contractor's declaration of readiness to move fuel prior to the Contractor and DOE Operational Readiness Review. The project recently completed an initial evaluation using the MSA criteria. The review was designed to evaluate where the project is relative to implementation of all requirements, serve as a validation of the MSA criteria, and expose the management team to the level of effort required to perform the MSA prior to declaring readiness. The dry run of the MSA program was successful in meeting its objectives. Weaknesses identified during this process are being addressed. It should be noted that because this activity was performed prior to July 12, 1999, significant deficiencies identified during the MSA work up were documented in the Process Improvement Plan process and as such were included in the CAM tracking system. **(MG.3-1)**

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The FEB is part of the FDH Performance Assurance Group and is responsible for providing independent oversight of the SNF Project. In 1998, the FEB's review of the SNF Project only evaluated the operations at the K-Basins. The construction projects were not included in the review. In 1999, the scheduled assessment was not performed due to work activities associated with the Secretary of Energy's Compliance Order corrective actions. Although some independent surveillance activity has been performed by SNF Project QA and Occupational Safety, an independent assessment covering the construction projects management systems and all related supporting activities has not been performed as required in at least the past 2 years. (MG.3-6)

Mechanisms are in place and used by managers to consider and resolve recommendations for improvement. These mechanisms include NCRs, TDRs, RPRs, and WA forms. All of these processes, with the exception of TDRs, interface with the FDH/SNF Project CAM system.

NCRs are generated primarily from three sources: project activities, receipt inspections, and AI inspections. NCRs generated on the SNF Project are coordinated by the Project's NCR coordinator. NCRs generated during receipt inspection and AI inspections are coordinated by the respective organizations. Neither the AIs nor the Acceptance Verification Services Group is evaluating the applicability of the CAM process to their NCRs. They are relying on the Project Management group to provide that function. (MG.3-7) Additionally, the AIs routinely provide issues to Project QA for them to document. As such, those issues do not get evaluated against the criteria of HNF-PRO-298 for first barrier applicability in that they were identified by the Government AI instead of the project.

A second concern noted with the process is how deficiency reports (DR) issued by the RL Acceptance Inspector (AI) are handled. The DR does not have a procedure within the SNF Project as to how it should be administered and aligned to the CAM system. Based on discussion with the AIs, the DRs can be issued for two purposes.

- The first purpose is a "heads-up" to construction management that a material defect exists and that if it is still there during a formal AI inspection, it will result in a nonconformance in the product (paper or material). This is an in-process review and does not require an evaluation by the DEG. However, it may require the contractor to take some action such as an NCR, Design Change Notice (DCN), or Request for Information (RFI) to remedy the issue.
- The second purpose of the DR can be to document a material or process deficiency that the AI has identified that is past the point of the first barrier. This is usually done for Quality Level 3 systems. This could include material defects identified during a formal AI inspection or a process deficiency identified during a surveillance. For example, an RFI that was not properly resolved by the Design Authority will have a material component that needs to be documented and resolved via the NCR program and a process component that needs to be evaluated by a DEG.

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The current resolution process does not ensure proper evaluation, resolution, tracking and trending of issues identified via a DR by the AI. (MG.3-8)

The occurrence report process is being effectively implemented. The team is using the information that comes out of the DEG to develop cause codes and long-term corrective action. The individuals preparing the occurrence reports consider recent changes to the CAM and DTS systems to be positive in understanding and dispositioning of the issues. They also considered the changes a plus for the lessons learned activity because of the increased confidence they place on the evaluation process by the DEG.

Criterion 2: *Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels, as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is used to provide feedback and improvement during future similar or related activities.*

SNFP-MD-012, *Management Directive*, specifies that HNF-PRO-052 be implemented by SNF Project employees and subcontractors for reporting deficiencies and subsequent corrective action requests. HNF-PRO-653, *Deficiency Tracking System*, is implemented by HNF-PRO-052. Together, they provide an effective process to identify and manage deficiencies to closure. This process ensures that on a graded approach, root cause analysis is performed, corrective actions are established, and worked to resolution and then the closure and effectiveness of the actions taken are evaluated. These processes were revised in response to the recent Secretary of Energy Compliance Order.

As part of the CAM process, HNF-PRO-052 specifies that a FDH Team evaluate each deficiency. The purpose of the evaluation includes a determination of a clear understanding of the condition, the risk-rank value, evaluation for lessons learned, determination of root cause analysis methodology, and documenting immediate/compensatory actions taken. Based on discussions with SNF Project CAM personnel, as a result of the DEG evaluation, items will either be entered into the DTS or for those SNF Project issues that did not meet the threshold level for entry into DTS and still contain actions that require follow-up, the project uses Commitment Tracking System (CTS). As part of the DTS, trending is performed on significant issues that have met the minimum requirements of the CAM system for entry into the database. Performance indicators are provided monthly by the central CAM organization identifying Hanford Site-wide and project-specific trends.

The SNF Project has established a process for documenting deficiencies that are identified during a testing program in procedure OP-10-024-03, *Test Deficiency Reports*. This procedure does not include a mechanism for trending of the issues identified by this process nor for forwarding the results of the trending activity to the Hanford Site and project lessons learned program. (MG.3-4)

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Procedures are in place to develop feedback and improvement information opportunities at the facility and individual maintenance and activity level. The AJHA process requires that the population of applicable lessons learned be considered in the planning of the work activity. Currently, the AJHA process only provides automated access to the Hanford Site-wide lessons learned program. Any access to the SNF Project lessons learned program must be performed manually.

The SNF Project procedure for managing lessons learned, AP MS-02-016-03, does not provide sufficient direction as to when lessons learned should be applied to a work activity. For example, paragraph 5.1.e. specifies that when new activities are being planned, the Lessons Learned Point of Contact (LLPOC) should be contacted to review the electronic reading file to find lessons learned related to those activities. Paragraph 5.3 expands the above direction to include an ALARA review. However, the procedure lacks similar direction for work activities that have been performed before. (MG.3-9)

The Work Control procedure, AP MN-07-002, specifies that Operations should collect lessons learned from work and maintenance activities for use on future, similar-in-nature work activities. However, the Managing Lessons Learned procedure, AP MS-02-016-03, does not address the practice of Operations collecting lessons learned from work and maintenance activities on J-5 forms and post-job reviews and maintaining that information in a database for planners to access when planning jobs and maintenance activities. As a result, there is no driver to roll the lessons learned up for use by the rest of the facility and/or the Hanford Site. (MG.3-10)

AP MS-1-007, *Goals and Performance Indicators*, implements HNF-PRO-4294, *Performance Indicators*. Performance Indicators (PI) are widely used across the SNF Project. In Operations, the indicators cover performance in areas such as personnel safety, radiation exposure, occurrences, and work completion. PIs also address project management, construction projects, testing, start-up activities, engineering, and CAM. In discussions with the Manager, PI, it was stated that the project felt it had the correct population of PIs but needed to revise AP MS-01-007 to cover the indicators in use and to address the recent revision to HNF-PRO-4294. This revision is expected to be complete in January 2000.

As part of the CAM process, HNF-PRO-052 specifies that a FDH Team evaluate each deficiency. The purpose of the evaluation includes a determination of a clear understanding of the condition, the risk rank value, evaluation for lessons learned, determination of root cause analysis methodology, and documenting immediate/compensatory actions taken. During an Operations DEG meeting for a procedure violation, the Operation's position on the violation was weak. It took input from the Regulatory Compliance Officer for the most correct risk rank value to be assigned. Operations did not bring the critique report on the deficiency, did not demonstrate an appreciation of the importance of the pre-job briefing relative to preventing this type of deficiency and did not demonstrate an understanding of how the Field Work Supervisor (FWS) should have executed a step-by-step procedure. It should be noted that this FWS had been trained on proper job control techniques in response to the Secretary of Energy's

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Compliance Order. It should also be noted that Operations personnel were not aware that FDH had recently issued an National Tracking System (NTS) report relative to a Hanford Site-wide issue of not following work control procedures.

A second DEG was slow in recognizing another procedure violation. The SNF Project did not ensure that a trained critique leader chaired a critique. This is another example of failure to comply with corrective actions put in place by FDH in response to the Secretary of Energy's Compliance Order.

Operations and Project participants in two DEG meetings did not demonstrate an understanding of the significance of the procedure violations being evaluated. (MG.3-11)

Based on review and demonstration, the job planning process effectively uses the lessons learned maintained by the SNF Project LLC, the site LLC, and J-5 and post-job review information filed in completed work procedures. This activity appears to be institutionalized even though it is not recognized by AP MS-02-016-03 as discussed above.

During an AJHA work activity, it was noted by the team that while the group was intent upon improving the work activity, it was not clear that they were sufficiently knowledgeable of the EWP/AJHA process to make it successful in a timely and efficient manner. The work procedure and package needed significant revision because of the location of the basin ion exchanger and additional interference. Examples of some issues include the following:

- No one was aware of how much water to expect from the joints that were to be broken. This is important when determining the type of radiological containment and drain assembly that will be required.
- A discussion was held regarding whether the effort of revising the procedure should be held before the hazard analysis activity, be done at the same time or should be accomplished in a separate meeting. The Radiological Control representative stated that he had a lot of issues with the procedure but didn't come prepared to discuss them in that meeting. The operations representative was probably the most prepared for the activity of changing the procedure to reflect actual field conditions.

Since the AJHA process is relatively new, it would have a greater chance of success if there was a knowledgeable mentor present to help the people understand the tool. Lockheed Martin Hanford Company (LMHC) used a mentor very effectively, resulting in both meaningful AJHAs and training of the participants in the expectations.

A SNF Project commitment on the FY-1999 Performance Improvement Plan was to provide PIs for regulatory compliance issues. In response to RL, it was stated that the project was not going to develop specific PIs but would monitor the regulatory significance of occurrence reports. This

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approach does not result in monitoring the population of regulatory issues that do not result in an occurrence report. Additional effort is required by SNF Project and FDH to provide meaningful performance indicators for quality-related minor PAAA issues. (MG.3-12)

The SNF Project recently determined that NCRs that were identified at the first Project barrier would not be evaluated by the DEG. During a discussion of the interface between the CAM system, nonconformance reports, and PAAA screenings, it was clarified that NCRs that are screened as a minor or NTS reportable will go to a DEG and be tracked and trended. This action is in lieu of any original evaluation that the NCR did not require a DEG review.

Criterion 3: *Procedures and/or mechanisms are in place and used by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational, oversight, and assessment information into improvement processes and appropriate lessons learned.*

The SNF Project has issued AP MS-2-016-03 to implement HNF-PRO-067. This process provides for the sharing of information with the Hanford Site LLC and for maintaining a database for dissemination and use on the SNF Project. Once a lessons learned has been issued, it is up to the facility/organization manager to initiate appropriate actions if they think the lesson applies to them. Unlike the FDH lessons-learned procedure, the SNF Project procedure requires feedback as to whether or not the lesson learned applies, actions associated with addressing the lessons learned, and disposition of the lesson. (MG.3-2) Collection and use of lessons learned at the facility/planner level are discussed in Criterion 2 above.

The overall process for dissemination of lessons learned information is effective. The majority of recent lessons learned information is coming from the DEG reviews being performed for CAM. There is a slight backlog of issues that need to be entered into the system. The project may want to apply additional temporary support to this activity until it has caught up with the influx of issues resulting from implementing the revised CAM system.

Criterion 4: *Procedures and/or mechanisms are in place and used by managers to consider and resolve recommendations for improvement, including worker suggestions.*

The SNF Project has several tracking systems depending on the nature of the deficiency and how it has been captured. The SNF Project implements HNF-PRO-653 for the deficiencies that receive a DEG review and are risk ranked greater than zero. This provides a tracking mechanism for all issues that are entered into the system in accordance with HNF-PRO-052. This process monitors an issue from the time it is entered, through evaluation, closure, and then validation.

Other deficiency systems such as RPRs, NCRs, and TDRs have their own tracking systems in accordance with their implementing procedures. Like DTS, these systems track an issue to closure.

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Criterion 5: *Procedures and/or mechanisms are in place, which include a process for oversight that ensures that regulatory compliance is maintained as required by rules, laws, and permits such as the Price Anderson Amendment Act; National Environmental Policy Act of 1969; Resource Conservation and Recovery Act of 1976; and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, etc.*

The implementing procedures for CAMs that flow down from FDH procedures reflect a strong commitment for regulatory compliance. All deficiencies identified that have regulatory significance are required by procedure to be handled in accordance with HNF-PRO-052. The PAAA screening process is procedurally required to be a part of the DEG process. Procedures also specify that regulatory issues be tracked and trended to identify issues that individually are minor in nature but who represent a significant issue in the aggregate. The project sensitivity to regulatory issues has improved as a result of the Secretary of Energy's Compliance Order.

Overall, the SNF Project is implementing the procedures designed to meet PAAA regulatory compliance. Compliance with *Resource Conservation and Recovery Act of 1976* and the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* programs is covered in the SME.5 Assessment Form.

Based on discussions with Process improvement personnel, the SNF Project is going to use the output of the FDH DTS to track and trend minor nuclear regulatory issues. This ability is a recent improvement to DTS and the project has been waiting for FDH to provide information on a server that can be accessed by the project to facilitate trending. During discussions with FDH CAM personnel, it was identified that trending information was recently provided to the President's Quality Council. The regulatory compliance officer manager, CAM was not aware of the PIs. This issue was previously discussed in MG.3-11.

Criterion 6: *Procedures and/or mechanisms are in place and used by personnel to evaluate and analyze safety class, quality control, and procurement at the Facility and activity level.*

Procedures are in place and used by personnel to evaluate and analyze safety-related procurements in support of the SNF Project. The SNF Project quality assurance program plan properly implements the flow down of requirements from HNF-PRO-599.

As a result of actions taken in response to the Secretary of Energy's Compliance Order, the SNF Project has taken significant action to implement improvements in the application of quality requirements for Quality Level 1, 2, and 3 procurements. Recent project activity in response to deficient material in the Integrated Water Treatment System procurement demonstrates this improvement.

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One long-standing RL issue that FDH has recently reported into the NTS is the application of the PAAA and supporting QA programs to Systems Structures and Components in the General Service category that meet the criteria as radiological facility or support system to contain radioactive material. Although procedures are not in place to capture that population of equipment, FDH is working the issue to closure.

Conclusion

The SNF Project has established and implemented feedback mechanisms to gather, analyze, and closeout issues. However, concerns were identified in areas where data are not input into the feedback process for trending/analysis, overdue independent assessments, and discrepancies in the handling of AI inspection deficiencies.

This objective has been met.

Strengths:

- An MSA dry run process was implemented to evaluate where the project is relative to implementation of all requirements, serve as a validation of the MSA criteria, and expose the management team to the level of effort required to perform the MSA prior to declaring readiness. The dry run met its objectives. (MG.3-1)
- The SNF Project procedure requires recipients to provide feedback as to whether or not the lesson learned applies, actions associated with addressing the lessons learned, and disposition of the lesson. This is an enhancement to the FDH Managing Lessons Learned procedure. (MG.3-2)

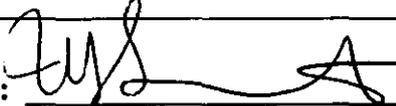
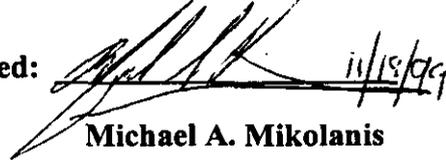
Concerns:

- The SNF Project Managing Lessons Learned procedure does not ensure onsite activities, such as EWP, AJHA, post-job reviews, and classroom and mock-up training are fed into the lessons learned program. (MG.3-3)
- The TDR procedure does not provide a process by which a TDR is evaluated to determine if a process type testing deficiency exists, and as such, should be evaluated by the DEG. Testing deficiencies are not trended and factored into the site lessons learned program. (MG.3-4)
- Other than training issues, the MA process is not identifying problems/issues for evaluation by the DEG. (MG.3-5)

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- Although some independent surveillance activity has been performed by SNF Project QA and occupational safety, an independent assessment covering the construction projects management systems and all related supporting activities has not been performed as required in at least the past 2 years. **(MG.3-6)**
- Neither the AI nor the Acceptance Verification Services Group are performing an evaluation of their respective NCRs to determine if they should be evaluated by a DEG as required. **(MG.3-7)**
- The current Deficiency Report resolution process does not provide for proper evaluation, resolution, tracking and trending of issues identified by the AI. **(MG.3-8)**
- The SNF Project Managing Lessons Learned procedure (AP MS-2-016-03) does not provide an expectation that lessons learned be used when planning work activities that have been performed before. **(MG.3-9)**
- The SNF Project Managing Lessons Learned procedure (AP MS-2-016-03) does not address the practice of Operations Planners using information collected on J-5 forms and post job reviews during the planning process as a lessons learned tool. **(MG.3-10)**
- It was noted during two DEG meetings that some operations and project personnel did not demonstrate an understanding of the significance of the procedure compliance issues. **(MG.3-11)**
- Additional effort is required by SNF Project and FDH to provide meaningful performance indicators for minor quality-related PAAA issues. **(MG.3-12)**

<p>Submitted: </p> <p align="center">William L. Smoot <i>Team Member</i></p>	<p>Approved:  11/18/99</p> <p align="center">Michael A. Mikolanis <i>Team Leader</i></p>
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FUNCTIONAL AREA: Operations Work Planning	OBJECTIVE: OP.1 DATE: 11/18/99
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OBJECTIVE

OP.1 - (Work-Planning). An integrated process has been established and is used to effectively plan work for the facility or activity. (CE I/II-6)

Criteria

1. Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual activity level and fully analyzes hazards and develops appropriate controls.
2. Procedures and/or mechanisms are in place that ensure safety requirements are integrated into work planning.
3. Workers actively participate in the work planning process. (OP.1 c6)
4. Procedures and/or mechanisms demonstrate effective integration of safety management.

Approach

Record Review

- Review documents and/or mechanisms that govern the process for planning work with emphasis on the individual maintenance or activity level.
- Evaluate the adequacy of the division of responsibilities, worker involvement, and work planning process.
- Review the mechanisms used to prepare and maintain AAs for the SNF Project.
- Review these documents to determine if they are adequate, that they demonstrate effective integration, and that proper procedures were followed to prepare, review, and approve them.

Interviews

- Interview personnel responsible for authorizing, performing, and measuring the performance of the work. This should include personnel such as those responsible for preparing and maintaining documents such as the Plan of the Day (POD), equipment status files, pre-job briefings, and the conduct of facility or activity operations.
- Interview personnel responsible for development of maintenance or individual activity procedures and controls.
- Verify adequate worker involvement at each step of the process.

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Observations

- Observe the actual work planning processes and activities supporting the work planning, i.e., resource availability, training and qualifications of resources, Employee Job Task Analysis, and EWPs. This should include such items as pre-job briefings, AJHA pre-job walk downs, work improvement team meetings, review of safety requirements, etc.
- Observe work hazard identification activities. This should include such things as validation of procedures, procedure tracking, compensatory measures determination, etc.

Record Review

- 1K-99-2915, *Work Package*, September 13, 1999
- AP MN-7-001-02, *Preventative Maintenance and Surveillance (PM/S) Module*, September 24, 1999
- AP MN-7-002-09B, *Work Control*, October 22, 1999
- AP MN-7-004-01, *Pre-job Briefings*, August 3, 1998
- AP MN-7-005-02, *Roles and Responsibilities Person in Charge (PIC) and Field Work Supervisor*, August 26, 1999
- AP MN-7-008-00, *AJHA Process*, June 10, 1999
- AP MS-026-00, *Authorization Agreement*, June 18, 1999
- AP MS-9-001-04, *Technical Procedure Administration*, January 29, 1999
- AP MS-9-002-06, *Technical Procedure Development*, September 10, 1999
- AP NS-4-001, *Unreviewed Safety Question*, July 13, 1999
- AP NS-4-005-10, *SNF Safety Basis Performance Assurance Process*, July 7, 1999
- AP OP-10-009-00, *Release to Operations*, November 14, 1997
- AP OP-1-021-01, *Master Work Plan Implementation*, May 10, 1999
- AP OP-2-011-07, *Routines and Operating Practices*, August 13, 1999
- Fluor Daniel Northwest Construction Work Package, Practice 134 500 8330, September 20, 1999
- HNF-3552, *Spent Nuclear Fuel Project, Project Execution Plan*, Rev. 0.A, February 22, 1999
- HNF-IP-1217, *Work Management Guidance*, September 30, 1998
- HNF-MP-003, *Integrated Environmental Safety and Health Management System Plan*, Rev. 2, September 1, 1999
- HNF-PRO-079, *Job Hazard Analysis*, Rev. 4, June 11, 1999
- HNF-SD-SNF-RD-001, *Spent Nuclear Fuel Project Standards/Requirements Identification Document*, Rev. 2, August 24, 1999
- Integrated Safety Management System Verification Spent Nuclear Fuel Project K Basins Follow-up Phase I/Phase II Gap analysis Report, June 1999
- K Basins Phase I Integrated Safety Management Verification Final Report, April 20, 1998

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- SNF-MIP-001, *Maintenance Implementation Plan*, September 27, 1999
- *Spent Nuclear Fuel Project ISMS Description*, September 9, 1999.

Interviews Conducted

- Construction Superintendent
- Health Physics Technician (HPT)
- Manager, Construction (2)
- Manager, Construction Projects
- Manager, Deputy Operations
- Manager, FDNW SNF Project
- Manager, Integrated Scheduling
- Manager, K Basins Projects
- Manager, Maintenance
- Manager, Operations
- Manager, Planning
- Manager, Training & Procedure
- Nuclear Chemical Operator (NCO) (3)
- Person in Charge (PIC)
- Planner (3)
- Shift Manager.

Observations

- AJHA meeting, November 8, 1999
- Several work status meetings, November 8, 10-11, 1999
- Phased Start-up Initiative pre-job meeting, November 9, 1999
- Pre-shift meeting, November 12, 1999
- Shift Manager work release, November 12, 1999
- Application of a lock and tag, November 12, 1999
- Informal OJT on appropriate radio use, November 12, 1999
- Entry of empty/unused waste box into contamination area, November 12, 1999
- Removal of a valve in a contamination area, November 12, 1999
- Installation/rerouting of conduit in a contamination area, November 12, 1999
- Adjustment of skimmer weir, November 12, 1999.

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Discussion of Results

For the purposes of this report, the Canister Storage Building (CSB) and the Cold Vacuum Drying (CVD) Facility will be addressed separately. K Basins construction projects are an integral part of the Basin work control process.

Criterion 1: *Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual activity level and fully analyzes hazards and develops appropriate controls.*

Procedures and mechanisms are in place to ensure that work planning is integrated at the individual activity level, hazards are fully analyzed and controls are appropriately developed (guiding principles 5 and 6). AP MN-7-002-09, *Work Control*, lays out the direction and guidance to accomplish these expectations. AP MN-008-00, *AJHA Process*, provides an excellent tool for ensuring adequate identification and analysis of hazards and the implementation of controls at the activity level. AP MS-9-002-06, *Technical Procedure Development*, controls the development and upgrade of the Operations procedures used to perform work in the K Basins by Operations (routines, lock and tag, data collection, etc.). This procedure provides direction and guidance for analysis of hazards and identification of appropriate controls, including the use of the (Automated Job Hazard Analysis) AJHA. Interviews with Operations Management clearly demonstrated support to the work planning process and use of the AJHA.

Interviews with the SNF Construction Manager, the FDNW Project Manager, the CSB FDNW Construction Manager, and CVD Construction Manager indicate that processes are in place that ensure work planning is integrated at the activity level that analyzes hazards and develops appropriate controls for both the CSB and CVD. The CSB use the FDNW Work Package Procedure for part of this process.

Work planning is integrated at the individual activity level. Implementation of activity level integration is required by AP MN-7-002-09. The planning meetings and the Shift Manager's release of work packages and operating practices as described in AP MN-7-002-09 and AP OP-2-011-07, *Routines and Operating Practices* are key mechanisms for integration of work. Successful implementation of integrated work planning was confirmed by observation of daily scheduling meetings and work release by Shift Managers. Analysis of hazards and development of appropriate controls is also required by the work control and operating procedure processes as described in AP MN-7-002-09 and AP MS-9-002-06. Adequate analysis of hazards and development of controls was established by interviews with Shift Managers, observation of the AJHA process, and review of completed work packages. The AJHA process is described in HNF-PRO-079, *Job Hazard Analysis* and AP MN-7-004-01, *Pre-job Briefings*.

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Criterion 2: *Procedures and/or mechanisms are in place that ensure safety requirements are integrated into work planning.*

Procedures and mechanisms are in place to ensure safety requirements are integrated into work planning (guiding principles 5 and 6). AP MN-7-002-09, is the main tool for integration of safety requirements in the work control process. This procedure requires the use of Job Hazard Analysis (JHA) for all planned work at the K Basins. For work activities that are "complex" or "medium/high risks," detailed work planning utilizing the AJHA (AP MN-7-008) and the Enhanced Work Planning (EWP) process is required. AP MS-9-002-06 drives the incorporation of applicable safety requirements into Operations procedures, including the use of the AJHA process as appropriate.

Interviews with the SNF Project Construction Manager, the FDNW Project Manager, the CSB FDNW Construction Manager, and CVD Construction Manager confirm that a process is in place at the CSB and CVD Facilities to ensure safety requirements are integrated into work planning. The CVD uses the Construction Environmental, Safety, and Health Manual, along with the Grant Construction work planning processes, to accomplish this integration. The CSB uses the FDNW Industrial Safety and Health Program Manual, along with the FDNW Construction Work Package to ensure safety integration into work planning.

Safety requirements are integrated into work planning by implementation of an approved authorization basis and Standards/Requirements Identification Document (S/RID). The approved S/RID identifies requirements applicable to the SNF Project and implementation methodologies. Implementation typically includes a procedure and/or a process. The Authorization Basis includes the technical safety requirements and the Safety Evaluation Reports applicable to the SNF Project. The initial planning required by work control obtains an unreviewed safety question screening on work packages as described in AP NS-4-001, *Unreviewed Safety Questions*. Therefore, implementation of work control and the AJHA process through procedures AP MN-7-002-09 and AP MN-7-004-01 ensures that safety requirements are integrated into work planning.

Criterion 3: *Workers actively participate in the work planning process. (OP.1 c6)*

For planned work, the work control document provides instructions and guidance that ensures worker participation in the planning process. In addition, worker involvement in developing and updating technical procedures is called out in the procedure development process. Work team planning sessions and AJHA walkdowns are identified and resource loaded on the K Basin schedule to assure worker participation.

Per interviews with the FDNW Construction Managers, worker involvement for the construction projects is done on a daily basis prior to each day's activities. This provides a venue to discuss the work that is planned for that day and allow for feedback for process improvement.

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Interviews with operators and HPTs established that workers are actively participating in the work planning process. This conclusion was validated by observation of pre-shift meetings, an AJHA meeting, work status meetings, application of a lock and tag process, removal of a valve in a contamination area, and installation of conduit in a contamination area. In each case, all applicable personnel were actively involved in the identification of hazards and associated controls.

Criterion 4: *Procedures and/or mechanisms demonstrate effective integration of safety management*

Procedures and mechanisms are in place to ensure effective integration of safety management. The use of the work team planning process and the AJHA process are the key elements in assuring this effective integration at the activity level in the K Basins. Effective use of the scheduling meetings and the work integration team meeting provides another mechanism to assure integration. Interviews with management clearly demonstrated support for integration of safety management in the work planning process.

Per interviews with the FDNW Construction Managers, mechanisms are in place that effectively integrate safety management. They accomplish this through daily meetings, weekly safety walkdowns by management, etc.

Evidence of effective implementation of safety was noted while watching application of a lock and tag process. Since this was his first lock and tag application, the operator applying the tag was being coached by the Shift Manager. Following application of the lock and tag, the Shift Manager asked the operator questions regarding the independent verification process for lock and tag, testing the operator's understanding of the principles of the lock and tag process. The Shift Manager provided the operator with "on the spot" feedback regarding his responses. During this evolution, the Shift Manager demonstrated awareness of and the skills to implement line management responsibility for safety. The Shift Manager also demonstrated his understanding of competence commensurate with responsibilities. The discussion regarding independent verification validated implementation of a feedback and continuous improvement process.

While coaching the operator on the lock and tag process, another operator in the immediate area was unable to understand a radio transmission clearly enough to perform the required repeat-back. The Shift Manager also coached this operator through the communication and rational processes required to advise the distant-end radio user that that they could not be understood and to suggest a potential corrective action (key the radio before beginning to speak.). The Shift Manager again demonstrated line management responsibility for safety and establishment of feedback and continuous improvement. Another observation that supports the conclusion that safety management is being implemented occurred while watching valve removal work in a contamination area. One of the workers self-identified to a HPT that he had touched his hard hat. The HPT immediately asked the worker to move to a low background area so that a survey for radioactive contamination could be performed.

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Conclusion

Interviews with SNF Project staff and observation of pre-shift meetings, an AJHA meeting, work status meetings, application of a lock and tag process, removal of a valve in a contamination area, and installation of conduit in a contamination area established that an integrated process has been established and is used to effectively plan work. Implementation of the guiding principles for ISM, the work control process, the AJHA process, pre-shift meetings, work release, lock and tag and implementation of feedback with continuous improvement, demonstrate effective integration of safety management at the SNF Project.

This objective has been met.

Strengths:

None.

Concerns:

None.

Submitted: <u>Sandra L. Trine</u> Sandra L. Trine <i>Team Member</i> <u>R. Paul Carter</u> Robert P. (Paul) Carter <i>Team Member</i>	Approved: <u>Michael A. Mikolanis</u> 11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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FUNCTIONAL AREA: Operations Operations Authorization/ Work Execution	OBJECTIVE: OP.2 DATE: 11/18/99
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OBJECTIVE

OP.2 - (Operations Authorization/Work Execution). An integrated process has been established and is used to authorize and execute the identified work for the facility or activity. (CE I/II-6)

Criteria

1. Procedures and/or mechanisms are in place which ensure that there is a process used to confirm that the facility or activity and the operational work force are in an adequate state of readiness prior to authorizing the performance of the work.
2. Procedures and/or mechanisms are in place that ensure there is a process used to gain authorization to conduct operations.
3. Procedures and/or mechanisms are in place that ensure safety requirements are integrated into work performance.
4. Procedures and/or mechanisms demonstrate effective integration of safety management.

Approach

Record Review

- Review documents and/or mechanisms that govern the process for authorizing, and conducting work with emphasis on the individual maintenance or activity level.
- Evaluate the adequacy of the division of responsibilities, worker involvement, and work authorization process.
- Review the performance measures and performance indicators established to determine that these tools provide information that is truly a direct indicator of how safely the work is being performed.
- Review the mechanisms used to prepare AAs and protocols. Review these documents to determine if they are adequate, that they demonstrate effective integration, and that proper procedures were followed to prepare, review, and approve them.

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FUNCTIONAL AREA: Operations Operations Authorization/ Work Execution	OBJECTIVE: OP.2 DATE: 11/18/99
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Interviews

- Interview personnel responsible for authorizing, performing, and measuring the performance of the work. This should include personnel such as those responsible for preparing and maintaining documents such as the POD, equipment status files, pre-job briefings, and the conduct of facility or activity operations.
- Interview personnel responsible for development of maintenance or individual activity procedures and controls.
- Verify adequate worker involvement at each step of the process.

Observations

- Observe the actual authorization and performance of work activities. This should include such items as pre-job briefings, authorization by the managers to proceed, command and control of the work, review of safety requirements, etc.
- Observe work hazard identification activities. This should include such items as validation of procedures, procedure tracking, compensatory measures determination, etc.

Record Review

- 99-SNF/JDM-009, *Control and Conduct of Nuclear Systems Testing at K West Basin*, Internal Correspondence from J. D. Matthews to J. H. Wicks, September 2, 1999
- AP CS-6-019-02, *Acceptance of Beneficial Use Checklist-SSCs*, June 4, 1999
- AP MN-7-001-02, *JCS Preventive Maintenance and Surveillance Module*, October 22, 1999
- AP MN-7-002-09B, *Work Control*, October 22, 1999
- AP MN-7-004-01, *Pre-job Briefings*, August 3, 1998
- AP MN-7-005-02, *Roles and Responsibilities Person In Charge and Field Work Supervisor*, August 26, 1999
- AP MN-7-008-00, *AJHA Process*, June 10, 1999
- AP MS-026-00, *Authorization Agreement*, June 18, 1999
- AP MS-1-020-05, *Readiness Determination Process*, September 28, 1999
- AP MS-1-023-03, *SNF Project Approval Designators E, S, Q, M, and D Identifications*, April 8, 1999
- AP MS-2-016-03, *Managing SNF Project Lessons Learned*, June 8, 1999
- AP MS-9-001, *Technical Procedure Administration*, October 11, 1999
- AP MS-9-002, *Technical Procedure Development*, October 11, 1999
- AP MS-9-003, *Technical Procedure Change Process*, October 11, 1999
- AP MS-9-004, *Technical Procedure Use and Compliance*, December 11, 1999
- AP NS-4-005-10, *SNF Safety Basis Performance Assurance Process*, July 27, 1999

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- AP OP-10-009-00, *Release to Operations*, November 14, 1997
- AP OP-1-021-01, *Master Work Plan Implementation*, May 10, 1999
- AP OP-2-011-07, *Routines and Operating Practices*, September 10, 1999
- AP OP-2-012-05, *Control of Equipment and System Status*, September 10, 1999
- AP OP-2-018-05, *Logkeeping*, January 6, 1999
- AP OP-2-019-07, *Shift Turnover*, September 10, 1999
- AP OP-2-20-01, *Timely Orders*, September 17, 1998
- AP OP-7-003-06, *K Basins Project Review Process*, June 1, 1999
- *Construction Planning and Control Desk Guide*, Rev. 3, September 15, 1999
- FDNW Construction Work Package Procedure, Practice 134 500 8330, September 20, 1999
- HNF-2039, *Management Self Assessment*, Rev. 0, January 30, 1998
- HNF-3552, *Spent Nuclear Fuel Project, Project Execution Plan*, Rev. 0-A, December 10, 1998
- HNF-IP-1217, *Work Management Guidance*, September 30, 1998
- HNF-PRO-055, *Facilities Startup Readiness*, December 10, 1998
- HNF-PRO-079, *AJHA Process*, Rev. 4, September 9, 1999
- HNF-PRO-2000, *Project Execution*, Rev. 0, July 15, 1999
- K West Blue Tag book, November 11, 1999
- K West Timely Orders Logbook, November 12, 1999
- Memorandum of Understanding for Completion and Acceptance for the Spent Nuclear Fuel Project, May 3, 1999
- Miscellaneous K West Startup Work Packages (1K-99-2600, 1K-99-1983, 1K-99-1992)
- Person in Charge (PIC) and Field Work Supervisor (FWS) qualification cards
- SNF Project Operations Performance Indicators, October 4, 1999
- SNF-5262, *Turnover to Operations*, Rev. 0, October 20, 1999
- Training Matrix (TMX) reports for PICs and FWS.

Interviews Conducted

- Assistant Startup Manager (K Basin and CVD)
- Chairman, Joint Test Group
- Construction Manager (3)
- Construction Project Manager
- Manager, Cold Vacuum Drying (CVD) Facility
- Manager, CVD Facility FDNW Construction
- Manager, K Basin Project
- Manager, Startup
- Operations Director
- Operations Manager (CVD, K East)
- Planning Manager
- Project Manager (CVD, K Basin)

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FUNCTIONAL AREA: Operations Operations Authorization/ Work Execution	OBJECTIVE: OP.2 DATE: 11/18/99
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- Shift Manager (2 KW, 1 KE)
- SNF Project Manager, CVD Project
- Test Directors (2)
- Test Engineers (2).

Observations

- K Basin Plan of the Day meeting, November 3, 1999
- CVD morning meeting, November 10, 1999
- 105-KW morning meetings, November 9 and 10, 1999
- Two-plug hoist work at Canister Storage Building (CSB), November 10, 1999
- Sample Station Crane Limit Switch Component Testing, November 10, 1999
- K West Operations Morning Meetings, November 9-12, 1999
- K West Startup morning meeting and pre-job briefing, November 9 and 12, 1999
- CVD Construction Morning Meeting, November 10, 1999
- Tube Plug Hoist test related pre-job briefing and performance at CSB, November 10, 1999
- Sample Station Crane limit switch testing pre-job briefing and performance at CSB, November 10, 1999
- Work integration team meeting, November 11, 1999
- Startup work observation for establishing boundaries and completion of test prerequisites, November 12, 1999.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms are in place which ensure that there is a process used to confirm that the facility or activity and the operational work force are in an adequate state of readiness prior to authorizing the performance of the work.*

SNF Project procedures have been established to ensure that there is a process to confirm that the facility (AP OP-7-003, *K Basins Project Review Process*, HNF-2039, *Management Self Assessment*, AP MS-1-020, *Readiness Determination Process*, and SNF-5262, *Turnover to Operations*) or activity and the operational work force are in an adequate state of readiness prior to authorizing the performance of the work. For K Basins activities, the approved work control packages or operating procedures define the necessary prerequisites and safety conditions necessary to perform work. These are coupled with operations requirements for control of equipment and system status (AP OP-2-012, *Control of Equipment and System Status*), requirements for pre-job briefings (AP MN-7-004, *Pre-job Briefings*) and operating practices (AP OP-2-011, *Routines and Operating Practices*). It is clear from interviews with managers from Operations, Project Management, and Startup that the Operations organization has responsibility to establish and maintain the necessary controls prior to authorization of work activities.

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For major modifications and new construction, processes have been established to define the minimum criteria for acceptance of the new systems, structures and components (SSC) (AP OP-7-003, HNF-2039, AP MS-1-020, and HNF-5262). Furthermore, the readiness review process (HNF-PRO-055, *Facilities Startup Readiness*) has been institutionalized to define the necessary authorizations to operate new SSCs. Finally, using the acceptance for beneficial use procedure (AP CS-6-019, *Acceptance of Beneficial Use Checklist - SSCs*) and readiness schedules, Operations has identified the necessary activities and resources necessary to operate the new SSCs.

Field observations and interviews of K Basin personnel further reinforced that the process used to evaluate compatibility with facility plant conditions and confirm activity readiness is effective. Shift Managers demonstrate a clear understanding of facility conditions and the ability to evaluate scheduled activities to ensure appropriate controls are established and maintained. The operational work force is familiarized with the planned daily work scope at the morning meeting and then briefed in greater detail during the activity specific pre-job briefing. In both instances, personnel are encouraged to provide feedback and ensure all hazards are identified and controlled.

For new construction, the mechanisms are less formal although observations indicate a high level of commitment to maintaining safety throughout work processes. Daily work assignments are discussed at the construction morning meeting and potential hazards and associated controls are reviewed.

Criterion 2: *Procedures and/or mechanisms are in place that ensure there is a process used to obtain authorization to conduct operations.*

For K Basins work, processes are in place to evaluate plant conditions via walkdowns, logs, and turnover activities (AP OP-2-011). This is reinforced in pre-job briefings and AJHAs so that authorizations to conduct operations may occur through the On-duty Shift Manager. Release of work is performed by the On-duty Shift Manager via work release for construction services or the Job Control System (JCS) work package release. The Shift Manager is responsible for evaluating the potential for changing conditions or parallel work and instituting appropriate controls to maintain safety. This evaluation includes work impacts to facility Technical Safety Requirements or operating restrictions, which will require additional mitigating actions prior to authorization of the associated work.

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For new construction not within K Basins, processes (FDNW practice 134 500 8330 for CSB and approved design for CVD) are in place for the Construction Manager to evaluate and authorize operations. Pre-job briefings and JSAs are used to identify hazards and necessary controls to support authorization to commence work. Work is released in accordance with the construction management schedule and morning meeting for daily assignments.

During interviews and observations, Shift Managers demonstrated a high level of commitment to personnel and plant safety. Work is released individually each morning by the On-duty Shift Manager (or designee in the case of K-West startup activities) and the authorization process involves verification of readiness to commence the activity as well as consideration for activity interfaces and interferences.

Processes used to authorize new construction work are less formal; however, authorized work is specifically identified on the daily work schedule and the construction safety organization is actively involved in each day's work.

Criterion 3: *Procedures and/or mechanisms are in place that ensure safety requirements are integrated into work performance.*

SNF Project procedures are in place that ensure safety requirements are integrated into work performance. This is evidenced by the extensive use of the AJHA (AP MN-7-008, *AJHA Process*) to evaluate activities from routine work, planned work control packages (AP MN-7-002, *Work Control*) and operating procedures (AP MS-9-002, *Technical Procedure Development*). The AJHA provides an effective tool in the identification of hazards and appropriate controls to ensure work is performed safely. Implementation of controls are addressed within the body of work documents and included in pre-job briefings (AP OP-7-004) and control of equipment and system status (AP OP-2-012).

For new construction, the FDNW construction work package procedure for CSB (FDNW Practice 134 500 8330) and the CESH Manual for CVD identify the links necessary to ensure safety requirements are addressed.

Field observation of AJHA use and the results of EWP in work packages indicate that safety requirements are indeed integrated into work performance. The AJHA was clearly utilized during pre-job briefings and personnel demonstrated knowledge of the applicable requirements and associated controls.

Criterion 4: *Procedures and/or mechanisms demonstrate effective integration of safety management.*

Through the work control (AP MN-7-002) and AJHA (AP MN-7-008) process, it is clear that workers are involved in the development of work packages and operating procedures (AP MS-9-002). In interviews, Operations management expressed clear responsibility for safety

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FUNCTIONAL AREA: Operations Operations Authorization/ Work Execution	OBJECTIVE: OP.2 DATE: 11/18/99
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and determination that hazard controls are implemented prior to work authorization. Furthermore, the SNF Project Operations performance indicators, observations at the Plan of the Day meeting, and discussions with the Operations Director indicate that the performance indicators are routinely monitored and are evaluated for enhancement to drive continuous improvement.

Observation of Operations and Startup activities demonstrated a clear commitment to integration of safety management. This commitment was evidenced in worker involvement during pre-job briefings, Shift Manager evaluation of proposed work and associated controls prior to authorization, and established performance indicators and feedback mechanisms that are utilized to drive continuous improvement. This commitment was particularly well illustrated by the response of Operations management to two separate workforce identified safety concerns. In one instance, it was reported that light rain and resulting accumulation on a trailer adjacent to 105-KW was causing runoff onto an electrical junction box that serviced exterior lighting. Operations line management immediately contacted an SNF Project safety representative and both personnel walked down the safety concern. It was deemed that the runoff did not present an immediate hazard; however, the safety representative left to consult with electrical engineering to determine appropriate corrective actions. In the second instance, a recurring concern regarding security personnel weapon safety was reiterated by plant personnel. Operations line management responded by contacting security regarding immediate action to mitigate the concerns. In addition, work control was contacted to expedite installation of a gun cabinet to address long-term concerns regarding weapons safety. Both instances indicated excellent commitment by operations management to respond to personnel safety concerns and a genuine concern for health and safety. (OP.2-1)

Conclusion

SNF project has demonstrated an adequate process for confirming readiness and establishment of controls prior to authorizing work. Operations line management personnel are clearly committed to ISMS implementation. Beyond worker stop work authority, operations authorization provides the final validation of adequate planning and establishment of necessary controls. Thus, it is critical that line management continue to receive the necessary tools and resources to remain effective at implementing this responsibility.

This objective has been met.

Strengths:

Line management has demonstrated strong commitment to timely response to individual workforce identified safety issues. (OP.2-1)

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Concerns:

None.

Submitted: <u><i>Mat Irwin</i></u> <u><i>11/18/99</i></u> Robert M. (Mat) Irwin <i>Team Member</i>	Approved: <u><i>[Signature]</i></u> <u><i>11/19/99</i></u> Michael A. Mikolanis <i>Team Leader</i>
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FUNCTIONAL AREA: Subject Matter Expert Emergency Preparedness	OBJECTIVE: SME.1 DATE: 11/18/99
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OBJECTIVE

SME.1 - Emergency Preparedness. Within Emergency Preparedness, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Emergency Preparedness, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE II-3, CE II-5, CE II-6, CE II-7, CE II-8)

Criteria

1. Procedures and/or mechanisms for Emergency Preparedness require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Emergency Preparedness contain clear roles and responsibilities. Emergency Preparedness is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Emergency Preparedness require controls to be implemented that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Emergency Preparedness require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Emergency Preparedness require that within the subject area, feedback and continuous improvement occurs.

Approach

Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for Emergency Preparedness at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that the Emergency Preparedness is effectively integrated into the facility or activity procedures.
- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the Emergency Preparedness area.

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FUNCTIONAL AREA: Subject Matter Expert Emergency Preparedness	OBJECTIVE: SME.1 DATE: 11/18/99
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- Review training records of personnel in Emergency Preparedness area to determine they meet competency standards.

Interviews

- Interview personnel and responsible managers to determine their knowledge of emergency preparedness response.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided by the Emergency Response organization.
- Interview personnel assigned to the SNF Project Emergency Response organization to assess their level of competence.

Observations

- Weekly Emergency Response issues meeting
- Development of an Emergency Response procedure (ERP, BEP, Drill Program)
- Development of an Emergency Preparedness Hazards Assessment
- Development of an SNF Project drill package
- Facility Emergency Response organization specific training, evolutions, or lesson plans in lieu of actual team evolution.

Record Review

- AP EM-15-002-00, *Spent Nuclear Fuel Project Emergency Response Org. Roles and Responsibilities (Draft)*, November 5, 1998
- AP EM-4-020-01, *SNF Drill Program*, May 10, 1999
- AP MN-7-008-00, *SNF Project AJHA Process*, June 10, 1999
- DOE/RL-94-02, *Hanford Emergency Management Plan*, October 1, 1999
- DOE-0223, *Emergency Plan Implementing Procedure*, RLEP 1.0, Appendix 1-1.A, "100K Area Emergency Action Level," Rev. 3, October 22, 1999
- Emergency Preparedness/Abnormal Plant Condition (EP/APC) Training Lesson Plan, Course #077500, June 22, 1999
- ER-SNF-003, *SNF Emergency Response Procedure*, Rev. 1, May 10, 1999
- ER-SNF-002, *SNF Emergency Response Procedure*, Rev. 1, October 5, 1999
- ER-SNF-004, *SNF Emergency Response Procedure*, Rev. 1, July 16, 1999

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FUNCTIONAL AREA: Subject Matter Expert Emergency Preparedness	OBJECTIVE: SME.1 DATE: 11/18/99
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- ER-SNF-005, *SNF Emergency Response Procedure*, Rev. 1, May 10, 1999
- ER-SNF-006, *SNF Emergency Response Procedure*, Rev. 1, May 10, 1999
- ER-SNF-008, *SNF Emergency Response Procedure*, Rev. 1, May 10, 1999
- ER-SNF-010, *SNF Emergency Response Procedure*, Rev. 0, May 10, 1999
- ER-SNF-013, *SNF Emergency Response Procedure*, Rev. 1, May 10, 1999
- FRS/IWTS Phased Startup Initiative (PIS) Status Schedule, November 1, 1999
- HFN-PRO-052, *Corrective Action Management*, Rev. 2, August 3, 1999
- HNF-2039, *Management Self Assessment (MSA) Plan*, Rev. 1, July 2, 1999
- HNF-4747, *SNF Project Interim Remedial Action K Basin Health and Safety Plan*, Rev. 0, June 30, 1999
- HNF-IP-0263-SNF, *Building Emergency Plan for SNF Project Hazardous Facilities*, Rev. 1, November 30, 1999
- HNF-IP-1201, *Guidance for Conducting Emergency Preparedness Hazards Assessment*, Rev. 3, October 1, 1999
- HNF-PRO-424, *Emergency Preparedness Program*, Rev. 3, October 26, 1999
- HNF-SD-PRP-HA-004, *100-K Fuel Storage Basin Emergency Preparedness Hazards Assessment*, Rev. 2, July 2, 1999
- HNF-SD-PRP-HA-004, *100-K Fuel Storage Basin Emergency Preparedness Hazards Assessment*, Rev. 2, July 2, 1999
- K Basins-RT-SER-001, *K Basin SER*, Rev. 0, October 14, 1999
- MSA Appraisal Forms for Emergency Planning, November 2, 1999
- OP-06-008, *Detect and Mitigate Basin Leaks*, Rev. 0, April 7, 1999
- OP-16-003E, *Add Makeup Water to 105-KE Basin*, Rev. 4, April 13, 1999
- OP-16-005W, *Add Makeup Water to 105-KW Basin*, Rev. 4, February 1, 1999
- OP-20-001, *Loss of Electrical Power at 100-K Area Facilities*, Rev. 0, October 14, 1999
- SNF Project MSA Criteria Detailed Schedule, Emergency Planning, November 4, 1999
- SNFP-MD-102, *SNF Corrective Action Management*, Rev. 0, July 12, 1999
- WHC-SD-WM-SAR-062, *K Basins Safety Analysis Report*, Chapter 15.0, "Emergency Preparedness Program," Rev. 3L, October 14, 1999
- WHC-SD-WM-SAR-062, *K Basins Safety Analysis Report*, Chapter 15.0, "Emergency Preparedness Program," Rev. 3K, November 1999.

Interviews Conducted

- Hazards Assessor
- Building Emergency Directors (2)
- Construction Personnel, Fluor Daniel Northwest (2)
- Incident Command Post Communicator
- Line Managers (2)
- Manager, SNF Project Safety, Health and Emergency Planning
- Manager, SNF Project Training

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- Operators, K Basin (4)
- Specialist, Facility Operations
- Specialist, SNF Project Emergency Preparedness (3).

Observations

- Cold Vacuum Drying (CVD) Procedure Development Meeting, November 1, 1999
- Management Self-Assessment (MSA) Emergency Planning Interview with Training Manager, November 2, 1999
- MSA Schedule Meeting, November 4, 1999
- Emergency Preparedness Issues Meeting, November 8, 1999
- K Basins Emergency Preparedness Hazards Assessment (EPHA) Peer Review Meeting, November 10, 1999.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms for Emergency Preparedness require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.*

SNF and FDH Emergency Preparedness (EP) plans and procedures require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified. The basis of an effective EP Program begins with the identification of hazards and that the scope and extent of emergency planning and preparedness be commensurate with the hazards. The process used to meet the requirements in DOE/RL-94-02, *Hanford Emergency Management Plan*, is the development and maintenance of an EPHA, which obtains the information from documents such as safety analysis reports or hazard and environmental impact analyses. HNF-PRO-424, *Emergency Preparedness Program* requires a hazards assessment be completed for each facility that can create an alert or higher emergency to form the basis for emergency planning for the facility. The hazards assessment shall be reviewed at least annually to determine the need for changes and revised as necessary. Facility management and FDH EP shall approve the EPHA. SNF Project procedures are in place to implement these requirements.

The K Basin EPHA is currently in the review process. The revised EPHA is intended to support functional equipment testing and fuel handling/removal operations in both the 105-KE and 105-KW basins. The EPHA documentation review and approval process was observed and is in compliance with HNF-IP-1201, *Guidance for Conducting Emergency Preparedness Hazards Assessment*. A peer review of the K-Basin EPHA was performed by FDH Emergency Preparedness, SNF Nuclear Safety, SNF Operations, and SNF Emergency Preparedness. This peer review is a documented critical review performed by personnel independent of those performing the work and having equivalent technical expertise.

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Criterion 2: *Procedures and/or mechanisms for Emergency Preparedness contain clear roles and responsibilities. Emergency Preparedness is effectively integrated with line support managers to ensure that line managers are responsible for safety.*

SNF and FDH EP plans and procedures contain clear roles and responsibilities that define line management responsibility for safety. Clear roles and responsibilities are specified in DOE-0223, *Emergency Plan Implementing Procedure*, DOE/RL-94-02, and HNF-PRO-424. The SNF Project implements this through the SNF Project Emergency Response training (Emergency Preparedness/Abnormal Plant Conditions [EP/APC]) and the Building Emergency Plan for SNF Project Hazardous Facilities. Draft procedure AP EM-15-002-00 further defines SNF Project Emergency Response Organization (ERO) roles and responsibilities and is currently in the review process. These documents specify the roles and responsibilities of line management including the SNF ERO and SNF Project EP staff. SNF Project has developed and implemented Emergency Response training specific to the SNF Project. The training topics include hazards identification and review, Emergency Response organization roles and responsibilities, emergency action level procedures, protective actions, event mitigation, event recovery, and termination. (SME.1-1)

Interviews were conducted with selected SNF and subcontractor employees and line managers to determine their knowledge of basic emergency preparedness and to verify their response to emergency events. Question topics included proper notifications, proper alarm response, and staging area locations. All interviewees adequately addressed the questions presented to them. The only issue that was constant among the interviewees was when to use the 105-KW/KE Basin fire staging area versus the primary area staging area. SNF Emergency Preparedness has already self-identified this issue and is working on corrective actions.

Interviews with line management made it clear that they understand their roles and responsibilities and support the SNF Emergency Preparedness Program.

Criterion 3: *Procedures and/or mechanisms for Emergency Preparedness require controls to be implemented that these controls are effectively integrated, and readiness is confirmed prior to performing work.*

SNF and FDH EP plans and procedures require controls to be implemented and readiness to be confirmed at the appropriate level prior to performing work activities. DOE/RL-94-02 and HNF-PRO-424 provide the framework for the planning and conduct of drills. The SNF Project Drill program procedure, EM-4-020-01, provides the guidance for the implementation of the requirement of these documents. The drill procedure identifies the process of planning a drill to include the involvement of several organizations, including operations, safety and line management in the drill scenario development. A recent improvement to the SNF Project Drill Program is the use of the Automated Job Hazards Analysis in the development of the drill scenario and planning of the drill. (SME.1-2)

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Reviews of post-drill reports, critiques, and corrective action documentation evidenced an effective and comprehensive drill program. The implementation of a drill template in the planning of drills is an effective tool SNF Emergency Preparedness uses to ensure all components of a drill are included.

An aggressive FY2000 drill schedule has been approved by line management for K Basins and covers all emergency conditions as well as identifying the participation of other emergency response organizations; e.g., Hanford Fire Department, Hanford Patrol, and RL-Emergency Operations Center.

Criterion 4: *Procedures and/or mechanisms for Emergency Preparedness require that personnel who are assigned to the subject area have a satisfactory level of competence.*

SNF and FDH EP plans and procedures require personnel assigned to the SNF ERO to have a satisfactory level of competence. The draft procedure for the roles and responsibilities of the SNF ERO requires that each member be adequately trained and possess the level of competency appropriate for the ERO position. The Building Emergency Director (BED) is the most critical position in the ERO. A qualification system exists at the SNF Project that ensures the BED is at a level of competency appropriate for the position. The BED is a qualified Shift Manager and is required to be knowledgeable in all aspects of emergency response and mitigation as well as the operations and activities at all SNF Project hazardous facilities.

The SNF ERO members interviewed and observed possessed an adequate level of competency commensurate to their assigned ERO position and responsibilities. The interviewees were all knowledgeable of the hazards present including the Incident Command System used during emergency situations. Based on the review of a SNF Project-specific emergency preparedness training lesson plan, the level of information and method of presentation is adequate.

Criterion 5: *Procedures and/or mechanisms for Emergency Preparedness require that within the subject area, feedback and continuous improvement occurs.*

SNF Project and FDH EP plans and procedures require that feedback and continuous improvement occur. The SNF Project EP staff utilizes the Management Self Assessment (MSA) process as a continuous improvement and feedback tool. EP self-assessments are performed using the appraisal forms and corrective actions are initiated, tracked and closed. Post-drill critiques are conducted immediately following a drill that provides preliminary feedback and allows participants to conduct a self-assessment. Post-drill reports are written to ensure drill issues involving regulatory concerns are identified and entered into the site-level corrective action management system that requires the development of corrective actions and tracking to completion. The SNF Project EP Drill Coordinator tracks the nonregulatory issues internally and assigns the appropriate actionee to close out the corrective action. Although the SNF Project EP does not implement a formal lesson learned program for drill issues, it has been identified for work planning in FY 2000.

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A review of completed MSA Emergency Preparedness appraisal forms and observation of a MSA assessment indicates continuous improvement to the Emergency Preparedness Program. Post-drill reports reviewed are written to capture all pertinent information derived from the drill. Drill critiques are used to identify drill issues and assign corrective actions, which are tracked to completion by SNF Emergency Preparedness and the site corrective action management organization.

Conclusion

The SNF EP Program possesses adequate documentation that ensures the functions and principles of ISMS are addressed. SNF Project line management understands the importance of employing a competent EP staff that is evidenced by a strong and mature drill program. In interviews and observations of SNF and subcontractor personnel, a good level of understanding of emergency preparedness was demonstrated. The working relationship between the Emergency Preparedness Organization and line management is good with the Emergency Preparedness Organization taking a strong and visible role in ensuring an effective Emergency Preparedness Program at SNF.

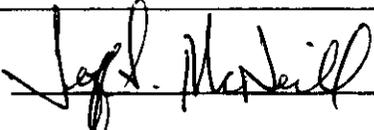
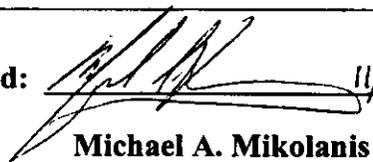
This objective has been met.

Strengths:

- SNF Project has developed and implemented Emergency Response training specific to the SNF Project. The training topics include hazards identification and review, Emergency Response organization roles and responsibilities, emergency action level procedures, protective actions, event mitigation, event recovery, and termination. (SME.1-1)
- A recent improvement to the SNF Project Drill Program is the use of the Automated Job Hazards Analysis in the development of the drill scenario and planning of the drill. (SME.1-2)

Concerns:

None.

Submitted:  Jeff S. McNeill <i>Team Member</i>	Approved:  11/18/99 Michael A. Mikolanis <i>Team Leader</i>
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FUNCTIONAL AREA: Subject Matter Expert Maintenance and Work Control	OBJECTIVE: SME.2 DATE: 11/18/99
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OBJECTIVE

SME.2 - Maintenance and Work Control. Within Maintenance and Work Control, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Maintenance and Work Control, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE II-3, CE II-5, CE II-6, CE II-7, CE II-8)

Criteria

1. Procedures and/or mechanisms for Maintenance and Work Control require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Maintenance and Work Control contain clear roles and responsibilities. Maintenance and Work Control is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Maintenance and Work Control require controls to be implemented that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Maintenance and Work Control require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Maintenance and Work Control require that within the subject area, feedback and continuous improvement occurs.
6. Contractor procedures provide a method to ensure that controls are implemented during preparation for the initiation of work and start-up activities at each level. The procedures ensure that adequate controls are identified to mitigate the identified hazards and the controls are effectively implemented. Contractor procedures provide assurance that controls will remain in affect so long as the hazards are present.

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Approach

Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for Maintenance and Work Control at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that Maintenance and Work Control is effectively integrated into the facility or activity procedures. In particular, note the methods of maintaining configuration management and the documentation during the execution of the facility work. Be alert to worker involvement in the processes reviewed.
- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within Maintenance and Work Control.
- Review training records of personnel in Maintenance and Work Control to determine they meet competency standards.
- Review performance indicators used to gauge effectiveness of the work control system; i.e., how many packages get worked to completion when they are originally scheduled, how many procedures require changes, how many changes per procedure, etc.

Interviews

- Interview personnel and responsible managers assigned to Maintenance and Work Control.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to Maintenance and Work Control to assess the level of competence.

Observations

- Observe events such as the development of a procedure, development of a hazards analysis such as an RWP, JHA, or the approval process for an individual work item, which includes interactions with personnel of the subject area.
- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements. Interview appropriate personnel to ensure they believe this is true.

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Record Review

- AP MN-7-001-02, *JCS Preventative Maintenance and Surveillance (PM/S) Module*, September 24, 1999
- AP MN-7-002-09, *Work Control*, July 1, 1999
- AP MN-7-004, *Pre-job Briefings*, August 3, 1998
- AP MN-7-005-02, *Roles and Responsibilities Person in Charge (PIC) and Field Work Supervisor*, August 26, 1999
- AP MN-7-008-00, *AJHA Process*, June 10, 1999
- AP MS-9-002-06, *Technical Procedure Development*, September 10, 1999
- AP TN-8-001-07, *General Training Administration*, March 24, 1999
- AP TN-8-005-07, *Facility Operations Personnel Training Requirements*, May 10, 1999
- AP TN-8-006-03, *Maintenance and Work Control Training Requirements*, March 24, 1999
- AP TN-8-014-03, *Person in Charge (PIC) and FieldWork Supervisor Qualification Programs*, July 27, 1999
- Completed Work Packages
- Fluor Daniel Northwest Construction Work Package, Practice 134 500 8330, September 20, 1999
- HNF-3552, *Spent Nuclear Fuel Project, Project Execution Plan*, Rev. 0-A, February 22, 1999
- HNF-IP-1217, *Work Management Guidance*, Section 1.0, "Job Control System Implementation," September 30, 1998
- Job Control System Work Package Readout (provided by a planner)
- Projects, PSI, PMs, & Corrective Mods Integrated Scheduling Tool
- SNF-MIP-001, *Maintenance Implementation Plan*, September 27, 1999.

Interviews Conducted

- Cognizant Engineer
- Field Work Supervisor (2)
- Manager, Construction Projects
- Manager, FDNW SNF Project
- Manager, Integrated Scheduling
- Manager, K Basins Projects
- Manager, Maintenance
- Manager, Operations
- Manager, Planning
- Manager, Training & Procedure
- Manger, Construction (2)

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- Person in Charge
- Planner (2)
- Shift Manager (2)
- Supervisor, Maintenance.

Observations

- AJHA Meeting
- Enhanced Work Planning Meeting
- Plan of the day
- Pre-Job briefing
- Shift Manager actions in conjunction with work control, maintenance
- Work Control Center Activity
- Work Package Development
- Work Planning Meeting.

Discussion of Results

For purposes of this report the Canister Storage Building (CSB) and the Cold Vacuum Drying Facility (CVD) will be addressed separately. Construction in the K Basin is included as part of the SNF Project.

Criterion 1: *Procedures and/or mechanisms for Maintenance and Work Control require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.*

For the SNF Project, the CSB and the CVD procedures and/or mechanisms for maintenance and work control are established that require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified (guiding principle 5).

In the K-Basins, AP MN-7-002-09, *Work Control* lays the foundation to satisfying this criterion. The Automated Job Hazards Analysis tool/process is the key for hazard recognition and control identification. Interviews with the Planning, Maintenance, and Operations managers confirmed this. One area in the current work control document relating to risk and complexity determination was identified by the SNF Project to be an opportunity for improvement in the work control procedure. The work control procedure is currently being revised to enhance the guidance for risk and complexity determination. (SME.2-1)

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For CSB, Fluor Daniel Northwest (FDNW) Construction Work Package Practice 134 500 8330 and references identified in the document provide a process to ensure that hazards are recognized and controls identified. Interviews with both the Construction Projects Manager and the FDNW SNF Project Manager confirmed the above. For CVD, the Construction Environmental, Safety, and Health Manual, Grant Construction procedures, and established practices are used to analyze hazards and identify controls. This was confirmed in an interview with the CVD FDNW Construction Manager.

Field observations of AJHA and EWP meetings indicate that the processes established in the work control procedures for the purpose of hazard analysis and identification of the required controls have been implemented. During the AJHA and EWP meetings observed, all of the required personnel from maintenance, operations, radiological control, crafts, etc. were present and providing input to ensure all hazards were identified, analyzed, and controls established. In one AJHA meeting involving the isolation and draining of an Ion Exchange Module (IXM), the planner ensured that the correct scope was identified and the right players were present prior to proceeding with the meeting.

From interviews and observations of daily pre-work meetings, it was clear that the mechanisms institutionalized to ensure that hazards are identified, analyzed, and controlled are being implemented in the CSB and CVD.

Criterion 2: *Procedures and/or mechanisms for Maintenance and Work Control contain clear roles and responsibilities. Maintenance and Work Control is effectively integrated with line support managers to ensure that line managers are responsible for safety.*

Procedures for maintenance and work control contain clear roles and responsibilities and effectively integrate with line support managers to ensure that line managers are responsible for safety (guiding principle 1 and 2). AP MN-07-002-09, *Work Control* and AP-MN-005-02, *Roles and Responsibilities Person in Charge (PIC) and FieldWork Supervisor (FWS)* and for the CSB, the FDNW Construction Work Package Practice 134 500 8330 provided those roles and responsibilities. Interviews with the FDH and FDNW managers linked their expectations to the above procedures. For CVD, an interview with the FDNW Construction Manager confirmed a recognized line manager safety responsibility exists. Roles and responsibilities during startup and operations are discussed in the SME.6 Assessment Form.

The Operations Manager has instituted a "30 Minute Rule" supplying guidance to crafts, supervisors, and line management when problems arise during the performance of work. The "30 Minute Rule" provides time limits on problem resolution activities to ensure the right level of management involvement in a timely manner. (SME.2-2)

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Interviews with maintenance, operations, and work control personnel indicate that they understand their roles and responsibilities as contained in the related maintenance and work control procedures. Interviews with construction managers (CVD, CSB, and SNF Projects) indicated that they understood their roles and responsibilities for safety. The shift managers interviewed understood their roles and responsibilities regarding safety.

The difference between the roles of the PIC and the FWS as described in AP MN-7-005-02 is not clearly understood by work control, maintenance, and operations personnel. Interviews with two qualified Shift Managers indicated some confusion regarding the difference in roles and responsibilities between a PIC and a FWS. Both Shift Managers were qualified Field Work Supervisors and understood their roles and responsibilities in that capacity. Both reported to be qualified PICs but neither could clearly explain the difference between a PIC and FWS. A review of training records indicated that neither of the shift managers was a qualified PIC.

Planners indicated that a PIC is assigned to every work package. However, interviews with a start-up PIC, a SNF Construction Manager, and a KE Facility Operations Manager indicated that PICs were only assigned to construction projects. Reviewing work packages, Integrated Scheduling Tools, and JCS reports on work packages, a "PIC" was assigned for every work package. Further investigation indicates that the PIC (as mentioned in the previous sentence) is in reality a FWS (as defined in AP MN-7-005-02). A review of training records indicated that those PICs were qualified FWSs but none were qualified as a PIC (as defined in AP MN-7-005-02). In the work control procedure, the only time a PIC is mentioned, it is in relation to the JCS database.

The PIC and FWS as defined in AP MN-7-005-02 is a relatively new program. The definition of a PIC is not clearly understood nor consistently applied. Some SNF Project personnel do not understand the difference between a PIC and a FWS. (SME.2-5)

Criterion 3: *Procedures and/or mechanisms for Maintenance and Work Control require controls to be implemented that these controls are effectively integrated, and readiness is confirmed prior to performing work.*

Procedures and mechanisms for maintenance and work control are in place that require controls to be implemented, effectively integrate those controls, and ensure that readiness is confirmed prior to performing work (guiding principle 5). Work control procedure AP-MN-7-002-09 utilizes the AJHA process from planning through execution to accomplish implementation of controls and integration of controls. The work control and PIC/FWS roles and responsibilities procedures provide clearly defined roles and responsibilities for PICs, Shift Manager, FWS, et al., to ensure that controls are in place and verified prior to starting the work. For the CSB, the work control procedure and mechanisms are in place to meet the intent of the criterion. For CVD, FDNW indicated that the mechanisms and procedures of the CESH Manual are in place to

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meet the intent of this criterion. However, concerns were identified with the work authorization process in CSB and CVD when both startup and construction activities are scheduled. These concerns are addressed in the SME.6 Assessment Form.

Management interviews and observations of pre-job briefings, and work planning sessions indicate that institutionalized mechanisms (for SNF Projects, CVD, and CSB) and procedures (for SNF Projects and CSB) integrate controls and confirm readiness prior to performing work.

Criteria 4: *Procedures and/or mechanisms for Maintenance and Work Control require that personnel who are assigned to the subject area have a satisfactory level of competence.*

Procedures and mechanisms for Maintenance and Work Control are in place to ensure personnel assigned to the subject area or task have a satisfactory level of competence (guiding principle 3).

Documents such as AP-TN-8-006-03, *Maintenance and Work Control Training Requirements*, AP-TN-8-001-07, *General Training Administration*, and AP-TN-8-005-07, *Facility Operations Personnel Training Requirements* provide a foundation for the expected level of competency. Interviews with the Training and Procedure Manager and his staff indicate that the SNF Project Training group has a program in place to ensure competency for SNF Project personnel and provide a mechanism to provide continuous process improvement for the training and qualification program.

Interviews indicate that, for CSB and CVD subcontractor personnel, the training and qualification requirements are part of the contractual language.

The SNF Project has established a Senior Training Council (STC) and a Training Advisory Committee (TAC) to enhance the training process, providing feedback and input from all levels to ensure a continued level of competency. The Training Manager and staff have instituted a process to verify competency levels of current or incumbent employees, to ensure that identified competency deficiencies are noted and acted upon. This same process allows new employee evaluations as to their existing competency and identifies the necessary upgrades. (SME.2-3)

Based on interviews and observations of evolutions involved in the work planning and control processes (for CVD, CSB, and SNF Projects), it is evident that the programs and process in place ensure a satisfactory level of competence. One strength in this area, for SNF Projects (K Basins), is a noninstitutionalized mentoring program that the Planning and Maintenance Managers have put in place. New/inexperienced planners are assigned to an experienced planner as their mentor. New or inexperienced planners are not assigned complex work packages until they have gained the necessary knowledge and skills, etc. The mentor and planning management ensure this. (SME.2-4)

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Criterion 5: *Procedures and/or mechanisms for Maintenance and Work Control require that within the subject area, feedback and continuous improvement occurs.*

Procedures and Mechanisms are in place that require and allow for feedback and continuous improvement. The work control procedure addresses trending and lessons learned guidance and direction. The work control procedure addresses post job analysis and work completion and closeout guidance as part of the feedback and continuous improvement process. The Operations manager uses performance indicators for the work planning and control process for feedback and continuous improvement. As described above under criterion 4, the Training Manager has established a means for feedback and continuous improvement in the area of training and qualification.

A review of completed work packages for routine, planned, and preventive maintenance activities demonstrated that a feedback process exist for work control. Observations of AJHA and EWP meetings indicated that during these processes, feedback and continuous improvement are an inherent part of the system. Interviews with planners, COG engineers, and construction managers indicate the same. There are a variety of programs and processes in place to provide for feedback and continuous improvement. The SNF Projects conduct plan of the day meetings, daily operations pre-job meetings, pre-job briefings, post-job reviews, Senior Management Training Team, Training Actions Committee, etc. CSB and CVD conduct daily morning meetings, pre-job briefings, safety walk-downs, etc. Worker involvement is evident as part of these processes. Review of completed SNF Project work packages provide documented evidence of worker involvement.

Criterion 6 : *Contractor procedures provide a method to ensure that controls are implemented during preparation for the initiation of work and start-up activities at each level. The procedures ensure that adequate controls are identified to mitigate the identified hazards and the controls are effectively implemented. Contractor procedures provide assurance that controls will remain in affect so long as the hazards are present.*

Procedures are in place that provide a method of ensuring controls are implemented during preparation for work activities at each level. The SNF Work Control and FDNW work package procedures ensure that adequate controls are identified to mitigate the identified hazards and that the controls are effectively implemented. The procedures and mechanisms are institutionalized to ensure that the controls remain in place as long as the hazards are present. The duties and responsibilities of the Shift Managers, PICs, and FWSs, as described in the applicable SNF procedures, address their roles in ensuring hazard controls are implemented and maintained throughout the work control process.

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FUNCTIONAL AREA: Subject Matter Expert Maintenance and Work Control	OBJECTIVE: SME.2 DATE: 11/18/99
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For CSB, the FDNW Work Package Practice Document (Practice 134 500 8330) provides similar instructions to ensure control implementation and maintenance throughout the work control process. For CVD, interviews with the FDNW Construction Manager indicated that procedures and mechanisms are in place to meet the intent of this criteria.

Observing work activities, reviewing completed packages, attending pre-job meetings (both construction and SNF projects), attending planning meetings, interviewing Shift Managers, FWSs, PICs, and Construction Managers provided evidence to indicate that controls are implemented to mitigate hazards, and that these controls remain in place as long as the hazards are present.

Conclusion

SNF Projects (K Basins) have institutionalized procedures, processes, and mechanisms have been implemented to ensure integrated hazard analysis and control development. The AJHA and EWP processes are the major factors for success in these areas. There is an adequate process for the authorization and control of work. Line managers are responsible for safety and understand their roles and responsibilities.

Maintenance and Work Control for CSB has tailored procedures and mechanisms that ensure hazard analysis and control development. For CVD, mechanisms and processes are in place to ensure hazard analysis and control development. CSB and CVD have adequate processes for the authorization and control of work. CSB and CVD construction managers are clearly responsible for safety and understand their roles and responsibilities during the construction phase.

The objective has been met.

Strengths:

- The SNF Project Maintenance Management has identified opportunities for improvement in the Work Control Procedure regarding the determination of risk or complexity and is revising the Work Control Procedure to enhance this process. (SME.2-1)
- The Operations Manager has instituted a "30 Minute Rule" supplying guidance to crafts, supervisors, and line management when problems arise during the performance of work. (SME.2-2)

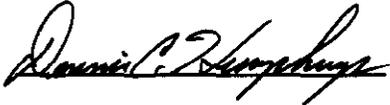
SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Subject Matter Expert Maintenance and Work Control	OBJECTIVE: SME.2 DATE: 11/18/99
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- The SNF Project has established a STC and a TAC to greatly enhance the process. The STC and TAC provide feedback and input from all levels to ensure a continued level of competency. The Training Manager and staff have instituted a process to verify competency levels of current or incumbent employees, and to ensure that identified competency deficiencies are noted and acted upon. This same process allows new employee evaluations as to their existing competency and identifies the necessary upgrades. (SME.2-3)
- A non-institutionalized mentoring program has been put in place by the Planning and Maintenance Managers. New/inexperienced planners are assigned to an experienced planner (mentor). New or inexperienced planners are not assigned complex work packages until they have gained the necessary knowledge and skills, etc. (SME.2-4)

Concerns:

Field understanding regarding the roles and responsibilities of a PIC versus a FWS needs improvement. The PIC and FWS as defined in AP-MN-7-005-02 is a relatively new program that has not yet reached maturity. It is not clear to personnel in work control and planning when PICs and FWSs are to be assigned. The definition of a PIC is not clearly understood nor consistently applied. Some SNF Project personnel do not understand the difference between a PIC and a FWS. (SME.2-5)

Submitted:  Dennis C. Humphreys <i>Team Member</i>	Approved:  11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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FUNCTIONAL AREA: Subject Matter Expert Radiological Controls and Protection	OBJECTIVE: SME.3 DATE: 11/18/99
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OBJECTIVE

SME.3 - Radiological Controls and Protection. Within the Radiological Controls and Protection area, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Radiological Controls and Protection area, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE II-3, CE II-5, CE II-6, CE II-7, CE II-8)

Criteria

1. Procedures and/or mechanisms for Radiological Control and Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Radiological Controls and Protection contain clear roles and responsibilities. Radiological Controls and Protection is effectively integrated with line-support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Radiological Controls and Protection require controls to be implemented that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Radiological Controls and Protection require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Radiological Controls and Protection require that within the subject area, feedback and continuous improvement occurs.

Approach

Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for Radiological Controls and Protection at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that the Radiological Controls and Protection are effectively integrated into the facility or activity procedures.

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- Review selected lessons learned to assess that lessons learned have been effectively used within the Radiological Controls and Protection area.
- Review training records of personnel in Radiological Controls and Protection area to determine if they meet competency standards.

Interviews

- Interview personnel and responsible managers assigned to Radiological Controls and Protection area.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to the Radiological Controls and Protection area to assess the level of competence.

Observations

- Observe events such as the development of a procedure, development of a hazards analysis such as a Radiological Work Permits or Job Hazard Analysis, or the approval process for an individual work item, which includes interactions with personnel in the subject area.
- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements. Interview appropriate personnel to ensure they believe this is true.

Record Review

- 99-SNF/JEK-010, *Pre-existing Temporary Shielding Documentation Waiver*, March 26, 1999
- 99-SNF/JEK-012, *Actions from Temporary Shielding Evaluation*, April 5, 1999
- 99-SNF/JEK-035, *ALARA Committee Attendance*, Letter from J. E. Kurtz, FDH, to J. H. Wicks, DESH, November 1, 1999
- 99-SNF/JEK-038, *Review of Underwater Light Maintenance at 105-KE*, November 8, 1999
- Access Control Entry System (ACES) Records for SNF Project Line Management
- AP MN-7-002-09, *Work Control*, July 1, 1999
- AP MS-1-008-07, *Management Observation Process*, January 11, 1999
- AP RP-12-001-00, *ALARA Management Commitment and Policy*, October 13, 1999
- AP RP-12-002-00, *ALARA Organization and Responsibilities*, August 24, 1999
- AP RP-12-003-00, *ALARA Administrative Control Levels*, March 15, 1999

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- AP RP-12-004-00, *Radiological and ALARA Performance Goals and Indicators*, March 15, 1999
- AP RP-12-005-00, *ALARA Training*, July 6, 1999
- AP RP-12-007-00, *Internal ALARA Program Reviews and Work Practice Assessments*, July 6, 1999
- AP RP-12-009-01, *Radiological Review Process*, September 9, 1999
- AP RP-12-010-00, *ALARA Work Planning Process*, January 25, 1999
- AP RP-14-005-00, *Radiological Control Assessments*, December 29, 1998
- Assessment of Radiological Design Review, Spent Nuclear Fuel Project, November 16, 1998
- Assessment of Respiratory Protection Usage at the SNF Project, May 15, 1999
- Completed Work Packages:
 - 1K-96-2026, CTFM MEI Conduit Reroute, 105KE
 - 1K-97-2103, IXM Temporary Piping, 105KW
- Current Work Packages:
 - 1K-96-1275/K, Center Mezzanine Removal, 105KE
 - 1K-96-2026/K, MEI Re-routes, 105KE
 - 1K-99-02664/W, Install IXM 897-058 into 105-KE
 - 1K-99-01872/W, Install IXM 897-063 into 105-KE
- DESH-9850605, *Self Assessment of Enhanced Radiological Work Planning*, Letter from P. J. Huntley, DESH to P. A. Volza, FDH, March 31, 1998
- DESH-9854542, *Corrective Action from Self Assessment of Enhanced Radiological Work Planning*, Letter from P. G. Huntley, DESH, to S. R. Johnson, FDH, June 1, 1998
- HNF-PRO-052, *Corrective Action Management*, Rev. 2, August 3, 1999
- HNF-PRO-239, *Management Self Assessment Plan*, Rev. 1, July 2, 1998
- HNF-PRO-319, *Radiation Protection Self Assessments*, Rev. 1, February 24, 1999
- HNF-PRO-326, *Contamination Area Controls*, Rev. 0, September 8, 1997
- HNF-PRO-327, *Fixed Contamination Areas*, Rev. 1, April 19, 1999
- HNF-PRO-328, *Personnel Monitoring*, Rev. 0, September 8, 1997
- HNF-PRO-329, *Radiological Training*, Rev. 0, September 8, 1997
- HNF-PRO-331, *Work Place Air Monitoring*, Rev. 0, September 8, 1997
- HNF-PRO-343, *Selection of Radiological Control Technicians*, Rev. 0, September 8, 1997
- HNF-PRO-364, *Selection of Senior Radiological Control Technicians*, Rev. 1, April 28, 1999
- HNF-PRO-378, *Radiation Protection First Line Supervisor Qualifications*, Rev. 0, September 8, 1997
- HNF-PRO-386, *Radiological Control Technician Qualification and Training*, Rev. 0, September 8, 1997
- HNF-PRO-388, *Radiological Problem Reports*, Rev. 1, December 3, 1998
- HNF-PRO-423, *Radiological Work Permits*, Rev. 0, September 8, 1997
- HNF-PRO-435, *Required Radiological Surveillances*, Rev. 1, April 14, 1999
- HNF-PRO-686, *Radiological Control Hold Points*, Rev. 1, June 16, 1999

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- HNF-PRO-1526, *Implementing Radiation Protection Technical Procedures*, Rev. 0, November 15, 1997
- HNF-PRO-1619, *ALARA Organization and Responsibilities*, Rev. 0, September 1, 1998
- HNF-PRO-1620, *ALARA Program Scope*, Rev. 0, September 1, 1998
- HNF-PRO-1621, *ALARA Decision Making Methods*, Rev. 0, August 17, 1998
- HNF-PRO-1622, *Radiological Design Review Process*, Rev. 0, September 1, 1998
- HNF-PRO-1623, *Radiological Work Planning Process*, Rev. 1, August 17, 1999
- HNF-PRO-1630, *Radiological Performance and ALARA Goals*, Rev. 0, September 1, 1998
- HNF-PRO-1892, *Documentation of Radiological Surveys*, Rev. 1, July 2, 1999
- HNF-SD-SNF-PD-001, *Spent Nuclear Fuel Project Operational Staffing Plan*, Section 6.10, "Radiological Control Work Groups," Rev. 2, December 31, 1999
- HSRCM-1, *Hanford Site Radiological Control Manual*, Rev. 2, December 9, 1994
- Nonconformance Report, 99-SNFP-0057
- Occurrence Reports:
 - RL--PHMC-SNF-1999-0028, Update Report, October 25, 1999
 - RL--PHMC-SNF-1999-0031, Notification Report, October 15, 1999
 - RL--PHMC-SNF-1999-0032, Notification Report, October 15, 1999
- Organizational Charts for the Radiological Control Organization, October 11, 1999
- Radiological Control Exempt Staff Qualifications
- Radiological Control Exempt Staff Job Descriptions
- Radiological Problem Reports:
 - K-99-112, October 12, 1999
 - K-99-113, October 12, 1999
 - K-99-114, October 12, 1999
- Radiological Surveys (3)
- SNF Project Radiological Phase II Management Self Assessment Report 1998.

Interviews Conducted

- Lead Radiological Control Technician (2)
- Nuclear Chemical Operator
- Radiological Control As Low as Reasonably Achievable (ALARA) Coordinator
- Radiological Control First Line Manager (2)
- Radiological Control Manager
- Radiological Control Support Manager
- Radiological Control Technician (4)
- Shift Manager (2).

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Observations

- Deficiency Evaluation Group Meeting, November 1, 1999
- Work Integration Team Meeting, November 2, 1999
- Radiological Control Monthly Safety Meeting, November 8, 1999
- Plan of the Day, November 10, 1999
- Pre-Job Briefing, 1K-96-1275/K, Center Mezzanine Removal, 105-KE, November 10, 1999
- Pre-Job Briefing, 1K-96-2026/K, MEI Re-routes, 105-KE, November 10, 1999
- General Construction Activities, 105-KW, November 8, 1999
- Construction Activity, 1K-96-1275/K, Center Mezzanine Removal, November 10, 1999
- Construction Activity, 1K-96-2026/K, MEI Re-routes, November 10, 1999
- IXM Change out, 105-KE, November 11, 1999
- Pre-job Briefing, 1K-99-02664/W, Install IXM 897-058 into 105-KE, November 11, 1999
- Pre-job Briefing, 1K-99-01872/W, Install IXM 897-063 into 105-KE, November 11, 1999
- Enhanced Work Planning Meeting, November 10, 1999.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms for Radiological Control and Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.*

FDH and SNF Project radiological control procedures require adequate planning of work items to identify hazards and implement controls. Planning is proceduralized in the ALARA work planning procedure to start at the earliest stages of defining the scope of work and continue through the performance of the work activity. The use of the ALARA Committee, as required by the ALARA Organization and Responsibilities procedure, ensures that SNF Project management reviews the reasons for, and methods used for, higher risk work. The use of the Automated Job Hazard Analysis (AJHA) by personnel from the Radiological Controls Organization and the Operations and Maintenance Organizations is specifically mandated by the work planning procedures. The SNF Project ALARA procedures implement the FDH ALARA procedures.

SNF has implemented Enhanced Work Planning (EWP) and the use of the AJHA to ensure that hazards are analyzed. The observed EWP meeting was attended by all safety disciplines and by knowledgeable members of the crafts that would perform the work. The EWP meeting covered all aspects of the job and was very detailed, thorough, and comprehensive. The ALARA review process ensures that controls are identified and integrated into the work package or procedure. All work is routed through the Radiological Control organization for ALARA screening in the early planning phase of the activity.

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The ISMS principle of adequate work planning to ensure that hazards are identified and controls are implemented could not be observed for the startup of the Cold Vacuum Drying Facility (CVD) and the Canister Storage Building (CSB). No planning below the high-level transition milestones defined within the baseline to start radiological operations in the CVD and CSB was available for review. The SNFP intends to use the Management Self Assessment Plan to identify the required radiological program elements for the new facilities. The Management Self Assessment Plan defines the process that SNF line management will use to ensure facility readiness for fuel movement and does not address the identification of hazards or implementation of controls. (SME.3-2)

Criterion 2: *Procedures and/or mechanisms for Radiological Controls and Protection contain clear roles and responsibilities. Radiological Controls and Protection is effectively integrated with line-support managers to ensure that line managers are responsible for safety.*

The FDH and SNF radiological control procedures contain clear roles and responsibilities. All of the procedures reviewed assign specific job classifications to perform each specific task. The integration of line management with radiological safety is required in AP RP-12-002-00, *ALARA Organization and Responsibilities* by staffing the SNF Project ALARA Committee with a multi-disciplined managerial group. Additionally, union members and exempt staff make up the members of the ALARA Awareness Committee. The ALARA Management Commitment and Policy procedure clearly places the responsibility for safety on line management.

The SNF Radiological Control organization has developed job descriptions for all exempt staff that define clear roles and responsibilities. Individual steps in work documents and procedures are performed by the job classification assigned. Interviews conducted indicated that clear roles and responsibilities were understood throughout the organization.

Line management supports the ALARA policy statement made by the SNF Project Senior Executive by direct communication, instruction, and inspection in the work place using the Management-in-Field (MIF) process. However, some weaknesses with line management's implementation of radiological safety responsibilities were observed. Over the last 6 months, the SNF ALARA Committee meetings only had sufficient participation to achieve a quorum 50% of the time. The established members averaged an attendance rate of less than 50%. The attendance rate of the Radiological Awareness Committee was similarly poor. The Management Oversight Program's (MOP) Radiological Control Checklist, which is required monthly, has only been completed three times this calendar year. Additionally, a review of the ACES records show that the only line manager to enter the 105-KE Basin, a contamination area, in the last 5 months was the 105-KE Facility Manager. (SME.3-3)

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Criterion 3: *Procedures and/or mechanisms for Radiological Controls and Protection require controls to be implemented that these controls are effectively integrated, and readiness is confirmed prior to performing work.*

The FDH and SNF radiological control procedures require that controls are implemented and effectively integrated, and that readiness is confirmed prior to performing the work activity. ALARA management worksheets and JHAs are used in the work planning process. These worksheets document the requirements to be incorporated in the Radiological Work Permits (RWP) used to control the work activity. Additionally, the ALARA management worksheets (AMW) may specify radiological hold points to be placed in the work package. ACES is used to control access to radiological areas. Radiological control supervision approval is required for the Radiation Work Permit, and Shift Manager approval is required to perform the work in the facility. These are all required by various FDH and SNF Project procedures to ensure that controls are implemented and integrated prior to the work activity.

ALARA Management Worksheets and ALARA Job Reviews are used in the planning stages to identify what controls are to be implemented. RWPs for work activities were reviewed against the planning documentation and had incorporated the identified controls. A review of work packages showed that controls identified in the planning stage had also been integrated into the work packages and procedures. Pre-job briefings were thorough, covering the Radiological Work Permit, hold points, actions to be taken if unexpected conditions were found, and the status of the work area prior to performance of the task.

Criterion 4: *Procedures and/or mechanisms for Radiological Controls and Protection require that personnel who are assigned to the subject area have a satisfactory level of competence.*

FDH and SNF Radiological Control Procedures require that personnel assigned to Radiological Controls have a satisfactory level of competence. Radiological Control Technicians are required to complete a biannual training program that includes both the DOE Core requirements and Hanford Site Specific training, satisfactory completion of this training is mandatory. Job descriptions have been developed for the Radiological Control personnel. The FDH Human Resources procedures specify minimum requirements for exempt staff.

The Radiological Control exempt staff has two Certified Health Physicists, two Associate Health Physicists, three Masters degrees, three Bachelors degrees, one Associate degree, and two individuals Certified by the National Registry of Radiation Protection Technologists. Interviews with staff members and Radiological Control Technicians demonstrated a high level of competence. (SME.3-1)

A weakness was identified in the staffing plan to start radiological operations in the CVD and the CSB. The CVD and CSB are expected to begin operation in FY2000. The required staff for these new facilities have not yet been hired. Based on interviews with Radiological Control

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Management, there is currently insufficient staff for the addition of these two new facilities. Security clearance issues have delayed the hiring process for Radiological Control Technicians. Failure to hire the necessary personnel in time to complete all the required training and become oriented with the project could degrade the level of competence. (SME.3-4)

Criterion 5: Procedures and/or mechanisms for Radiological Controls and Protection require that within the subject area, feedback and continuous improvement occurs.

The FDH and SNF Radiological Control Procedures require that feedback and continuous improvement occur. Management assessments and self-assessments are used to provide feedback for both strengths and weaknesses. Radiological Control Improvement Plan assessments are used to evaluate the corrective actions on previously identified weaknesses. The Triennial Self-Assessment is used to verify continued compliance with 10 CFR 835 and the DOE Radiological Control Manual. Radiological Problem Reports are all used to radiological document deficiencies. All of these processes are used for feedback and improvement.

Feedback and continuous improvement was demonstrated with the use of corrective action plans for deficiencies identified in several assessments performed by the Radiological Control Organization. The corrective action plans were tracked in Deficiency Tracking System (DTS) until they were completed. All Radiological Problem Reports (RPR) are reviewed in the Deficiency Evaluation Group (DEG) meetings. The DEG was observed on one occasion and assigned the proper risk ranking to the RPRs that were reviewed. RPRs with a risk ranking are tracked in DTS until corrective actions are completed. The Radiological Control Organization also categorizes the RPRs to look for developing trends. Feedback from the workers was routinely observed and all issues were addressed and resolved prior to commencement of work.

Conclusion

The integration of radiological control considerations are sufficiently incorporated within the SNF Project policies and procedures. Radiological control mechanisms are institutionalized and were demonstrated to be to be effective throughout the SNF Project. However, line management involvement in radiological control oversight could be improved.

This objective has been met.

Strengths:

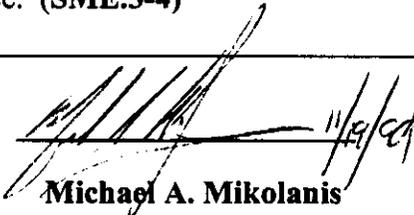
The Radiological Control organization has a high level of competence. (SME.3-1)

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FUNCTIONAL AREA: Subject Matter Expert Radiological Controls and Protection	OBJECTIVE: SME.3 DATE: 11/18/99
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Concerns:

- Adequate work planning for the startup of the CVD and CSB to ensure that hazards are identified and controls are implemented could not be observed. No planning below the high-level transition milestones defined within the baseline to start radiological operations in the CVD and CSB was available for review. (SME.3-2)
- Line management is not actively involved in implementing its safety responsibility in the area of radiological controls. (SME.3-3)
- The Spent Nuclear Fuel Project Operational Staffing Plan to support startup of the CVD and the CSB does not insure a satisfactory level of competence. (SME.3-4)

Submitted:  David S. Hyder <i>Team Member</i>	Approved:  11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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FUNCTIONAL AREA: Subject Matter Expert Occupational Safety and Health/Fire Protection	OBJECTIVE: SME.4 DATE: 11/18/99
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OBJECTIVE

SME.4 - Occupational Safety and Health/Fire Protection. Within the Occupational Safety and Health/Fire Protection, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Occupational Safety and Health/Fire Protection, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE II-3, CE II-5, CE II-6, CE II-7, CE II-8)

Criteria

1. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require that within the subject area feedback and continuous improvement results.

Approach

Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for Occupational Safety and Health/Fire Protection at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that Occupational Safety and Health/Fire Protection is effectively integrated into the facility or activity procedures.

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- Evaluate the sufficiency of the oversight and interface with the Hanford Fire Department for support of fire systems testing and maintenance.
- Review records of Occupational Safety and Health (including subcontracted construction activity records)/Fire Protection surveillance and facility walkthroughs.
- Determine line management involvement in these processes.
- Review selected lessons learned to assess that lessons learned have been effectively used for Occupational Safety and Health/Fire Protection.
- Review training records of personnel in Occupational Safety and Health/Fire Protection to determine that they meet competency standards. Place special emphasis on qualifications from lower-tiered subcontractors at the SNF Project.
- Review performance indicators and metrics used by management to gauge the effectiveness of the Occupational Safety and Health/Fire Protection programs.

Interviews

- Interview personnel and responsible managers assigned to the Occupational Safety and Health/Fire Protection area.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to Occupational Safety and Health/Fire Protection to assess the level of competence.

Observations

- Observe events such as the execution of a surveillance procedure, JHA, or the approval process for an individual work item, which includes interactions with personnel in the Occupational Safety and Health/Fire Protection area.
- Observe facility housekeeping and determine the impact on fire safety and physical access to combat emergency situations effectively.
- Observe the oversight for and interface and coordination with the Hanford fire Department involving fire systems testing, maintenance, and impairments.

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- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements. Interview appropriate personnel to ensure they believe this is true.

Record Review

- 1K-00700, *Fire Extinguisher Inspection*
- 1K-00768/P, *Weekly Self-contained Eye Wash Inspection*
- 1K-99-02048/3, *100K Operations Lock and Tag Surveillance*
- 1K-99-02049/P, *100K Monthly Safety Shower Inspection*
- 1K-99-02055/S, *105KW Monthly Egress Light Test*
- 1K-99-02063, *105KE Monthly Egress Light Test*
- 1K-99-02073/S, *1717K Monthly Fire Extinguisher Inspections*
- 1K-99-02078/P, *100K Monthly Auxiliary Fire Extinguisher Inspections*
- 1K-99-02103/S, *100K Weekly Self-contained Eye Wash Inspection*
- 1K-99-02425, *100K Monthly Fire System Checks*
- 1K-99-02455/S, *190KE Monthly Inspection of 5 Horsepower Compressor*
- 1K-99-02460/S, *1717K Monthly Fire Extinguisher Inspections*
- 1K-99-02732, *105KW Monthly Egress Light Test*
- 1K-99-03025/S, *1706 KE Annual Asbestos Inspection*
- 1K-99-03052/P, *105KW Monthly Egress Light Test*
- 1K-99-03077/S, *1717K Monthly Fire Extinguisher Inspection*
- 1K-99-3043, *100K Monthly Safety Shower Inspection*
- 99-SNF/NHW-026, *Interoffice Correspondence from N. H. Williams, Supervisor Employee Job Task Analysis Communication on De-Enrollment, of April 15, 1999*
- AP EM-4-020-01, *Drill Program, May 10, 1999*
- AP EP-5-007-02, *Hazardous Chemical Inventory and Toxic Chemical Release Reporting, May 13, 1999*
- AP FP-4-014-01, *Fire Protection Program, October 12, 1999*
- AP MN-7-001-02, *JCS PM and Surveillance PM/S Module, September 24, 1999*
- AP MN-7-002-09, *Work Control, July 1, 1999*
- AP MN-7-004, *Pre-job Briefings, August 3, 1998*
- AP MN-7-008-00, *AJHA Process, June 10, 1999*
- AP MS-023-03, *Approval Designation E, S, Q, M, and D Identification, August 18, 1999*
- AP NS-4-015-01, *Hazard and Safety Assessment, May 10, 1999*
- AP OS-1-006-002, *Employee Zero Accident Council, April 21, 1999*
- AP OS-4-008-03, *100 K Areas – Roof Access, February 21, 1999*
- AP OS-4-009-02, *Respiratory Protection Equipment Control, June 21, 1999*
- AP OS-4-011-01, *Hazard Communication Program, December 9, 1996*

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FUNCTIONAL AREA: Subject Matter Expert Occupational Safety and Health/Fire Protection	OBJECTIVE: SME.4 DATE: 11/18/99
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- AP OS-4-012-03, *K Basins Asbestos Control*, March 24, 1999
- AP OS-4-019-01, *Safety Review Board Process*, November 2, 1999
- AP OS-4-022-00, *Management of Occupational Medical Records*, July 15, 1999
- AP-2-008-07, *Lock and Tag*, March 1, 1999
- Asbestos "Good Faith" inspections
- Automated Job Task Analysis
- Canceled confined space entry permits
- Confined Space Hazard Identification forms
- *Contractor Environmental, Safety and Health (CESH) Program*, Rev. 2, February 3, 1997
- Employee Job Task Analysis records
- *Facility Operations Interface Agreement Covering the Spent Nuclear Fuel and DynCorp Tri-Cities Services, Inc. HFD*, March 8, 1999
- FDH, Inc. Interoffice Correspondence, *Results of Review of FDNW for Compliance with ISMS Requirements*, November 1, 1999
- FDH-9853045, *Fluor Daniel Northwest Safety Practice Documents*, Letter from D. L. Jackson to R. J. Kobelski, BWHC, April 21, 1998.
- FDH-9859154 R1, *Spent Nuclear Fuel Project Review of Fluor Daniel Northwest Inc. Safe Work Practices*, Letter from N. H. Williams to E. D. Sellers, RL, November 5, 1998
- Fluor Daniel Northwest Construction Department Practice Manual 653, *Safety Practices*
- HNF-4747, *Spent Nuclear Fuel Project Health and Safety Plan for the K Basins Interim Remedial Action Project*, Rev. 0, July 8, 1999
- Industrial Safety Field Survey Reports
- MP-23-002, *Inspection of Permanent Safety Showers and Eyewashes*, Rev. 0, February 11, 1999
- MP-99-00A, *Asbestos Containing Material (ACM) Inspection*, Rev. 0A, March 26, 1997
- OP-06-001E, *Perform Routine Patrol of 105-KE*, Rev. 7/JJ, February 15, 1996
- OP-06-002W, *Perform Routine Patrol of 105-KW*, Rev.13/JJ, February 15, 1996
- OP-48-001, *Issue and Control of Respirator Protective Equipment*, Rev. 0/D, July 7, 1998
- Safety Department weekly reports
- SNF Project Safety, Health and Emergency Planning Performance Indicators
- SP-07-002, *Air Cooled Chiller Inspection*, Rev. 0, May 17, 1996
- SP-20-001.06E, *105KW Egress Light*
- SP-20-001E.06K, *Monthly Egress Light Test*, September 11, 1996
- SP-20-001W, *Monthly Egress Light Test – 100KW*, Rev. 6, September 11, 1996
- *Spent Nuclear Fuel Project Review of the Contractor Environmental Safety & Health (CESH) Manual*, SNF Project Letter from B. C. Cooper to D. Mobley, February 15, 1999.

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Interviews Conducted

- Asbestos Program Coordinator
- Chemical Management Lead
- Electrical Engineer
- Engineer (CTFM Subproject)
- Facility Operations Support Supervisor
- FDNW Area Safety Manager
- Fire fighter (HFD Testing and Maintenance)
- Fire Protection Engineers (3) (SNF Project, HFD, RPP)
- Health Physics Tech
- Industrial Hygienists (2)
- Instrument and Electrical Supervisor
- Maintenance Manager
- Manager, Safety, Health and Emergency Planning
- Nuclear Chemical Operator (2)
- Operations Manager (E)
- Operations Support Manager
- Pipefitters (2)
- Planners (3)
- Safety Specialists (4) (3 SNF, 1 FDNW)
- Storekeepers (2).

Observations

- Employee Zero Accident Council Meeting, November 4, 1999
- Safety, Health & Emergency Planning Interface Meeting, November 1, 1999
- Safety, Health & Emergency Planning Meeting, November 2, 1999
- Canister Storage Building (CSB) Safe Team Joint Walkdown, November 2, 1999
- AJHA Meeting for Jib Crane Surveillance, FTP-SP-70-011W, November 2, 1999
- FPE Walkdown of Building 1706, November 3, 1999
- Monthly inspection of permanent safety showers and eyewashes (1K-99-3043)
- Monthly air cooled chiller inspection (1K-99-3047)
- Weekly Safety Inspection of Cold Vacuum Drying Project
- Weekly Safety Inspection of Canister Storage Building
- AJHA/EWP session for *Disconnect and Ship IXM W95-046, 105-KW* (1K-99-032220/W), November 8, 1999
- Walk-through of 190KE Shipping and Receiving Warehouse

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- Safety walk-through of 105KE Basins
- Safety walk-through of 183KE.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.*

The SNF Project relies heavily upon FDH procedures and the AJHA process as mechanisms for defining and controlling work and associated hazards. In general, when combined with SNF Project implementing procedures and policies, adequate guidance is provided for analyzing potential or actual occupational safety, health and fire protection hazards and for identifying controls. Although recently revised procedures are well written, easier to understand, and provide needed guidance to perform the task, some of the older procedures don't clearly incorporate ISM principles and in some cases, are not well integrated with other procedures. For example, HNF-PRO-363 requires that emergency lights that are found deficient shall be repaired within 24 hours, or portable emergency lights shall be provided at the affected area(s) until permanent lights are restored to service. Both the 105 KE and 105 KW egress light inspection procedures state "Note. Deficient egress lights must be repaired within ten working days." The SNF Project currently has no implementing procedures or mechanisms for compliance with requirements associated with either an assured grounding conductor program or ground fault circuit interrupters. (SME.4-2)

A review was conducted by Strategic Management Initiatives, Inc. in October 1999 to assess FDNW practices and procedures against the Project Hanford Management Contract (PHMC) requirements for flow down of ISMS requirements (DEAR clause) to lower-tier subcontractors. The Strategic Management Initiatives review concluded that FDNW procedures (practices) adequately addressed the requirements of the core functions and guiding principles from the contract clause. This assessment was accepted by FDH. However, this review noted that the cited implementing mechanisms for "Core Function 1: The Contractor thoroughly reviews the defined scope of work" are FDNW "Safe Work Practices." These practices by themselves do not provide direction concerning definition of the scope of work. Additionally, the SNF Project has not conducted an assessment of the Contractor Environmental, Safety and Health Program (CESH Manual) in regards to the adequacy of flow down of DEAR clause requirements. The CESH Manual is used at the Cold Vacuum Drying (CVD) Facility in lieu of the FDNW Construction Department Practice Manual 653, *Safety Practices*. (SME.4-3)

FDH also conducted a review to ensure FDNW "Safe Work Practices" met or exceeded the appropriate requirements and controls for performance of work within the PHMC structure, and to identify any inconsistencies with regulatory standards. This review concluded that the content

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issues identified by employees are addressed, prioritized and corrected. A number of additional mechanisms are used to communicate safety responsibilities such as staff, safety, and tailgate meetings, bulletin boards, and memoranda of agreement such as with the HFD.

Support and ownership for safety was demonstrated by the safety walk-downs observed. Persons representing management, safety, craft, and subcontractors performed these walk-downs. The SNF Project also uses a "Manager in the Field" program to provide visibility and demonstrate management involvement.

Other mechanisms used to ensure SNF Project responsibility for safety include processes, such as posting access to roofs "Obtain Shift Managers authorization prior to roof access;" and requiring approval of work packages developed by the HFD for fire systems inspection, testing and maintenance, and other subcontractors.

Individual managers are responsible for completing an EJTA for each of their employees and informing employees of the information that is contained in the EJTA. The expectation is that managers and employees work together in identifying hazards associated with individually assigned work activities. A random review of more than 65 EJTA's revealed that 27 were submitted to medical with the note "employee not available for signature." Another 4 employees had no EJTA in the system, and another 6 had EJTA's in progress. Interviews indicated that employees were only vaguely familiar with EJTA's, but they were aware of the hazards they were potentially exposed to. (SME.4-2)

Criterion 3: *Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.*

Procedures and/or mechanisms exist to create various layers of controls for performance of work. Examples include the permitting process, involvement of Subject Matter Experts in the planning and AJHA processes, and work release. The emphasis on pre-job briefings and employee participation in more of a team concept has served to strengthen this process for identifying, communicating, and controlling hazards prior to performing work. An example of the value from using multiple mechanisms was demonstrated with the CVD facility construction project. Although Review Comment Records submitted by the Fire Protection Engineer were not addressed on the initial design reviews, when the Fire Hazard Analysis was conducted, it identified National Fire Protection Agency (NFPA) code deficiencies. These deficiencies are now in the process of being corrected. FDH procedures in effect during the original construction have subsequently been updated to include the need to obtain a permit from the Hanford Fire Marshal's Office for activities involving construction, occupancy or demolition activities. This additional review/oversight process should ensure that controls and readiness are confirmed earlier in the process.

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of FDNW safety practices (with minor revisions) results in a requirements basis that is commensurate with FDH safety, health, and fire protection procedures. This review reached the same conclusion. An analysis by SNF Project of the equivalency of the CESH Manual to convey safety, health, and fire protection requirements and practices to subcontractors revealed a number of shortfalls when compared to current FDH procedures. FDNW addresses these shortcomings through use of the job safety analysis and work review processes.

The AJHA process is effective in identifying and analyzing hazards, yet relies heavily on having the appropriate personnel present for the evaluation. It applies a graded approach, and this may result in missing a potential hazard if the appropriate personnel are not present. Pre-job briefings are conducted to ensure each person understands their roles in performing a task safely and efficiently. Pre-jobs also ensure that an AJHA has been properly prepared, potential interfaces with other work planned in the vicinity is reviewed, permits are completed, and personal protective equipment (PPE), equipment, and materials are staged and available.

SNF Project has a strong program dealing with asbestos. Inventories are maintained and good faith inspections are conducted. Suspected Presumed Asbestos Containing Material (PACM) is tested prior to disturbing. Facilities containing PACM are appropriately posted to warn personnel entering. Additional training and controls are implemented for asbestos work, or work in the area that could potentially expose personnel or damage ACM. When ACM or PACM material is identified as being damaged or as posing a potential hazard, a graded approach is used to isolate it, remove it, or to encapsulate it. However, some warning signs have outdated points of contacts listed on them. (SME.4-2)

The Confined Space Program has improved upon the standard Confined Space Hazard Identification Form by incorporating photos of the spaces (available as part of the electronic database) into Section 2. This mechanism enhances the ability to identify and recognize hazards. Confined spaces are appropriately labeled and numbered; however, a number of the signs still reflect a classification system that is no longer used. (SME.4-2) The correct classification system is used for the database. An inventory of confined spaces owned by other contractors (Bechtel Hanford, Inc.) is also kept.

Criterion 2: *Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.*

FDH, SNF Project, and FDNW procedures contain clear roles and responsibilities concerning occupational safety, health, and fire protection. Although the overall safety responsibilities are assigned to line management, it is clearly communicated and understood that safety is everyone's responsibility. The SNF Project has institutionalized an Employee Zero Accident Council made up of both employees (including crafts) and management that works as a team to ensure safety

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Procedures require work release and personnel performing the tasks are required to notify the Operations Shift Manager or building supervisor (as appropriate) prior to commencement of work and upon completion of work. In the work evolutions observed, this practice was followed. The implementing procedure of work control (AP MN-7-002-09) uses a graded approach to incorporate ISMS principles. For planned work activities (complex, medium or high risk), planners schedule an initial scoping meeting and conduct walk downs with appropriate work groups to define the following:

- Workscope and job hazards identification
- List of appropriate work packages and procedures
- ALARA/radiological planning required
- Required resources
- Prerequisites and plant conditions
- Work instructions using JCS or equivalent
- NEPA and environmental permitting requirements
- AJHA and hazard assessment requirements.

Procedures require work release, and personnel performing the tasks are required to notify the Operations Shift Manager or building supervisor (as appropriate) prior to commencement of work and upon completion of work. In the work evolutions observed, this practice was followed. Fire protection and industrial safety systems (such as fire extinguishers, egress lighting, safety showers, and eye wash stations) are maintained through implementation of a scheduled preventative maintenance program. Deactivation or impairments are coordinated with/controlled by Operations. Additionally, planned work requires that a pre-job briefing be conducted prior to performance of work.

Administrative controls for performance of work in construction areas include personnel reviewing and acknowledging the Job Safety Analysis (JSA) and noting the board that lists ongoing work in the area prior to entry into construction areas.

Hazards are also controlled by use of PPE. The majority of personnel were observed wearing PPE and abiding by postings. However, there were some observances where safety controls were ignored. In the area of traffic safety, on a number of occasions, personnel were observed driving/riding in government vehicles without using seat belts or shoulder harnesses. No one was observed performing a walk-around inspection before operating a motor vehicle (HNF-PRO-100, *Transportation Safety*). Examples in other areas include performing work in an area posted "Warning – Noise Area - Hearing Hazard – Use of Hearing Protection Required When Equipment Is Operating" without using hearing protection. In this case, the warning sign was lying on the ground. Although AP FP-4-014-01, *Fire Protection Program*, Section 6.11.a, requires that Facility Management "Posts the appropriate signs for outdoor, designated, smoking areas," there are no posted smoking areas. (SME.4-2)

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Criterion 4: *Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require that personnel who are assigned to the subject area have a satisfactory level of competence.*

Specific PHMC, SNF Project, and FDNW procedures document competency and training requirements for performance of work and assigned responsibilities involving occupational safety, health, and fire protection. Within the safety and health profession, reliance is placed upon close observance, performance assessment, and training to ensure competency. Several members of the health and safety staff and the Fire Protection Engineer have professional certifications.

Personnel assigned responsibilities within the asbestos program are appropriately trained and maintain State and Asbestos Hazard Emergency Response Act certifications. In other areas that require specific safety and/or health training for work execution (such as respirator training, scaffold user training, fall protection, fire extinguisher use, etc.) qualifications are addressed/controlled as part of the work package, procedure, AJHA, etc. In the case of respirator issuance, personnel are required to produce their Hanford Site issued mask fit and respirator training cards before a mask will be issued (includes subcontractors). Safety and Health professionals are responsible for ensuring that appropriate respiratory protection is prescribed for non-radiological uses.

In an effort to improve knowledge concerning ISMS, the SNF Project has initiated an "ISMS Question of the Day" patterned after the successful "RADCON Question of the Day." Questions related to ISMS are sent out electronically on a daily basis. The answer is provided the next day. Additionally, SNF Project has developed a game based upon the TV game show "Jeopardy" to reinforce understanding of ISMS and Voluntary Protection Program concepts. This type of training has been well received by attendees.

Criterion 5: *Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require that within the subject area feedback and continuous improvement results.*

A number of procedures and mechanisms are in place for collecting feedback to be used for continuous improvement for safety and health. In October 1999, the SNF Project reached the safety milestone of working one million hours without an injury that caused a lost workday was achieved. The FY 1999 Lost Workday case rate in the SNF Project was reduced by 60% from the FY 1998 rate. Walk-downs (including joint walk-downs of construction sites) by management, workers, and safety professionals are used to identify noncompliance with procedures and requirements as well as field conditions. Deficiencies are then entered into various corrective action and tracking systems. Feedback is also obtained from employee inputs provided to the SNF Project Employee Zero Accidents Council and evolving action items are tracked to completion. The work planning process includes feedback obtained from sources such

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as the AJHA and post-job reviews. Other sources of feedback include a lessons learned program, management assessments, and tracking/trending of safety and health performance indicators.

The preventative maintenance procedures require that the Shift Manager be advised of and acknowledge discrepancies or failures identified that require further repairs, replacement, or corrective action. With one exception (monthly preventative maintenance packages for egress lighting) this process appeared to be effective. Preventive Maintenance (PM) for monthly egress lighting inspections show that a number of failures have not been addressed in a timely manner. The Fire Protection Engineer was not aware of these deficiencies (1706-KE circuit #9 lighting panel dead short; 1725-KE egress lights 1, 2, 3 and 4 inoperable; 183-KE egress lights 7 and 8 inoperable.) (SME.4-2) Review of completed work and permits for comments and analysis of results provides a feedback mechanism that can then be incorporated into the process for continual improvement.

Routine weekly safety walk-downs performed by persons representing management, safety, craft, and subcontractors have been implemented. The teaming demonstrated by this process has proven to be an excellent mechanism for demonstrating management ownership, for increasing general awareness of issues, and for providing instantaneous feedback on the success or failure of safety, health and fire protection programs. (SME.4-1) Weekly safety inspection checklists are used for construction projects and industrial safety field survey report forms for SNF Project occupied facilities. Many of the deficiencies noted are corrected at the time of observance. Results of these "assessments" are communicated to the management chain and deficiencies and corrective actions are tracked using a number of different mechanisms. In the case of FDNW, a Safety Action Tracking System is used for identifying both deficiencies and strengths noted during walk-throughs.

Programmatic reviews (including those performed by FDNW) are also being conducted to evaluate the status of implementation of safety, health, and fire protection requirements, and provide needed feedback. For example, although a review of confined space entry permits revealed minor administrative deficiencies (some signatures missing, blocks not checked, not closed out, etc.), it indicates that hazards were properly analyzed, and monitoring data conducted. Although not proceduralized, Weekly Safety Reports are also used to provide feedback concerning the status of ongoing efforts and where resources need to be focused.

A concern exists that surveillances and tours/field walk throughs continue to discover the same type of safety, health, and fire protection deficiencies. Although many are minor and appear to be isolated in nature, in aggregate, they indicate that requirements are not yet fully implemented. SNF Project examples include the following: egress lighting not properly aimed (even though this is supposed to be checked as part of the monthly PM), confusing exit markings, incompatible chemical storage, and warning signs not being maintained (references outdated

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points of contacts or requirements, or fallen down). Within construction areas, examples include the following: damaged electrical extension cords run through doorways; electrical cord with failed strain relief not removed from service; impeded access to portable fire extinguishers; improper storage of combustibles; unlabeled secondary cans of presumed hazardous material; ladders not extending 3 ft above level of egress; ground fault circuit interrupter in use with expired inspection sticker; locked exit door; and no inspection tags on fire extinguishers mounted on rental equipment used at the CSB. Although detected by established processes designed to assess the status and correct deficiencies, the corrective action mechanisms are not resulting in effective closure. (SME.4-2)

Conclusion

Although there is always room for improvement, a review of the SNF Project procedures, plans, and mechanisms, combined with interviews and field observations, indicates that occupational safety, health, and fire protection hazards are adequately addressed. An adequate process exists for identifying, analyzing, and controlling hazards. Work is authorized and controlled. The SNF Project has assembled a competent staff for addressing occupational safety, health, and fire protection. It is apparent that efforts in obtaining feedback and accomplishing continuous improvement have enabled the project to prioritize and address the more significant safety concerns. However, it is in this area that the greatest opportunities for improvement exist. The safety culture of the SNF Project is observed addressing those issues recognized as immediate hazards and of high priority/risk. The next step is to increase the sensitivity of the management/worker team to recognize and address, in a timely manner, the "mundane" or perceived lower risk/deficiencies.

The objective has been met.

Strengths:

The recent teaming/working relationship demonstrated between SNF Project and FDNW to evaluate and implement occupational safety, health and fire protection requirements is commendable. (SME.4-1)

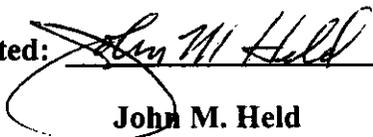
Concerns:

- Minor discrepancies were identified with implementation of requirements outlined in PHMC/ SNF Project procedures and FDNW Safety Practices/CESH Manual. These are indicative of a safety culture that is still in the process of maturing. (SME.4-2)

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- Documentation of the processes and procedures that compose the implementing mechanisms for the flow down of ISMS requirements (DEAR clause) to subcontractors is incomplete. (SME.4-3)

Submitted:  John M. Held <i>Team Member</i>	Approved:  11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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OBJECTIVE

SME.5 - Environmental Compliance/Chemical Management. Within Environmental Compliance/Chemical Management, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Environmental Compliance/Chemical Management, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE II-3, CE II-5, CE II-6, CE II-7, CE II-8)

Criteria

1. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Environmental Compliance/Chemical Management contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require that within the subject area, feedback and continuous improvement occurs.

Approach

Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for Environmental Compliance/Chemical Management at the facility or activity.

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- Assess the adequacy of the documents to meet the criteria above and determine that Environmental Compliance/Chemical Management is effectively integrated into the facility or activity procedures. In particular, note the methods of maintaining configuration management and the documentation during the execution of the facility work. Be alert to worker involvement in the processes reviewed.
- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used or implemented within Environmental Compliance/Chemical Management.
- Review the Chemical Management Implementation Plan and determine if the above criteria are being satisfied as result of implementation plan.
- Review training records of personnel in Maintenance and Work Control to determine that they meet competency standards.

Interviews

- Interview personnel and responsible managers assigned Environmental Compliance/Chemical Management.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to Environmental Compliance/Chemical Management to assess the level of competence.

Observations

- Observe events such as the development of a procedure, development of a hazards analysis such as an RWP or JHA, or the approval process for an individual work item, which includes interactions with personnel of the subject area.
- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements.

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Record Review

- AP EP-5-001, *Identification and Administration of Regulatory Files*, January 12, 1998
- AP EP-5-002-02, *Administration of NEPA*, April 5, 1999
- AP EP-5-003-04, *Air Permit Environmental Files*, May 13, 1999
- AP EP-5-008-02, *Notification to Environmental Regulatory Agencies*, May 13, 1999
- AP EP-5-009-02, *Environmental Permitting*, May 13, 1999
- AP EP-5-018-03, *Environmental Basis Performance Assurance Process*, July 8, 1999
- AP MN-7-002-09, *Work Control*, July 1, 1999
- AP MN-7-008-00, *AJHA Process*, June 10, 1999
- AP MS-1-010-05, *S/RIDs Self Assessment*, October 12, 1999
- AP MS-1-036-02, *Management Assessment*, July 8, 1999
- AP NS-4-002-04, *Process Standards Administration*, May 10, 1999
- AP WM-5-010, *K Basins Solid Waste Management*, November 2, 1998
- Chemical Management Status Report
- Chemical Management System Implementation Plan/Schedule
- Declaration of the Record of Decision for K Basins Interim Remedial Action, September 30, 1999
- Draft Process Standard 414-RO, Canister Storage Building Radioactive Air Emissions
- Environmental Staff Organizational Roles and Responsibility Matrix
- FY 2000 Management Assessment Schedule
- HNF-3552, *Spent Nuclear Fuel Project, Project Execution Plan, Rev. 0-A*, February 22, 1999
 - Section 1.11.2, "S/RID"
 - Section 1.11.3, "Permits"
 - Section 2.6.3, "Management Plans and Procedures"
 - Section 3.0, "Organization and Staffing"
 - Section 13.0, "Safety, Health, and Environmental"
 - Section 13.3, "Environmental Compliance"
 - Section 13.6, "Environmental"
 - Section 13.6.1, "Environmental Compliance Program"
- HNF-PRO-2258, *Chemical Management, Rev. 0*, August 31, 1998
- Interoffice Correspondence, *Staff Reductions*, from J.H. Wicks to P.H. Colgan, June 24, 1999
- Interoffice Correspondence, *Spent Nuclear Fuel Project Implementation Plan for HNF-PRO-2258, Chemical Management*, from D.P. Kimbal, to W.D Adair, August 31, 1998
- Work Packages:
 - K-99-425-PM, "105KW Annual HOI-418&423 XFER Bay Crane Insp"
 - K-99-03396/W, "Changeout Ballast/Fixtures 1719K"

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- K-99-02665/W, "Generic Work Item Load IXM #E97-058 with Resin 105KE"
- K-99-2447/S, "Surveillance 105KE Monthly Haz Material Storage Area Inventory"
- K-99-2749/I, "185K Monthly Calibration Turbidity Monitor"
- K-99-2769/P, "105 Quarterly Demin Water Filter Changeout."

Interviews Conducted

- Coordinators, Chemical Management (2)
- Engineers, Environmental (2)
- Manager, Environmental Protection
- Manager, Performance Improvement and Regulatory Services
- Manager, Regulatory Interface and Technical Support
- Manager, Self Assessment
- Manager, Waste Management
- Planner (2)
- Shift Manager
- Specialist, Warehouse Storekeeper
- Team Leader, Chemical Management
- Waste Handler
- Waste Shipper.

Observations

- Plan of the day meetings (2)
- Automated Job Hazard Analysis (AJHA)/Enhanced Work Planning (EWP) meeting for the 105-KW IXM Disconnect, Contain and Shipping
- AJHA/EWP Meeting for the 105-KW IXM Platform
- AJHA/EWP Meeting for the 105-KE Monorail Load Test
- Inspection of the 190-K Warehouse and 1724-K Chemical Storage and Excess Material Storage Areas
- Safety Staff Meeting.

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Discussion of Results

Criterion 1: Procedures and/or mechanisms for Environmental Compliance/Chemical Management require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

The facility has implemented the AJHA for work planning. Environmental Compliance/Chemical Management (EC/CM) is integrated into this process through the development and implementation of administrative and environmental procedures. AP MS-1-023, *Approval Designators E, S, Q, M, and D, Identifications*, provides instructions when environmental, safety, and quality approvals are required on SNF Project documentation. This documentation consists of Authorization Basis, engineering documents, technical procedures, and work documents, etc. AP EP-5-002, *Administration of NEPA*, defines the process for implementing the *National Environmental Policy Act of 1969* (NEPA) for SNF Project activities.

The facility's chemical management (CM) administrative procedures do not list all of the requirements to ensure compliance with the Hanford Site Chemical Management System (CMS), HNF-PRO-2258, *Chemical Management*. In 1998, the facility developed a Chemical Management Implementation Plan (CMIP) that identified gaps in their administrative procedures as a baseline to the Hanford Site CMS. The CMIP identified changes to AP OS-4-011, *Hazard Communication Program*, and AP PM-3-003, *K Basins Material Control and Warehousing*, that are needed to fully implement the site CMS at the SNF Project. These two procedures do not reflect all the requirements for CM and are outdated. Additionally, facility procurement and warehouse control procedures have not been updated with the necessary CM requirements to ensure proper handling and storage of chemicals upon receipt. Interviews and document reviews indicate that the CMIP was not maintained over the last year and several actions necessary to address the identified gaps have not been implemented. The facility has recently reassigned the responsibility for CM to facility operations. The facility is in the process of redefining the baseline and incorporating the necessary changes to procedures to institutionalize some of the process currently used to manage chemicals at the SNF Project. (SME.5-2)

During three observed AJHA/EWP meetings for work activities, the environmental and chemical hazards were addressed using the AJHA tool. The meetings discussed the work activity and procedures to be used. A review of work packages revealed the planning process is fully developed and has been used as presented in the meetings.

One area that could be improved is a consistent method for documenting the waste generated from the job/activity. A review of work packages indicated that several of the procedures in the work packages called for waste disposal; however, the AJHA did not identify the waste hazard, including waste type. Interviews with the planner and manager for waste management indicated

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that two methods could still be in use by the facility. One method relies on the procedure to identify the waste and necessary controls. However, recently more emphasis has been placed on the use of the AJHA tool during planning meetings. Although waste generation is covered by either approach, a single policy/process to ensure consistent waste hazard identification needs to be established.

Criterion 2: Procedures and/or mechanisms for Environmental Compliance/Chemical Management contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.

The administrative procedures used for EC/CM list the responsibilities for the EC/CM reviews, approvals, and implementation of SNF Project documents. The EC Manager has position descriptions and procedures that describe each employee's requirements and technical qualifications. The Environmental Staff Organizational Roles and Responsibility Matrix lists each staff member's responsibilities by duty, project, regulatory area, documents, permits, and procedures. Because of the recent change to move CM to facility operations, roles and responsibilities are not clearly documented to ensure full understanding and implementation of a CMS throughout the facility activity levels. Interviews with the Operations Manager and CM staff demonstrated a clear understanding of their roles and responsibilities.

Interviews with the EC engineers and CM coordinators revealed a good understanding of roles and responsibilities. The integration of the EC engineers with work planners and the implementation of NEPA and environmental reviews were clearly understood by the facility personnel. The integration of CM across the facility relied on direct oversight by CM coordinators and not assigning or understanding the end users responsibilities.

A concern with hazard identification and compatibility review before storage was identified. During the interviews with warehouse personnel, it was stated that CM was based on the CM coordinators direct input. This process was used because the warehouse personnel believed that the CM coordinators were responsible for implementing the SNF Project CM program. Additionally, warehouse personnel stated no procedures were used for CM. In another instance, end-users indicated that they were not responsible for listing/updating CM inventories as material was added or removed from their CM storage areas. This responsibility was left to the operator who accomplished monthly surveillance of the inventory storage locations. (SME.5-3)

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Criterion 3: *Procedures and/or mechanisms for Environmental Compliance/Chemical Management require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.*

The EC administrative procedures are structured to communicate and integrate environmental requirements and controls into work planning. AP MS-1-023 and AP EP-5-018, *Environmental Basis Performance Assurance Process*, identify the process to approve and incorporate environmental controls for SNF Project technical documents. AP EP-5-018 also contains a matrix table that describes the implementing documentation for the requirements. The environmental process standards listed in the administrative procedures are part of the process to aid in the development and maintenance of the authorization basis. These process standards are then used in the development of technical procedures that implement the controls throughout the SNF Project work activities. In addition to AP EP-5-018, other administrative procedures cover the NEPA review requirements and environmental permitting for new and modified facilities and processes at the SNF Project. (SME.5-1)

As stated earlier, the CM administrative procedures have gaps, which are identified in the CMIP. The facility has institutionalized some of the operational requirements of the CM process in work packages. These work packages are included as part of the routine surveillance and inspection scheduling and cover areas such as chemical storage areas and conducting chemical inventories.

The review of documents and records and interviews with environmental engineers demonstrates that the process for incorporation of environmental compliance into work packages and procedures is working. Although the *Comprehensive Environmental Response, Compensation and Liability Act of 1980* Record of Decision for the K Basins is not fully integrated into the facility processes and procedures. There are mechanisms working to ensure compliance with the newly imposed requirements. The Environmental Compliance Manager walked through the steps to identify the applicable requirements and how the information is being developed into process standards and procedures. In addition, the Waste Management Manager stated that the field workers have been instructed on how to identify the new waste stream and that the administrative procedure AP WM-5-010, *Solid Waste*, is in for revision to reflect the new requirements.

The review of several work packages revealed that some of the packages did not contain AJHA or other NEPA documentation and therefore were not reviewed under the AJHA. Interviews with the planner, environmental engineer and Environmental Compliance Manager demonstrated that AP MN-7-002, and AP EP-5-002 does ensure that all work packages and procedures for routine work are or have been processed under NEPA.

SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Subject Matter Expert Environmental Compliance/Chemical Management	OBJECTIVE: SME.5 DATE: 11/18/99
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During the inspection of the 1724K chemical storage location and warehouse, several deficiencies and concerns were identified with the process to ensure safe storage and handling of chemicals. The first dealt with incorrect inventories. A review of the inventory sheet in the 1724K chemical storage showed that two full shelves of material did not appear on the latest inventory. In another cabinet, the inventory did not match the number of 1-gallon containers stored in the cabinet; the cabinet had more material than the inventory listed. During an interview it was stated that the inventories for the facility are not maintained by the operators, but are only updated once a month when Operations performs the monthly surveillance. The facility has recently adopted a new policy to change the monthly surveillance to quarterly.

During the inspection of the 1724K chemical storage and the warehouse, two instances of potential incompatibility were questioned. Although the concerns were looked into by the facility, the process in the field did not adequately allow the end user to properly determine or even question if there were compatibility concerns before placing material into storage. In addition, when asked which procedure was used for chemical handling and storage at the warehouse, the staff indicated that procedures were not used. (SME.5-3)

Criterion 4: *Procedures and/or mechanisms for Environmental Compliance/Chemical Management require that personnel who are assigned to the subject area have a satisfactory level of competence.*

The EC/CM organizations use the Training Implementation Matrix to manage staff qualifications and training. The position descriptions and process used to identify technical support staff qualifications are contained in the Human Resource administrative procedures. The Environmental Manager also uses an organizational matrix of roles and responsibilities to track each employee's jobs duties and ensure that documents or requests for assistance are distributed to the most knowledgeable staff member. The matrix also identifies primary and secondary points of contacts.

Interviews indicate that personnel assigned to the jobs of EC engineers and CM coordinators have the competence and job skills needed to perform their duties. However, in the area of CM, the end user of the material or the person responsible for receipt relied on the CM coordinators to perform or approve many of their actions. When questioned on the proper storage and compatibility of the material at the warehouse and 1724K chemical storage, personnel described actions that would happen during the monthly inventory process accomplished by operations and safety personnel. Monthly inspection practices poses the potential for any concerns or compatibility issues to not be addressed for 30 or more days. Although some basic understanding was demonstrated by the use of Department of Transportation (DOT) shipping labels, compatibility at the specific chemical/product level was not understood.

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Criterion 5: *Procedures and/or mechanisms for Environmental Compliance/Chemical Management require that within the subject area, feedback and continuous improvement occurs.*

The EC/CM uses the administrative procedures for the self-assessment program. In addition, the routine inspections/inventory of chemicals are incorporated into work packages and the feedback process is incorporated into the post-job review process. AP MS-1-036, *Management Assessments*, has a yearly schedule that includes EC. The facility CM has moved into Operations in recent weeks and based on the outdated implementation plan, is not routinely assessed by the facility. The FY00 Management Assessment schedule does not identify any chemical management program reviews. (SME.5-4)

The process for participating, reviewing and approving work packages and procedures allows for documented feedback and process improvement. Several of the work packages reviewed did contain post-job reviews. The monthly inspection of the 105-KE work package had several deficiencies identified related to the chemical inventory. There was no documentation of closure or corrective actions of these deficiencies in the work package. Because many of the final procedures to implement the CMS were not approved, no research was conducted to determine the process to close these deficiencies out. Interviews did suggest that this information would be used to update the chemical inventories, and should be included in the final procedures. It should be noted the facility has recently changed to a quarterly inspection schedule. This new process now allows material to sit in storage for more than 90 days without a review of requirements to ensure safe storage.

The feedback process for communicating the status of the CMIP was not maintained. The CMIP used verification forms for tracking and closing out the gaps identified with the baseline review. These forms were not completed, even though several gaps were closed, such as the submittal of the implementation plan. Although a Chemical Status Report was generated, the report was not maintained and does not reflect missed submittal dates for completing actions or submitting updates to the CMIP verification forms.

Conclusion

The EC program is well documented and incorporated into facility administrative procedures. The permitting process and development of AP EP-5-018 and Process Standards has established environmental requirements into facility technical documents. The CM process is not fully developed into an integrated process/system. The process uses outdated industrial hygiene and safety documents for the hazardous communication program and chemical acquisition. The CMIP has not been maintained over the last year and many new procedures and processes used in conjunction with CM are not current, tracked, or documented.

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The deficiencies noted in the inspection and interviews indicate that many of the facility personnel have a basic understanding, but do not have the tools to ensure complete compliance with all the requirements for CM. Storage locations and compatibility is a concern as demonstrated by inspections at the warehouse and 1724K chemical storage area. Although no documented incompatibility was identified during the assessment, the end user does not have the tools to ensure that the chemicals are safely stored. The CMIP feedback process to communicate implementation status and closure of gaps identified during the baseline of SNF project compliance with the site CMS was not fully implemented or documented.

The objective has not been met. Although the EC portion of the objective is strong and has met all the criteria, the CM portion has not met the criteria.

Strengths:

The environmental administrative procedures integrate environmental compliance across the SNF Project. AP EP-5-018, *Environmental Basis Performance Assurance Process*, and *Environmental Process Standards* are strong tools in communicating and implementing environmental requirements and controls into work planning and technical procedures. (SME.5-1)

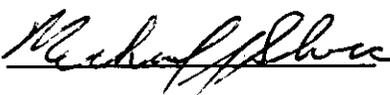
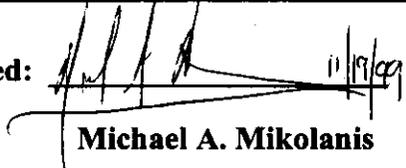
Concerns:

- The CM at SNF Project has not been fully developed into an integrated program/system that is easily identifiable or documented in the facility's process or procedures. The baseline (CMIP) of the facility process against the site requirements needs to be updated to ensure that worker safety and environmental compliance concerns are properly managed. (SME.5-2)
- The mechanisms are not in place to ensure the safety of workers and compliance for chemical handling, storage and use throughout the SNF Project. Incomplete inventories and lack of a process to ensure compatible storage of chemicals were identified at the warehouse and 1724K chemical storage. Interviews of end users demonstrated a reliance on CM coordinators, versus a solid knowledge of responsibilities and understanding of chemical compatibility during storage. The CMIP verification forms were not maintained as part of the feedback process. (SME.5-3)

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- The FY 2000 Management Assessment schedule does not identify any CM program reviews. (SME.5-4)

Submitted:  Michael J. Silvia <i>Team Member</i>	Approved:  11/19/99 Michael A. Mikolanis <i>Team Leader</i>
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SNF PROJECT ISMSV-I/II ASSESSMENT FORM

FUNCTIONAL AREA: Subject Matter Expert Startup	OBJECTIVE: SME.6 DATE: 11/18/99
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OBJECTIVE

SME.6 - Startup. Within Startup, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an integrated process in place to identify SSC safety functions and confirm that these safety functions are adequately demonstrated by the startup program prior to authorization to operate. A process for identifying opportunities for feedback and improvement is implemented. Throughout testing and turnover line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE I/II-3, CE I/II-5, CE I/II-6, CE I/II-7, CE I/II-8)

Criteria

1. Procedures and/or mechanisms for the functional subject matter area require adequate planning of individual work items to ensure that hazards are analyzed, controls are identified, and controls are implemented prior to performing work.
2. Procedures and/or mechanisms are in place, which ensure that there is a process used to confirm that the activity or SSC is in an adequate state of readiness prior to turnover and release to operations.
3. Procedures and/or mechanisms are in place that ensure authorization basis are developed and established for new activities and SSCs, and a process is used to demonstrate readiness and gain authorization to operate.
4. Procedures and/or mechanisms for startup require that feedback and continuous improvement occurs.
5. Procedures and/or mechanisms for startup require that personnel who are assigned to the subject area have a satisfactory level of competence.

Approach

Review the procedures associated with the development of the testing program. Review process for identifying SSC hazards and safety functions and development of criteria for use in construction and pre-operational acceptance testing. Assess mechanisms for capturing the full scope of testing for a particular SSC to demonstrate that the safety function is satisfied. Review process to determine readiness to test and testing authorization. Review configuration management process and personnel training during transition from startup to operations.

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Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for the functional subject matter area at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that the functional subject matter area is effectively integrated into the facility or activity procedures.
- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the functional subject matter area.
- Review training records of personnel in the functional subject matter area to determine they meet competency standards.

Interviews

- Interview personnel and responsible managers in the subject area assigned.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to the SNF Project functional subject matter area organization to assess their level of competence.

Observations

Observe events, such as the development of a procedure, development of a hazards analysis such as a RWP or JHA, or the approval process for an individual work item, which includes interactions with personnel involved with SNF Project functional subject matter area activities.

Record Review

- 2T011-SU-I-98-004, *Memorandum of Agreement for Transition from Construction Activities to Startup Testing*, Internal Memo, December 17, 1998 (superseded by May 3, 1999 MOU)
- 99-SNF/JDM-009, *Control and Conduct of Nuclear Systems Testing at K West Basin*, Internal Correspondence, September 2, 1999
- AP CS-6-019-02, *Acceptance of Beneficial Use Checklist--SSCs*, June 4, 1999
- AP MN-7-001-02, *JCS Preventive Maintenance and Surveillance Module*, October 22, 1999
- AP MN-7-002-09B, *Work Control*, October 22, 1999
- AP MN-7-004-01, *Pre-job Briefings*, August 3, 1998
- AP MN-7-008-00, *AJHA Process*, June 10, 1999
- AP MS-026-00, *Authorization Agreement*, June 18, 1999
- AP MS-1-020-05, *Readiness Determination Process*, September 28, 1999

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- AP MS-1-023-03, *SNF Project Approval Designators E, S, Q, M, and D Identifications*, April 8, 1999
- AP MS-2-016-03, *Managing SNF Project Lessons Learned*, June 8, 1999
- AP NS-4-005-10, *SNF Safety Basis Performance Assurance Process*, October 7, 1999
- AP OP-10-002-01, *Component and Loop Calibrations*, May 10, 1998
- AP OP-10-004-01, *Component Testing*, December 8, 1998
- AP OP-10-005-01, *Startup System and Subsystem Scoping*, March 10, 1999
- AP OP-10-006-00, *Procedure Change Notices and Procedure Change Requests*, September 1, 1998
- AP OP-10-008-01, *Startup Custody Management of SSC*, June 2, 1999
- AP OP-10-009-00, *Release to Operations*, November 14, 1997
- AP OP-10-011-00, *Startup Lock and Tag Requirements*, November 19, 1997
- AP OP-10-013, 02, *Startup Field Request*, August 30, 1999
- AP OP-10-015-04, *Test Procedure Preparation*, December 8, 1998
- AP OP-10-016-00, *Review of Factory Acceptance Tests and Construction Acceptance Tests*, May 22, 1997
- AP OP-10-017-02, *Conduct of Testing*, March 24, 1999
- AP OP-10-019-01, *Temporary Modifications During Testing*, May 6, 1998
- AP OP-10-020-00, *Control of M&TE During Preoperational Acceptance Testing*, November 19, 1997
- AP OP-10-021-00, *Startup Planning/Scheduling and Punchlist Management*, November 14, 1997
- AP OP-10-023-03, *Test Specifications*, September 1, 1998
- AP OP-10-024-02A, *Test Deficiency Reports*, February 22, 1999
- AP OP-10-025-01, *Review, Approval and Disposition of Test Results*, July 21, 1999
- AP OP-10-026-02, *Turnback of Structures, Systems, and Components (SSC)*, August 30, 1999
- AP OP-10-027-00, *Operations and Maintenance Manuals*, March 4, 1999
- AP OP-1-021-01, *Master Work Plan Implementation*, May 10, 1999
- AP OP-2-011-07, *Routines and Operating Practices*, September 10, 1999
- AP OP-2-012-05, *Control of Equipment and System Status*, September 10, 1999
- AP OP-7-003-06, *K-Basins Project Review Process*, June 1, 1999
- AP TN-10-001-01, *Startup Qualification and Training Requirements*, July 16, 1998
- AP-MN-7-005-02, *Roles and Responsibilities Person In Charge and Field Work Supervisor*, August 26, 1999
- *Construction Project and Control Desk Guide*, Rev. 3, September 15, 1999
- *Construction Testing and Startup Testing of the CSB Sample/Weld Station*, September 9, 1999
- *FDNW Construction Work Package Procedure*, Practice 134 500 8330, September 20, 1999
- *HNF-2039, Management Self Assessment*, Rev. 0, January 30, 1998
- *HNF-3552, Spent Nuclear Fuel Project, Project Execution Plan*, Rev. 0-A, December 10, 1998

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- HNF-3553, *CVD Safety Analysis Report, Draft, Rev. 0*
- HNF-IP-1217, *Work Management Guidance, September 30, 1998*
- HNF-PRO-079, *AJHA Process, Rev. 4, September 9, 1999*
- HNF-PRO-2000, *Project Execution, Rev. 0, July 15, 1999*
- HNF-SD-SNF-RPT-004, *CSB Safety Analysis Report, Draft, Rev. 7A*
- HNF-SD-SUP-003, *Startup Plan, Rev. 0, May 15, 1998 (Superceded by the Project Execution Plan)*
- IWTS Test Deficiency Log
- K West Startup Blue Tag Book, November 11, 1999
- K West Timely Orders Logbook, November 12, 1999
- Memorandum of Understanding for Completion and Acceptance for the Spent Nuclear Fuel Project, May 3, 1999
- MHM Control Logic Test Sample Test Log Pages, May 12, 1999 through August 5, 1999
- MHM Testing Job Safety Analysis and associated permits, May 18, 1999
- Miscellaneous K West Startup Work Packages (1K-99-2600, 1K-99-1983, 1K-99-1992)
- S/U RR# 99-006, *Traceability of Acceptance Criteria in Test Specifications and Preoperational Tests, Rev. 0, October 25, 1999*
- SNF-5262, *Turnover to Operations, Rev. 0, October 20, 1999*
- SNF-CTP-EE-24, *SNF Project Facility System Start-up CTP Crane Inspection (De-energized)*
- SNF-CTP-EE-25, *SNF Project Facility System Start-up CTP Crane Inspection (Energized)*
- SNF-W379-PAT-012, *Preoperational Acceptance Test for the Cask Receiving Crane, Rev. 0, March 27, 1998*
- SNF-W379-PAT-015-3, *Test Summary Report for MCO Handling Machine Operational Demonstration Test*
- SNF-W379-PAT-023, *Preoperational Acceptance Test Procedure MCO Sample/Weld Station*
- SNF-W379-TS-012, *Test Specification for the Cask Receiving Crane.*

Others

Others (e.g., refer to the comprehensive CRAD and procedure crosswalk).

Interviews Conducted

- Joint Test Group Chairman
- Operations Director
- Manager Assistant, Startup (K Basin and CVD)
- Manager, Cold Vacuum Drying (CVD) Facility
- Construction Manager (3)
- Construction Project Manager
- CVD Project K Basins Manager

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FUNCTIONAL AREA: Subject Matter Expert Startup	OBJECTIVE: SME.6 DATE: 11/18/99
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- Operations Manager (CVD, K East)
- Phased Startup Manager
- Planning Manager
- Project Manager (CVD, K Basin)
- Startup Manager
- Shift Managers (2 KW, 1 KE)
- Test Directors (2)
- Test Engineers (2).

Observations

- CVD Joint Test Group Meeting, November 2, 1999
- K Basin Plan of the Day meeting, November 3, 1999
- CVD morning meeting, November 10, 1999
- 105-KW morning meetings, November 9 & 10, 1999
- MHM crane demonstration, November 3, 1999
- K West Operations Morning Meetings, November 9-12, 1999
- K West Startup morning meeting and pre-job briefing, November 9 & 12, 1999
- CVD Construction Morning Meeting, November 10, 1999
- Tube Plug Hoist test related pre-job briefing and performance at CSB, November 10, 1999
- Sample Station Crane limit switch testing pre-job briefing and performance at CSB, November 10, 1999
- Work integration team meeting, November 11, 1999
- Startup work observation for establishing boundaries and completion of test prerequisites, November 12, 1999.

Discussion of Results

Criterion 1: *Procedures and/or mechanisms for the functional subject matter area require adequate planning of individual work items to ensure that hazards are analyzed, controls are identified, and controls are implemented prior to performing work.*

K-Basin testing and startup field work activities procedures are in place to ensure that hazards are analyzed, controls are identified, and controls are implemented prior to performing work. Hazards are identified and controls are established using the Automated Job Hazards Analysis (AJHA) and Work Planning (EWP) processes (AP MN-7-004, *Pre-job Briefings* and AP MN-7-002, *Work Control*, respectively). As evidenced by interviews with Operations, Maintenance and Startup, clear roles and responsibilities are established regarding operations authorization and implementation of controls prior to performing work as described in the work control procedure (AP MN-7-002).

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For new construction testing and startup activities, construction procedures (FDNW Practice 134 500 8330 and implementing procedures for CSB) are in place to ensure that hazards are analyzed, and controls are identified. These mechanisms involve development of activity-specific Job Safety Analysis coupled with the incorporation of hazard controls within the individual test documents (AP OP-10 series). Construction activities for CVD are managed by the subcontractor (Grant) in accordance with the approved design, specifications and applicable approved changes. As evidenced by interviews with Project Management, Startup and Operations, clear jurisdictional roles and responsibilities have been established and responsibility for safety within test boundaries is well established. The May 3, 1999 Memorandum of Understanding (MOU) titled *Completion and Acceptance for the Spent Nuclear Fuel Project* defines the jurisdictional roles and responsibilities; however, line management responsibility for safety outside the test boundaries or for overall facility safety is not addressed. Furthermore, the MOU involves SNF Project personnel and no corresponding direction to construction subcontractors regarding this MOU was found. Line management responsibility for facility safety and responsibility for authorization of work (i.e., safety impacts between construction and testing) as systems are turned over for testing, however, are not institutionalized for new construction. (SME.6-1) Superseded project documentation (i.e., SNF Startup Plan and MOU for CSB) attempted to document this responsibility; however, the current documentation only addresses jurisdictional control. Additional draft documents are in development although it is unclear if this issue will be addressed.

Observations and interviews of personnel involved in startup testing for K-Basins facilities indicate that hazards and controls are identified and implemented in accordance with facility work control procedures. Application of the AJHA and activity pre-job briefs are professionally performed and effective at communicating appropriate hazards and controls. Operations shift management demonstrates clear responsibility for safety.

For new construction startup activities construction safety procedures are utilized to identify and control hazards. Observations and interviews indicate that although activity hazards are controlled, during transition from construction through startup to operations, roles and responsibilities for facility safety is not clear. (SME.6-1) This was further illustrated during the MHM crane demonstration when the FDNW safety representative evacuated the area when he perceived that crane safety boundaries were not enforced. This miscommunication occurred because the startup engineer was not aware of responsibility to coordinate with the facility safety representative to define expectations for when safety boundaries are imposed during preparations for the demonstration. Also, discussions with the CVD CM indicated that these roles and responsibilities during CVD startup had not been fully resolved yet either. Transition planning for new construction has addressed jurisdictional ownership extensively, however safety responsibilities are not adequately addressed.

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Criterion 2: *Procedures and/or mechanisms are in place, which ensure that there is a process used to confirm that the activity or SSC is in an adequate state of readiness prior to turnover and release to operations.*

SNF Project and FDH procedures (AP OP-10 series, AP CS-6-019, *Acceptance of Beneficial Use Checklist - SSCs*, AP MS-1-020, *Readiness Determination Process*, HNF-PRO-055, *Facilities Startup Readiness*) are in place, which ensure there is a process used to confirm that the activity or structures, systems, and components (SSC) are in an adequate state of readiness prior to turnover and release to operations. Startup procedures (AP OP-10-Series) describe the process for identification of system boundaries, confirmation of completion of construction testing, jurisdictional turnover of systems to startup for testing, confirmation of satisfactory completion of testing, and release to operations. A self-identified opportunity for improvement has been documented regarding traceability of acceptance criteria in test specifications and system test documents, and the improvement activities are defined in Startup Rules of the Road #99-06.

Observations and interviews indicate that startup activities have mechanisms in place to confirm readiness prior to turnover, although there is a self-identified opportunity for improvement in the area of identification and traceability of SSC requirements from design, through testing and subsequent turnover and release to operations. In addition, interviews indicate that startup engineers involve Design Authorities (DA) early in the test specification and test procedure development, however AP-OP-10 Series procedures do not reflect this practice. The test specification (AP-OP-10-023) and other test development procedures currently invoke DA and ES&H involvement during JTG approval, but not necessarily during development. Early involvement by these technical personnel in test document preparation will minimize rework and maximize efficiency. This methodology needs to be identified in the AP OP-10 Series procedures to further integrate test procedure development. The management self-assessment activities and planning which support startup testing and readiness activities are maturing rapidly.

Criterion 3: *Procedures and/or mechanisms are in place that ensure authorization basis are developed and established for new activities and SSCs, and a process is used to demonstrate readiness and gain authorization to operate.*

SNF Project procedures (AP MS-1-020, AP NS-4-005, *SNF Safety Basis Performance Assurance Process*) are in place that ensure Authorization Bases (AB) are developed and established for new activities and SSCs, and a process is used to demonstrate readiness and gain authorization to operate. During construction and startup activities, mechanisms are established to develop, review, and approve the safety basis for both facility modifications and new construction. The HAZ-1 assessment form discussion of results provides additional details on these processes and operations involvement. Subsequent to turnover to operations, procedures confirm readiness to perform work and authorizations necessary to perform work are obtained. In addition to facility procedures, this is demonstrated in the phased startup initiative documentation (flow charts and schedule) and management self-assessment (HNF-2039, *Management Self-Assessment*).

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SNF project documentation for new activity AB have been developed and are in the approval cycle. Personnel have been recently assigned to support the JTG to ensure that draft AB documentation is integrated into testing procedures. Efficient startup will be highly dependent on the ability to successfully test SSCs against AB requirements such that resulting documentation demonstrates compliance with these requirements. This was evidenced in a recent JTG meeting on the Safety Class He system for CVD where the original testing documentation was written to test against the system design requirements, and AB requirements were derived under a differing set of conditions. Personnel discussed a methodology to allow for testing which would demonstrate compliance to both design and AB requirements simultaneously. This will minimize duplication and maximize testing efficiency.

Criterion 4: *Procedures and/or mechanisms for startup require that feedback and continuous improvement occurs.*

Procedures for startup (AP OP-10 series) include minimal discussion of feedback and continuous improvement mechanisms. This area is a self-identified opportunity for improvement and the startup organization is taking actions to strengthen the feedback mechanisms. The mechanisms in place within startup include the process for development, review and approval by the Joint Test Group (JTG) of test documents (AP OP-10-023, *Test Specifications*), use of a test log to capture and communicate key test information (AP OP-10-017, *Conduct of Testing*), use of startup field requests to identify and resolve needed information or resources (AP OP-10-013, *Startup Field Request*), and the development and approval of test summary reports by the JTG (AP-OP-10-025, *Review, Approval and Disposition of Test Results*).

Observations of testing indicate that startup utilizes a variety of mechanisms (logs, TDRs, pre-jobs) to receive and act upon feedback. However there is no institutionalized process for capturing the results of these mechanisms and feeding them back to future operations. Furthermore, other than the schedule, startup has not defined any performance indicators or goals to focus attention and drive continuous improvement. Field personnel demonstrated a commitment to receive and act upon feedback, however without any institutionalized process, the results are inconsistent. Institutionalized performance measurements and establishment of goals for testing will provide greater opportunities for continuous improvement. (SME.6-2)

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Criterion 5: *Procedures and/or mechanisms for startup require that personnel who are assigned to the subject area have a satisfactory level of competence.*

Procedures for startup ensure that personnel who are assigned to the subject area have a satisfactory level of competence. Startup qualification and training requirements are addressed in AP OP-10-001, *Startup Qualification and Training Requirements*, which supplements AP TN-08-001, *General Training Requirements* and AP TN-08-007, *Technical Staff Training Requirements*. AP OP-10-001 provides the specific startup specialized qualification requirements, as well as new employee orientation topics, a startup employee education and experience matrix, and an initial startup required reading list.

Throughout observations and interviews, startup and operations personnel involved in SSC testing demonstrated adequate competence commensurate with their roles and responsibilities. Activities observed were performed efficiently and with high regard for safety. Due to the complex and increasingly hazardous testing which will be completed for the fuel removal, shipping and storage evolutions, focus on continued SSC specific training would be necessary to maintain a high level of personnel competence. Based upon this documentation and field observations, startup personnel demonstrate adequate competence commensurate with responsibility.

Conclusion

In general, SNF startup activities have integrated safety within testing and turnover of SSCs and facilities to operations. Clarification of roles and responsibilities is needed for facility safety and authorization of work as systems are turned over for testing in new construction. Processes are in place to identify and control hazards associated with testing. A process is in place to identify safety requirements and necessary testing to demonstrate compliance with safety functions associated with new and modified equipment, although there are some weaknesses associated with traceability for this process. It is imperative that safety requirements are carried from design, adequately tested, and performance is documented to support operations. Any testing which cannot be accomplished prior to turnover to operations must be captured and tracked until testing is complete. Numerous challenges still remain due to the nature and complexity of the testing, so continued focus and continuous improvement is necessary.

This objective has been met.

Strengths:

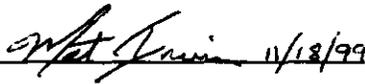
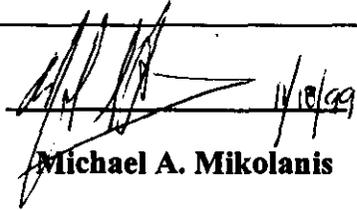
None.

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Concerns:

- Clarification of roles and responsibilities for facility safety and responsibility for authorization of work as systems are turned over for testing are not institutionalized for new construction. (SME.6-1)
- As identified by the SNF Project, focus on feedback and continuous improvement will allow for increased efficiency in the testing and startup program. (SME.6-2)

Submitted:  11/18/99 Robert M. (Mat) Irwin <i>Team Member</i>	Approved:  11/18/99 Michael A. Mikolanis <i>Team Leader</i>
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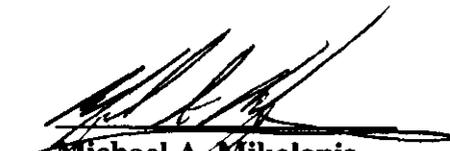
Spent Nuclear Fuel Project

Integrated Safety Management System Phase I/II Verification

Review Plan



Richland, Washington
November 1–November 22, 1999



Michael A. Mikolanis
Integrated Safety Management System
Verification Team Leader

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ACRONYMS

BBC	Business, Budgets, and Contracts (subteam)
CRAD	Criteria and Review Approach Document
DEAR	Department of Energy Acquisition Regulations
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U. S. Department of Energy
ES&H	Environment, Safety, and Health
FDH	Fluor Daniel Hanford, Inc.
FEB	Facility Evaluation Board
HAZ	Hazard Identification and Standard Selection (subteam)
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISMSV	Integrated Safety Management Systems Verification
MG	Management (subteam)
OP	Operations (subteam)
PHMC	Project Hanford Management Contract
RL	DOE, Richland Operations Office
SME	Subject Matter Expert
SNF	Spent Nuclear Fuel
UCNI	Unclassified Controlled Nuclear Information

1.0 INTRODUCTION/BACKGROUND

The U. S. Department of Energy (DOE) policy (DOE P 450.4) is that safety be integrated into all aspects of the management and operations of its facilities. In simple terms, the DOE will "Do work safely." The purpose of this Spent Nuclear Fuel (SNF) Project Integrated Safety Management System (ISMS) Phase I/II Verification Review Plan is to determine whether ISMS programs and processes are institutionalized within the SNF Project to accomplish the goal of "Do work safely." The goal of an insitutionalized ISMS is to have a single integrated system that includes Environment, Safety, and Health (ES&H) requirements in the work planning and execution processes to ensure the protection of the worker, public, environment, and federal property over the life cycle of the SNF Project. The ISMS is comprised of 1) described functions, components, processes, and interfaces (system map or blueprint); and 2) personnel who perform those assigned roles and responsibilities to manage and control the ISMS. Therefore, this review will evaluate the "paper," "people," and "process" aspects of the ISMS to ensure the system is implemented and will be effective within the SNF Project.

The 105-K East Basin and 105-K West Basin (K Basins) are two DOE, Richland Operations Office (RL)-owned facilities in the 100-K Area of the Hanford Site, located in Richland, Washington. The K Basins contain 2,100 metric tons (2, 314 tons) of irradiated fuel that is being prepared for shipment to an interim storage site in the 200 Area of the Hanford Site under the management of the SNF Project. The SNF Project was established to safely store SNF at the Hanford Site in anticipation of future final disposition.

The scope of the SNF Project includes the following:

- Maintenance and preparation of the K Basins for removal and safe storage of the SNF, debris, sludge, and water (as necessary)
- Operation of new systems and facilities to condition and store the fuel prior to final disposition (i.e., Cold Vacuum Drying Facility and Canister Storage Building)
- Relocation of the K Basin SNF (via the multi-canister overpack and cask/transportation system) to the interim storage facility
- Removal and pretreatment of the K Basin sludge for disposal
- Consolidation of the SNF from other Hanford Site locations (except the Low Level Burial Ground and Plutonium Finishing Plant SNF inventories) at the 200 East Area Interim Storage Area
- Deactivation of the 100-K Area facilities (includes basin water removal) that are under the purview of the SNF Project for eventual decontamination and decommissioning by the Environmental Restoration program.

RL is currently restructuring many of its business processes and aligning personnel within these "new" business processes. Accordingly, the scope of the review should be limited to the contractor's ISMS and should not include a review of RL. RL's implementation of ISMS will be assessed during a future ISMS verification.

DOE G 450.4-1A, *Integrated Safety Management System Guide*, recommends the following:

A documented agreement between DOE and the contractor for high-hazard facilities (Category 1 and 2), incorporating the results of DOE's review of the contractor's proposed authorization basis for a defined scope of work. The authorization agreement contains key terms and conditions (controls and commitments) under which the contractor is authorized to perform the work. Any changes to these terms and conditions would require DOE approval.

An Authorization Agreement is a contractually binding agreement between DOE and the contractor for predetermined hazardous facilities, tasks, or activities. An Authorization Agreement for the SNF Project has been developed for the K Basins. The Authorization Agreement will be amended and reissued as required to accommodate additional requirements as SNF Project operations and facilities are approved.

The *Project Hanford Management Contract Integrated Environment, Safety, and Health Management System Plan* (HNF-MP-003 [FDH 1999]) represents the safety management system documentation required by DOE Acquisition Regulations (DEAR) clause 970.5204-2 for the Project Hanford Management Contract (PHMC). HNF-MP-003 (FDH 1999) was approved by RL based on a review against the existing contractual requirements (derived from an earlier draft of the 970.5204-2 DEAR clause) for that document. The PHMC was recently modified to incorporate the 970.5204-2 DEAR clause, and HNF-MP-003 (FDH 1999) is being revised accordingly. Additionally, an Integrated Safety Management System Description (ISM System Description) document was required to address documentation and implementation of the Fluor Daniel Hanford, Inc. (FDH) ISMS plan at the SNF Project facility and activity level.

In January 1998, RL completed a Phase I ISMS verification of the FDH level and SNF Project K Basins Facility. The Criteria and Review Approach Documents (CRAD) developed for that assessment were developed using draft DOE ISM guidance documents (e.g., *Integrated Safety Management Systems (ISMS) Verification DOE Team Leader's Handbook, Draft* [draft version dated 1998]). Based upon the number and extent of gaps identified by both the contractor and the DOE ISM Review Team, the contractor ISMS was not considered to be adequately institutionalized.

2.0 PURPOSE

The purpose of this review is to provide the following:

- Reassess the institutionalization of ISM processes (Phase I) at SNF Project facilities managed and operated by FDH.
- Verify FDH's implementation status of its ISMS processes (Phase II).
- Ascertain whether, within the SNF Project facility operations, the work planning and execution processes are in place and functioning to effectively protect the health and safety of the workers, public, environment, and federal property over the SNF Project life cycle.

The SNF Project ISMS should support the *Hanford Strategic Plan* (DOE-RL 1996) to safely clean up and manage legacy waste; protect the Columbia River Corridor; deploy science and technology while incorporating the ISMS central theme to "Do work safely"; and protect human health and the environment.

The guidance and direction provided in this review plan have been adapted from DOE P 450.4, DOE G 450.4, and the *Integrated Safety Management Systems (ISMS) Verification Team Leader's Handbook* (DOE 1999).

3.0 SCOPE

The scope of this review is associated with the SNF Project and operations conducted by FDH and its lower-tiered contractors and subcontractors. Other than verifying processes that provide for the flow-down of requirements, this review does not verify the implementation of ISM within the RL organization, but covers interfaces between DOE and the contractor at the SNF Project-level.

As directed in the Verification Team Leader letter of appointment (Appendix A), the results of external reviews of the SNF Project since January 1998 were considered in the development of this review plan to avoid unnecessary duplication of effort. These include an EH-10 Compliance Order Notification, EM-5 Baseline Program Review, General Accounting Office audits, Process Improvement Team Report, and various RL program reviews.

The objectives of this ISMSV-I/II are to provide the following:

- Verify that SNF Project facility-level system description and associated plans, manuals of practice, and procedures are consistent with the objectives, guiding principles and core functions of ISM and HNF-MP-003 (FDH 1999).
- Verify that the SNF Project facility-level system description and associated plans, manuals of practice, and procedures are adequately implemented at the facility and activity level and

provide an evaluation of the training, knowledge of management and staff with respect to the guiding principles and core requirements of ISM.

- Develop lessons learned from this verification effort, to improve the effectiveness of future ISM reviews at the Hanford Site.
- As possible, use members of the FDH Facility Evaluation Board (FEB) to allow FDH to develop a capability to evaluate implementation of ISMS at other FDH facilities. The FEB performs an independent assessment function for FDH.

This review is intended to be an evaluation of the institutionalization of ISM processes at the SNF Project facility and activity level. This includes a general evaluation of the training and knowledge of management and staff with respect to the ISMS principles, functions, mechanisms, and responsibilities.

4.0 PREREQUISITES

Overall acceptance by DOE to proceed with the SNF Project ISMSV-I/II will be based on the following:

- Compliance with the requirements of the FDH DEAR clause H.5.E (DEAR 970.5202-2) is substantially demonstrated.
- Corrective actions with known deficiencies will not require or result in changes to the ISM System Description and related policies, plans, procedures, and products to the extent that significant re-review of the ISM System Description would be required.

5.0 OVERALL APPROACH

The ISMSV-I/II Team will evaluate the institutionalization of the ISM System Description, supporting procedures, manuals of practice, and processes, and implementation plans against the guiding principles and core functions defined in DOE P 450.4. Based on this assessment, the Verification Team will draw conclusions and make recommendations to the Approval Authority to whether the implemented ISM System Description will achieve the overall objective of ISM, which is as follows:

The Department and contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment.

The Verification Team will review the following areas:

- Business, Budgets, and Contracts (BBC)
- Management (MG)
- Hazards Identification and Standard Selection (HAZ)
- Operations (OP) (Work Planning, Operations Authorization, and Work Execution)
- Subject Matter Expert (SME) areas:

SME.1 Emergency Preparedness

SME.2 Maintenance and Work Control

SME.3 Radiological Controls and Protection

SME.4 Occupational Safety and Health/Fire Protection

SME.5 Environmental Compliance/Chemical Management

SME.6 Startup.

The major focus of this review will be the integration of hazard identification and work controls at the facility and activity level. Within the subject area of Maintenance and Work Control, the focus will be on configuration management, scheduling, and resource planning. Another focus of the review will be on the phased start-up activities, with particular focus on facility transition from construction to operations. Lines of inquiry related to start-up activities are provided in the SME-6 CRAD and related CRADs in the HAZ, MG, and OP areas.

The SNF Project ISMSV-I/II review will be conducted using subteams as defined in Section 7.0. The Verification Team membership and team member biographies are provided in Appendix B. The Verification Team will conduct the review using the CRADs provided in Appendix C.

5.1 SEQUENCE OF ACTIVITIES

The first step in the ISMSV-I/II process is to provide training and interaction among the Verification Team members to ensure an adequate understanding of the DOE ISMS Policy expectations, the ISM System Description as presented by FDH and the SNF Project, and the plan and strategy for the review. The Verification Team will be trained on the DEAR clause 970.5204-2, *Integration of Environment, Safety, and Health into Work Planning and Execution*, and 970.5204-78, *Laws, Regulations, and DOE Directives*. In addition, the Verification Team will also complete preparation of the CRADs, which will guide the review. The indoctrination period of approximately 4 days, including Verification Team orientation and training, site-specific training, and CRAD finalization will be conducted at the Hanford Site 2 weeks prior to the start of the ISMSV-I/II. The Verification Team will also receive ISMS presentations and briefings by FDH and the SNF Project personnel during the orientation and training step.

The actual ISMSV-I/II review will be concluded during a 3-week period 2 weeks following the orientation and training week. The first 2 weeks of the actual review will consist of observations of activities, interviews, and document reviews. Any additional actions that may be necessary to support review and assessment of the supporting program and process documents, gap analysis, and the ISMS implementation plans will be identified as the review progresses. During the second and third week of the verification review, the Verification Team will complete their observations of activities, interviews, and document reviews. During the third week of the verification review, the Verification Team will complete their evaluation of the criteria in the individual CRADs that will support conclusions as to whether the individual objectives have been met. Each CRAD is intended to guide the evaluation of the adequacy of the implementation of the ISM System Description.

The evaluation of the criteria will result from the FDH and SNF Project presentations coupled with the results of the verification activities (e.g., document reviews, interviews, and observations) conducted during the previous week. An important input to the assessment will be the presentations and persuasive discussions by the individual managers who present and defend their ISMS processes at their individual levels of responsibility. The record of the evaluation will be the Assessment Form (i.e., Form 1). Detailed instructions for completing the Assessment Form will be provided to the Verification Team prior to and during the review. An Assessment Form will be prepared for each objective in the CRADs and will document the basis for the conclusions reached concerning the objective and criteria. Each Assessment Form will conclude with a set of numbered issues or observations that will be rolled up to the Opportunities for Improvement section in the Executive Summary of the final report. Issues identified during the review of the individual CRAD that warrant the attention of the RL manager or senior FDH/SNF Project management will be clearly identified within the Assessment Form. In addition, good work practices and strengths of the ISMS will be identified as Noteworthy Practices.

A final report (to be issued at the end of the third week) will describe the results of the verification review. The report will provide a status of implementation of the ISM System Description to the RL and FDH/SNF Project Managers and will delineate areas, if any, in which the ISMS does not conform to the previous guidance as well as identify Noteworthy Practices that were observed. The report will also provide the conclusions reached by the Verification Team as to the objectives identified in Section 3.0 of this review plan. The format and contents of the report are described in Section 9.0.

6.0 PREPARATIONS

Preparations for the SNF Project ISMSV-I/II review will focus on two areas. The first effort is intended to prepare the Verification Team to conduct the review and finalize the Review Plan that will guide the conduct of the review. The second effort is to assist FDH and the SNF Project in gaining an understanding of the review process to most effectively present their ISM System Description to the Verification Team.

6.1 PHASE I/II TEAM PREPARATIONS

Efforts to prepare the Verification Team to conduct the SNF Project ISMSV-I/II review will include training led by the Team Leader on the relevant DEAR clauses as discussed in Section 5.1. There will also be a discussion on the strategy and methodology for the review. This portion will include a discussion of the strategy and logic by which the initial CRADs and subject areas were developed. The discussion will also include tailoring methods for the review to increase confidence that the review results will reflect the implementation of ISMS across the SNF Project. Verification Team members will be provided with relevant documents (e.g., ISM System Description, PHMC ISMS Plan [HNF-MP-003]) to be read before the review is conducted. Finally, the Verification Team will receive presentations and briefings to ensure an understanding of the FDH and SNF Project System Description and the mechanisms used in the execution of that system.

6.2 SPENT NUCLEAR FUEL PROJECT PREPARATIONS

The responsible SNF Project Managers will present their procedures and processes used in the execution of ISMS. Therefore, the individual managers should have an understanding of the Verification Team and RL expectations for the ISMS, and the commitments and processes that are provided in the contractor ISMS.

The briefings will consist of the SNF Project making presentations to the Verification Team to describe how the processes and mechanisms used to "Do work safely" fulfill the expectations of the ISMS. The briefings should include real examples of work or operations that were or are about to be conducted so that the Verification Team can fully understand those processes and mechanisms. These presentations should also describe the integration of safety management between the SNF Project, lower-tiered contractors and subcontractors, and RL. At the conclusion of the presentations, the ISMSV-I/II Team will provide a list of documents required for review, selected personnel to be interviewed, and a list of activities to be observed as part of the review. The SNF Project should use these lists to schedule activities and interviews during the first week of the review.

7.0 PROCESS FOR INTEGRATED SAFETY MANAGEMENT SYSTEM REVIEW

As described in Section 5.0, the review will be conducted using the CRADs (provided in Appendix C). The CRADs are identified by five functional areas that correspond to the four Verification Team subteams:

- Business, Budgets, and Contracts
- Hazards Identification and Standard Selection
- Management

- **Operations**
- **Subject Matter Experts:**
 - SME.1 Emergency Preparedness**
 - SME.2 Maintenance and Work Control**
 - SME.3 Radiological Controls and Protection**
 - SME.4 Occupational Safety and Health/Fire Protection**
 - SME.5 Environmental Compliance/Chemical Management**
 - SME-6 Startup.**

The BBC functional area subteam will address the following:

- **SNF Project processes for ISMS relating to effective planning, translation of mission into work, and setting expectations**
- **Ability to identify and prioritize specific mission-discrete tasks**

The combination of the BBC subteam and the MG subteam should be considered in the review preparation and planning as these functional areas are closely related.

The HAZ functional area subteam will address the following:

- **SNF Project processes for ISMS relating to hazard analysis**
- **Processes related to the identification of safety standards and requirements**
- **Tailoring of controls to the work being performed**
- **Review the processes, procedures, and manuals of practice (in cooperation with the Operations Team) for operations and maintenance work**
- **Review line-management responsibilities and feedback as they relate to HAZ**
- **Evaluate the Occupational Safety and Health/Fire Protection and the Environmental Compliance/Chemical Management SME CRADs with a focus on facility start-up transition activities and environmental compliance.**

The MG functional area subteam will address the following:

- **Definition and prioritization of work**
- **Contractor roles and responsibilities (specifically, line-management responsibilities) are documented and included within the five core functions**

- Review the feedback and improvement functions, including the contractor's Quality Assurance Program, procurement of safety class, and quality control.

The OP functional area subteam will address the following:

- Verify that the core functions of ISM are met for work control in a manner that is consistent with the ISM guiding principles, including lockout/tagout
- Evaluate the Radiological Controls and Protection and Emergency Preparedness SME CRADS
- Review the processes, procedures, and manuals of practice (in conjunction with the HAZ subteam) for operations and maintenance work
- Evaluate the Maintenance/Work Control SME CRAD with a focus on configuration management, start-up transition activities, chemical, and waste stream hazards.
- Evaluate startup activities at the SNF Project with a focus on facility and subproject transition from construction turnover to operations.

An important part of the evaluation of the ISM System Description against the individual CRAD will be the presentations by the contractor and DOE managers responsible for implementation of the ISMS. From these presentations, the Verification Team members will gain information that will assist them in making the determination that the ISMS meets the criteria as specified in the CRADs.

8.0 ADMINISTRATION

8.1 MEETINGS AND PRESENTATIONS

The first phase of the review will include presentations by the SNF Project to the Verification Team. The purpose of the presentations will be to provide an opportunity for the Verification Team to become familiar with the ISMS, including the supporting programs and processes. The presentations will provide an opportunity for the SNF Project to describe the mechanisms and procedures in which the elements of ISM described in the various programs are integrated vertically and horizontally. These presentations should demonstrate an ISMS that fulfills the expectations for DOE P 450.4, 450.5, 450.6, and the DEAR requirements. The Verification Team will use the information provided during the presentations as a part of the verification that the criteria and the objectives in the individual CRADs are met. Additional interviews, record reviews, observations, and other activities will clarify and validate the information in the briefings.

The SNF Project ISMSV-I/II will be an open process with the goal of maximizing the opportunity to achieve a full understanding of the institutionalization of ISMS. To achieve the level of openness and coordination that is desired, the Verification Team will meet daily in the afternoon to discuss observations and issues. SNF Project personnel are invited, in limited numbers, to attend these team meetings as observers. The Team Leader and Advisor will meet as necessary with senior SNF Project, FDH, and DOE management to ensure they are fully informed of the progress and issues during the verification review.

Following the review of the ISMSV-I/II, the Team Leader will conduct a briefing with senior SNF Project, FDH, and DOE managers. The briefing will include the results of the review, the basis for the improvement recommendations that will be made to the Approval Authority, and those Noteworthy Work Practices observed during the review.

8.2 DOCUMENTATION OF THE INTEGRATED SAFETY MANAGEMENT PHASE I/II VERIFICATION

The SNF Project ISMSV-I/II will be guided by the criteria in the CRADs. The documentation will be structured to show the elements of the CRADs were evaluated and that the objectives were met or what aspects of the objectives were found to be deficient. The purpose of the documentation is to provide information concerning details of the review to individuals who did not witness the review.

To maintain the verification schedule and ensure that the report is complete prior to dissolution of the team, each Verification Team member must document his/her work as it is conducted. This means that daily inputs to the Assessment Forms (Form 1) will be required. Each subteam leader will be provided with a preliminary Assessment Form containing the objective and criteria for each CRAD. Noteworthy or questionable work practices identified by team members will be documented within the Assessment Form. If the final report to the Approval Authority recommends actions for the SNF Project or FDH, those actions should be supported by detailed information on the Assessment Forms. The Verification Team members are responsible for ensuring that the Assessment Forms do not contain classified or Unclassified Controlled Nuclear Information.

Lessons learned from this SNF Project ISMSV-I/II are particularly important for future reviews at the Hanford Site and across the complex. Verification Team members will draft lessons-learned inputs and provide those inputs to the Team Leader. These inputs will be included in the final report.

8.3 TEAM COMPOSITION AND ORGANIZATION

The ISMSV-I/II Team will be organized into four subteams using an integrated set of CRADs. Subteam leaders are responsible for ensuring that all CRADs assigned to them are fully evaluated and that the appropriate documentation is prepared. The biographies for each Verification Team member is provided in Appendix B and will be retained with the records of the verification report.

The Verification Team will use FDH FEB personnel to support the SNF Project ISMSV-I/II. The FEB previously participated in other ISMS verifications as observers to gain ISMS verification experience such that they could support future Hanford Site verifications. The FEB will participate in the SNF Project ISMSV-I/II as Verification Team Members in a capacity that does not conflict with their normal functions under the PHMC. The FDH ISMS Guiding Principle 9 emphasizes the importance of effective internal and external communication on ES&H issues. Therefore, RL has invited the Hanford Advisory Board to provide an observer for this ISMSV-I/II. Mr. Joseph Henry Richards is the Hanford Advisory Board Health, Safety, and Waste Committee ISMS issues manager and is a staff member of the Confederated Tribes of the Umatilla Indian Reservation. Mr. Richards has been involved in ISMS processes in the DOE complex for more than a year and is a qualified environmental auditor. He will observe the entire SNF Project ISMSV-I/II review, including the Verification Team training.

9.0 FINAL REPORT FORMAT

At the completion of the review, the Verification Team will prepare a verification report. The report will include a status of implementation of the FDH ISM System Description, as well as the SNF Project ISM System Description; any areas where implementation does not conform to DOE P 450.4, 450.5, and/or 450.6, the ISMS DEAR clauses, and the Authorization Agreement requirements as specified in the guidance to the contractor. The report will also address all of the objectives identified in Section 3.0 and include any recommended actions that the Verification Team considers necessary or desirable to ensure work is performed safely.

The verification report will consist of the following sections that fully describe the review, provide the necessary recommendations, and provide information necessary to support the recommendations. Verification Team members will not include any classified or Unclassified Controlled Nuclear Information in the report. The Team Leader will ensure that the final report is appropriately controlled and reviewed for classified information or Unclassified Controlled Nuclear Information prior to issuance.

a. VOLUME I

1. **Title Page** - States the site location and the dates of the review.
2. **Signature Page** - Contains the signatures designated by the Team Leader to promulgate the final version of the report.
3. **Table of Contents** - Identifies all sections of the report, illustrations, tables, charts, figures, and appendices.
4. **Executive Summary** - Provides an overview of the results of the verification review, including a summary of the recommendations that result from the review. The executive summary will identify opportunities for improvement (issues) as well as noteworthy work practices (strengths) identified during the review.

5. **Introduction-** Provides the overall objectives of the evaluation, the review process and methodologies used in the review, and the team composition.
 6. **Purpose** – Provides the purpose of the verification review.
 7. **Background** – Provides a general discussion of the facility and the state of maturity of the safety management programs.
 8. **Scope** - Provides the scope of the verification review.
 9. **Overall Approach** - Restates (with any necessary modifications) the approach followed during the verification review and delineated in the Review Plan.
 10. **Assessment of Documentation of the SNF Project ISMS** - Provides a summary discussion of the overall results of the evaluation. The section will include a summary for each functional area and issues prepared by the functional area subteam. The section will also provide details of the review, which are necessary to support the report on the status of implementation to the Approval Authority. This section will also provide support for any recommendations or observations associated with the DOE. The report will also discuss the observations and conclusions of the team regarding the strengths and weaknesses of the ISMS and its implementation. Finally, any deviations from this review plan will be discussed in the report.
 11. **Conclusions and Recommendation** - Addresses the status of implementation of the SNF Project ISMS at the Hanford Site. It will further provide information about the adequacy of supporting program and process documents and the planned ISMS improvement plans.
 12. **Lessons Learned** - Discusses lessons learned associated with the ISMSV-I/II process as well as with the development and implementation of an ISMS.
- b. **VOLUME II** - Contains the Assessment Forms (Form 1), Review Plan, and CRADs.

10.0 SCHEDULE

For planning purposes, the projected schedule for the SNF Project ISMSV-I/II Verification is as follows:

Orientation

Date	Topic
October 12, 1999	<ul style="list-style-type: none"> • Introduction/team logistics • Team orientation • ISMS training/executive course • Required reading • Site/facility-specific training.
October 13, 1999	<ul style="list-style-type: none"> • ISMS presentations • Required reading • Team members meet counterparts.
October 14-15, 1999	<ul style="list-style-type: none"> • Tour SNF Project Facilities • Discuss CRAD approaches • Plan logistics • Make final changes to CRAD approaches • Finalize Review Plan • Complete HGET training • Sign Review Plan • Complete and sign qualification forms • Provide SNF Project final list of documents/records to be reviewed • Prospective interview list • Attend meetings • Observe operations/activities • Finalize verification logistics.
October 15- November 1, 1999	<ul style="list-style-type: none"> • Review documentation/homework, ad lib.

Verification

Date	Topic
November 1, 1999	<ul style="list-style-type: none"> • ISMS Office setup • Verification Team meeting (p.m.) • Documentation Review • Observations.
November 2 -5, 1999	<ul style="list-style-type: none"> • Documentation review • Conduct interviews • Observe operations • Team meetings (p.m.)
November 8-12, 1999 November 11 Veterans Day	<ul style="list-style-type: none"> • Complete documentation review • Complete BBC CRADs • Conduct interviews • Observe operations • Prepare report • Team meetings (p.m.)
November 15-22, 1999	<ul style="list-style-type: none"> • Individual team member work as required • Conduct interviews • Observe operations • Report preparation • Team meetings (p.m.) • Manager ISMS Verification presentation.

11.0 REFERENCES

48 CFR 970.5204-78, "Laws, Regulations, and DOE Directives," Title 48, *Code of Federal Regulations*, (DEAR) Section 970.5204-78, as amended, U.S. Department of Energy, Washington, D.C.

48 CFR 970.5204-2, "Integration of Environment, Safety, and Health Into Work Planning and Execution," Title 48, *Code of Federal Regulations*, (DEAR) Section 970.5204-2, as amended, U.S. Department of Energy, Washington, D.C.

DOE, 1999, *Integrated Safety Management Systems (ISMS) Verification DOE Team Leader's Handbook*, DOE-HDBK-3027-99, U. S. Department of Energy, Washington, D.C.

DOE G 450.4-1A, *Integrated Safety Management System Guide*, DOE G 450.4-1A, Volume 1, "Guidance," and Volume 2, "Appendixes," U. S. Department of Energy, Washington, D.C.

DOE P 450.4, *Safety Management System Policy*, U. S. Department of Energy, Washington, D.C., as amended.

DOE P 450.5, *Line Environment, Safety, and Health Oversight*, U. S. Department of Energy, Washington, D.C., as amended.

DOE P 450.6, *Secretarial Policy Statement Environment, Safety and Health Purpose and Scope*, U. S. Department of Energy, Washington, D.C., as amended.

DOE-RL, 1996, *Hanford Strategic Plan*, DOE/RL-96-92, U. S. Department of Energy, Richland Operations Office, Richland, Washington.

FDH, 1999, *Project Hanford Management Contract Integrated Environment, Safety, and Health Management System Plan*, HNF-MP-003, Rev. 2, Fluor Daniel Hanford, Richland, Washington.

APPENDIX A

TEAM LEADER LETTER OF APPOINTMENT

United States Government

Department of Energy

Richland Operations Office

memorandum

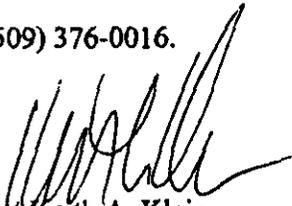
DATE: **SEP 14 1999**

REPLY TO
ATTN OF: **SFD:RPC/99-AMW-028**

SUBJECT: **MEMORANDUM OF APPOINTMENT AS THE INTEGRATED ENVIRONMENT,
SAFETY, AND HEALTH MANAGEMENT SYSTEM COMBINED PHASE I/
PHASE II VERIFICATION (ISMS V-I/II) TEAM LEADER FOR THE SPENT
NUCLEAR FUEL (SNF) PROJECT FACILITIES**

TO: **Michael A. Mikolanis, Department Representative
to the Defense Nuclear Facilities Safety Board
EH-9, HQ**

In accordance with Requirement 9.2.2.6 (Approval of Safety Management System Documentation) of the U.S. Department of Energy (DOE) Functions, Responsibilities, and Authorities Manual, you are selected to be the Team Leader for the ISMS V-I/II for the SNF Project facilities, as discussed in the attachment to this memorandum. Thank you for your willingness to assist in the conduct of this review. If you have any questions regarding this matter, please contact me, or you may contact Robert P. (Paul) Carter of the Spent Nuclear Fuels Project Division on (509) 376-0016.



Keith A. Klein
Manager

Attachment

cc w/attach:

J. J. Klos, DESH
C. L. Huntoon, EM-1
S. R. Johnson, SRO

D. M. Michaels, EH-1
J. M. Owendoff, EM-2
T. A. Wyka, EH-9

**Spent Nuclear Fuel (SNF) Project
Integrated Environment, Safety, and Health Management System
Phase I and Phase II Verification (ISMSV-I/II)**

- 1.0 **Description of Facility/Activity:** This review will verify the status of the ISMS for the SNF Project facilities (K Basins [K-East and K-West Basins], Canister Storage Building [CSB], and the Cold Vacuum Drying [CVD] Facility) managed and operated by Fluor Daniel Hanford, Inc. (FDH) at Hanford.
- 2.0 **Background and History:** The SNF Project K Basins facilities represents one of two Defense Nuclear Facilities Safety Board 95-2 priority facilities at Hanford, both of which are currently under the scope of the Project Hanford Management Contract (PHMC), managed by FDH. The "Project Hanford Management Contract Integrated Environment, Safety and Health Management System Plan," HNF-MP-003, represents the safety management system documentation required by U.S. Department of Energy (DOE) Acquisition Regulations (DEAR) clause 970.5204-2 for the PHMC. The HNF-MP-003, Rev. 0, was originally approved on September 25, 1997, by DOE, Richland Operations Office (RL) based upon a review against the contractual requirements (derived from an earlier draft of the 970.5204-2 DEAR clause) for that document. The PHMC has since been modified to incorporate the 970.5204-2 DEAR clause. The HNF-MP-003 was revised accordingly and a PHMC Phase I Verification has been planned for the October 1999 timeframe. An SNF Project facility-level system description document has been developed to augment the HNF-MP-003 with facility-specific plans, manuals of practice, and procedures.
- During January 12 - 30, 1998, RL conducted an ISMS Phase I Verification of the PHMC/K Basins. The resulting verification report recommended that a follow-up Phase I Verification be conducted for K Basins.
- 3.0 **ISMSV-I/II:** You are appointed as the Team Leader for the ISMSV-I/II for the SNF Project. The ISMSV-I/II is to be scheduled for the period of October - November 1999.
- 4.0 **Scope and Special Considerations for the ISMSV-I/II:** The purpose of this combined review is to perform the following:
- 4.1 Verify that SNF Project facility-level system description and associated plans, manuals of practice, and procedures are consistent with the objectives, guiding principles and core functions of Integrated Safety Management (ISM) and the HNF-MP-003.

- 4.2 Verify that the SNF Project facility-level system description and associated plans, manuals of practice, and procedures are adequately implemented at the facility and activity level and provide an evaluation of the training, knowledge of management and staff with respect to the guiding principles and core requirements of ISM.
- 4.3 Develop lessons learned from this verification effort, to improve the effectiveness of future ISMS reviews at Hanford.
- 4.4 Special Considerations for the ISMSV-I/II
- 4.4.1 Many aspects of the SNF Project's ISMS have been the subject of previous implementation reviews since the original ISMS Phase I Verification in January 1998. These include an EH-10 Compliance Order Notification, EM-5 Baseline Program Review, General Accounting Office Audits, Process Improvement Team Report, Configuration Management, and Corrective Action Management Program Reviews.
- 4.4.2 The K Basins continue to operate with an approved Safety Analysis Report (SAR). Periodic revisions have been made to the SAR to support equipment modifications and installations to support fuel movement off the Columbia River Corridor by November 2000.
- 4.4.3 The CSB and CVD Facility are nearing completion of their respective construction phases. SARs are currently being reviewed and readiness to commence operations will be verified by an Operational Readiness Review next fiscal year. Verification of satisfactory transition from construction to operations, including project management of this transition, is within the scope of this review. Determination of the plans and strategies for integrating the new facilities into operations should be evaluated. The contractor's self-assessment program should also be evaluated to determine whether it is consistent with ISMS.
- 4.4.4 FDH consolidated management control of the SNF Project since the business processes were last reviewed in the ISMS Phase I Verification of January 1998.

4.4.5 As possible, utilize members of the FDH Facilities Evaluation Board (FEB) to allow FDH to continue to develop ISMS assessment expertise. The FEB performs an independent assessment function for FDH and will soon begin assessing ISMS implementation to facilitate continuous process improvement. The FEB will participate on the ISMSV-I/II Team in a capacity that will not conflict with their normal functions under the PHMC.

4.4.6 RL is currently restructuring many of its business processes and aligning personnel within these "new" business processes.

Accordingly, the scope of the review should be limited to the contractor's ISMS and should not include a review of RL. RL's implementation of ISMS will be assessed during a future ISMS verification.

- 5.0 ISMSV-I/II Letter of Appointment: You should prepare an ISMS verification review plan, select and train the team, and confirm readiness to conduct the verification.
- 6.0 Desired Deliverables from the Review: The ISMSV-I/II Team should document the review with a report written in accordance with the guidance given in Appendix 7 of the "Integrated Safety Management System Verification Team Leader's Handbook," DOE-HDBK-3027-99, dated June 1999. The report should address all of the objectives identified above, and include any recommended actions which the ISMSV-I/II Team considers necessary or desirable to ensure work is done safely.
- 7.0 Stakeholder Observation of the ISMSV-I/II: RL has invited the Hanford Advisory Board (HAB) to observe in the ISMSV-I/II as observers to the verification review. Joseph Richards of the Confederated Tribes of the Umatilla Indian Reservation recently participated on the River Protection Program ISMS Phase II Verification and will be representing the HAB. Mr. Richards is the ISMS Issues Manager for the Health, Safety, and Waste Management Committee of the HAB.
- 8.0 ISMSV-I/II Point-of-Contact (POC): The Spent Nuclear Fuels Project Division POC for the ISMSV-I/II is Robert P. (Paul) Carter. He can be reached at (509) 376-0016, by fax at (509) 372-1926, and by email at Robert_P_Paul_Carter@rl.gov.

APPENDIX B
TEAM MEMBERS AND BIOGRAPHIES

TEAM ASSIGNMENTS

Team Leader	Michael A. Mikolanis
Senior Advisor	Dave Odland
Team Leader Trainee	Robert P. (Paul) Carter
Core Team Support Lead	Carter Kirk
Report Coordinator	Margaret M. Droddy (FEB)
Technical Editor/Writer	Hope E. Matthews
Business, Budget, and Contracts	Bartlett Schmidt Russell N. Warren Patty G. Ensign
Hazards	Steven L. Bertness Thomas J. Hull
SME.4 Occupational Safety and Health/ Fire Protection	John M. Held (FEB)
SME.5 Environmental Compliance/ Chemical Management	Michael J. Silvia (FEB)
Management	Mark R. Steelman (FEB) John B. (Brian) Sullivan William L. Smoot
Operations	Robert M. (Mat) Irwin Sandra L. Trine
SME.1-Emergency Preparedness SME.2-Maintenance and Work Control SME.3-Radiological Controls and Protection SME.6-Startup	Jeff S. McNeill (FEB) Dennis C. Humphreys David S. Hyder (FEB) Robert M. (Mat) Irwin
Hanford Advisory Board Observer	Joseph Henry Richards
DNFSB Representative	Ralph Arcaro

Michael Mikolanis, Team Leader

Mr. Mikolanis is a Headquarters Issue Lead in the Office of the Departmental Representative to the Defense Nuclear Facilities Safety Board (S-3.1). Mr. Mikolanis holds a B.S. degree in nuclear engineering from Purdue University and has completed the coursework necessary for an M.S. in Environmental Engineering at Georgia Tech. Mr. Mikolanis has worked in the nuclear industry for 15 years and is a registered professional engineer in the state of Maryland. He spent his first 7 years as a nuclear trained naval officer. In that capacity, he qualified as the senior supervisory watchstander at reactor plants. As a naval department head, he supervised the safe operation and maintenance of a prototype reactor and managed all aspects of a 3-year overhaul of the facility. He spent the next 3 years as a senior licensing engineer at Bechtel Power Corporation. In that capacity, Mr. Mikolanis performed safety evaluations of modifications made to commercial nuclear reactor facilities and prepared the safety analysis reports required to license the emergency power distributions system at the Calvert Cliffs Nuclear Power Plant. Mr. Mikolanis spent the last 5 years working in the DOE managing safety issues of interest to the Defense Nuclear Facilities Safety Board. Hanford's safety issues include RPP characterization, systems engineering, technical competence, and implementation of integrated safety management. Mr. Mikolanis is certified as an ISM Verification Team Leader.

Steve Bertness

Mr. Bertness is an occupational safety and health specialist for the Assistant Manager of Environmental Restoration at the Hanford Site with special emphasis on nuclear safety for environmental restoration projects. Mr. Bertness earned a B.S. in Safety Engineering from Indiana University of Pennsylvania, whose Safety Science Department holds an accreditation from the American Society of Safety Engineers, in 1989. Mr. Bertness has served in his current position for the past 3 years. Prior to that, he was a safety and health manager at DOE Headquarters for the Deputy Assistant Secretary for Environmental Restoration, with primary areas of involvement being nuclear safety, Integrated Safety Management, HAZWOPER, Occupational Safety and Health Administration (OSHA) compliance, the OSHA Voluntary Protection Program, safety and health training and safety and health program development. Before accepting a position with DOE, Mr. Bertness was an Industrial Hygiene compliance office for the Virginia Department of Labor, Occupational Safety and Health Administration, with inspection responsibilities in the Northern Virginia District. Previously, Mr. Bertness served as an industrial hygiene consultant for APEX Environmental in Rockville, Maryland.

R. Paul Carter

Mr. Carter has over 20 years experience in the nuclear industry in the areas of operations, engineering, safety, and program management.

Mr. Carter is currently assigned to the RL ISMS Implementation Team, chartered with assuring achievement of the Secretarial Initiative to have ISMS implemented for RL and the Hanford Site by September 2000.

Mr. Carter previously served as the Team Lead for Facilities and Safety Management within the RL Waste Programs Division. He was responsible for safe, environmental compliant and efficient operation of multiple nuclear and non-nuclear facilities including analytical laboratories, liquid waste processing facilities, and solid waste storage facilities.

Prior to that position, Mr. Carter managed the program responsible for providing integrated analytical services to all program/projects at the Hanford Site through a combination of onsite laboratories, field analytical operations, and commercial laboratories.

Additional experience has included positions as Lead Engineer for FFTF operations, maintenance, work control and training, and as a nuclear safety engineer providing independent overview of reactor and nonreactor facilities.

Mr. Carter received his B.S. in Nuclear Engineering from Orgeon State University in 1976.

Margaret Drodgy

Ms. Drodgy is an Associate with EnergX contracted as a Technical Editor and Specialist for the Fluor Daniel Hanford, Inc., Facility Evaluation Board. Ms. Drodgy has 18 years administrative and executive expertise. Her experience includes technical editing, preparation and coordination of multi-million dollar grants, and providing technical assistance with facility-specific performance reports. Ms. Drodgy supported the FDH Critical Self-Assessment Team providing technical editing, report preparation, and graphics support. Most recently, she provided technical support and report preparation and coordination of the Extent of Condition Review conducted by the Facility Evaluation Board, and the DOE Office of River Protection Integrated Safety Management System Phase II Verification.

Patty Ensign

Patty Ensign earned her Bachelor of Science in Business, majoring in Accounting. She has 10 years experience in the professional and technical fields of accounting, budget formulation, planning and execution, and project controls working for the DOE. This experience includes the following:

- Four years of accounting experience supporting the monthly and annual submittals of the financial statements to DOE HQ.
- Two years of budgeting experience supporting the annual budget submittals. This includes evaluating the effectiveness of planning and budgeting processes and assisting in the overall formulation, justification, defense, and execution of various budget activities.
- Four years as a program analyst on both the Spent Nuclear Fuel Project and the Waste Management Program.
 - She has coordinated and supported budget and planning activities among divisions. Validated cost estimates and budget requirements.
 - Provided direct support in the analysis of Fluor Daniel Hanford (FDH) budgeting and planning efforts through the reviews of their Annual Work Plans (AWP) and Multi-Year Work Plans (MYWP).
 - She has performed baseline management ensuring that the project controls are in place and the review of Baseline Change Requests involving life cycle workscope ensuring that the change is justified and adequate.
 - She has worked with technical staff in the development, execution and the validation of completion phases of the Performance Incentives and fee structure. She has routinely interpreted RL guidance and policies to ensure compliance.

Mrs. Ensign has been recently reassigned to the Analysis and Evaluation Division.

John Held

Mr. Held is currently employed as an Independent Technical Assessor for the Fluor Daniel Hanford Inc., Facility Evaluation Board (FEB) in the functional areas of Occupational Safety and Health and Fire Protection. He holds a B.S. degree in Geology from Oregon State University and an M.S. degree in Management from Salve Regina University. Mr. Held has nearly 20 years of experience in the industrial hygiene, safety, and fire protection arenas ranging from direct field experience to managing programs at the facility and project level. He was a member on the DOE-HQ ISMS Verification Team for the River Protection Project. He has extensive experience in the planning of work to effectively integrate analysis of hazards and the development and specification of necessary controls. In his current position, he has acted as the lead assessor for Occupational Safety and Health and Fire Protection for nine facility assessments and assisted on one other.

Mr. Held began his career at the Hanford Site in 1992 where he was responsible for setting up the dedicated safety support group for Tank Waste Remediation Systems (TWRS). This included development of procedures for project and work package review in the disciplines of industrial safety, hygiene, and fire protection. Additionally, he was extensively involved with the planning and initial installation of a mixer pump to mitigate hydrogen build-up in tank 101-SY; responsible for the development and implementation of the first Health and Safety Plan for TWRS; oversaw the successful program to relax and remove supplied air requirements in the tank farms; and piloted development and implementation of a behavior-based safety training program. While at Hanford, Mr. Held has been the manager for TWRS Safety Support; TWRS Safety Leadership; Westinghouse Hanford Company Safety Awareness and Performance; Transition Projects Safety Integration; Transition Projects Safety; and the Plutonium Finishing Plant Safety.

Prior to working at the Hanford Site, Mr. Held spent 22 years in the U.S. Navy. Safety-related assignments included four tours as a safety officer, the last being Safety Officer for a nuclear powered aircraft carrier, USS NIMITZ. Efforts were rewarded with the Secretary of the Navy Environmental Quality Award for environmental protection and the Chief of Naval Operations Safety Award for mishap prevention. Experiences also involved being a flight and standardization instructor, teaching at the Naval War College, and one tour performing command inspections for the Commander Fleet Air Western Pacific (COMFAIRWESTPAC).

David Hyder

Mr. Hyder is a Radiological Control Assessor for the Fluor Daniel Hanford, Facility Evaluation Board (FEB). Mr. Hyder has over 17 years of experience in Radiological Safety at Department of Energy, Commercial, and U.S. Navy, Nuclear facilities. He received a B. S. Degree in Nuclear Technology from the University of the State of New York. He has participated as a Team Member in four Facility Evaluation Board assessments for Fluor Daniel Hanford, Inc. Mr. Hyder also participated in one Assist/Mentor visit to Hanford's Plutonium Finishing Plant and he participated in an ISMS Phase II Verification for a major subcontractor.

Previously, Mr. Hyder was a Team Member in the initial 10 CFR 835 Verification Audit at Rocky Flats. He has been a Team Member for two Price-Anderson Amendments Act, root cause investigations at the Rocky Flats Environmental Technology Site. As a Manager in Radiological Engineering at Rocky Flats, he was responsible for the Radiological Control Management Assessment and Lessons Learned Programs. Additionally, he supervised the complete rewrite of all radiological control procedures at Rocky Flats to ensure compliance with 10 CFR 835 and the DOE Radiological Control Manual.

Mr. Hyder has also worked as a Health Physics consultant at several environmental restoration sites. He obtained NRC agreement state licenses for two radiochemistry laboratories and served as the Radiation Safety Officer and as a radiochemist at one of them. Mr. Hyder was in the U.S. Naval Nuclear Power Program and served on submarines and as a staff instructor at a Navy prototype facility. His Navy qualifications included Engineering Watch Supervisor, Engineering Duty Petty Officer, Leading Engineering Laboratory Technician, Master Training Specialist, and Quality Assurance Inspector.

Thomas Hull

Mr. Hull's education includes a B.Ch.E. from Villanova University; the Naval Nuclear Power Training Program; and a M.S. in Technical Management from Johns Hopkins University. Mr. Hull's areas of expertise include Operations and Maintenance; Nuclear Safety; Management Systems; and being a Team Lead.

Mr. Hull has over 15 years professional experience in providing nuclear safety technical support, management oversight, nuclear plant operations, and research and development experience. Mr. Hull is currently employed by the U.S. Department of Energy (EM-65) and is assigned as the Senior Program Manager for Hanford's Spent Nuclear Fuel Project. He spent the 5 previous years in the Office of Engineering Assistance and Site Interface (EH-34) in the Office of Nuclear and Facility Safety providing nuclear safety, design and regulatory oversight and support to Hanford's SNF Project and TWRS Privatization Projects. He has served on one operational readiness review at Savannah River (Replacement Tritium Facility) and has previously served as Team Leader for the Spent Nuclear Fuel Vulnerability Study at Hanford; Team Leader for the Plutonium Vulnerability Study at Argonne National Laboratory-West and Sandia National Laboratory; and Team Leader for the Highly Enriched Uranium Vulnerability Study at Rocky Flats. Prior to his assignment in EH-34, he was assigned to the Performance Assessment Division in the Office of Nuclear Safety (EH-11) and was detailed to the Plutonium Vulnerability Project Office during this time. Prior to working for EH, he was on the program management staff for the Savannah River Reactors Program (DP-63) for 4 years. In that position, he had line management responsibilities for the K- and L-Reactor programs and the Spent Nuclear Fuel program.

Dennis Humphreys

Mr. Humphreys is a graduate of the Navy's Nuclear Power Training Program. In 1995, he successfully passed the Washington State E.I.T. Examination. Mr. Humphreys, through New York Regents College, received credit for his Navy technical and engineering education towards a Bachelor of Science Degree in Engineering. He has successfully passed several college level courses in Hazardous Waste/Material Management, Nuclear Chemistry (masters level), and Engineering Technology Management (masters level).

Mr. Humphreys has over 29 (8 Nuclear Navy, 17 Nuclear Shipyard, 4+ Hanford Site) years experience in the repair, maintenance, operation, testing, startup, restart, and decommissioning of navy nuclear power plants and related nuclear facilities. Mr. Humphreys was a certified Nuclear Shift Test Engineer at a Nuclear Navy Yard. He spent 4 years as a Nuclear Chief Test Engineer.

Mr. Humphreys has been with the DOE for approximately 4.5 years. Mr. Humphreys has been a member of several full and partial Conduct of Ops and Maintenance Assessments at the Hanford Site, including the team leader for the Maintenance Team for the Characterization Project Assessment. Mr. Humphreys has completed EM-25 Operations Assessment Training. Mr. Humphreys has participated as a team member on several ORR's and RA's. Mr. Humphreys also participated as a team member in a current Contractor/DOE AJHA implementation assessment.

Mr. Humphreys is also a qualified Facility Maintenance Manager and as such, has participated in assessments of various contractors Maintenance Programs. This includes being the lead auditor for the maintenance portion of a CPO conduct of operations assessment. Mr. Humphreys is also a member of the EWP Site Core Team. Mr. Humphreys reviews both the Maintenance Implementation Plans and Conduct of Operations Matrices. Mr. Humphreys is a SME on Hoisting and Rigging, Maintenance, and Conduct of Operations. Earlier at the Hanford Site, Mr. Humphreys was also responsible for the Configuration Management Program.

Mr. Humphreys has also completed the DOE Accident Investigator Training Program.

Mr. Humphreys is also a qualified Facility Maintenance Manager and in that function, is involved in all aspects of maintenance management including MIP reviews, EWP Site Wide Core Team, AJHA implementation assessment, ISMS implementation, etc.

In the area of ORRs and RAs, Mr. Humphreys has taken the lead and revised the existing ORR/RA RLID to improve the process, incorporate the new Order 425.1A, incorporate past lessons learned, and input from a QIP ORR/RA Team. The draft revision is pending the recent reorganization.

Carter K. Kirk

Mr. Kirk is a Government Services Support Contractor to the U.S. Department of Energy, Richland Operations Office. Mr. Kirk holds a health sciences degree from the George Washington University, School of Medicine, Washington, D.C. and has completed coursework towards a PharmD. in Pharmaceutical Engineering from Butler and Purdue Universities. Mr. Kirk has 16 years of nuclear and environmental engineering and project consultant support combined with a total of 23 years of Occupational Health, Safety, and Environmental support to the construction, manufacturing, and maritime industries. Mr. Kirk has been supporting the RL Spent Fuels Division in the technical review and approval of authorization basis documentation for the SNF Project facilities, as well as supporting the RL with Integrated Safety Management System implementation activities for the SNF Project - K Basins.

Mr. Kirk most recently provided environmental consultant services support to the United States Postal Service Western Area, assisting with Clean Air Act, NESHAPS, Clean Water Act (UST's/AST's), Power Marketing/Energy Conservation-Deregulation, and Alternative Fuels and Clean Cities™ activities. Mr. Kirk has been a Safety Engineer/Health Scientist/Safety Analyst assigned as a U.S. Government Support Services Contractor to the DOE-RL and Oak Ridge Operations. Duties include the utilization of his expertise in Health Systems and Health Physics with the technical management and oversight support to a multi-contractor Occupational Medical, Health, and Safety Program. Mr. Kirk has also provided health physics and nuclear safety hazards analyses support to the Tank Waste Remediation Systems, Spent Nuclear Fuels, and the Plutonium Finishing Plant Stabilization Environmental Impact Statement projects. Expertise as an engineer in direct project support and oversight to the safety analysis, licensing, and regulatory policy group at the U.S. Department of Energy, Hanford Site. Mr. Kirk was the adjunct contractor Health Physics Department Manager at the Paducah Gaseous Diffusion Plant. Experience in project and work control, as low as reasonably achievable (ALARA) reviews, implementation of technical specifications and technical safety requirements, upgrading radiological instrumentation and control systems at several reactor and non-reactor nuclear facilities. Commercial reactors supported included Arkansas Nuclear One, Nine Mile Units One and Two, R.E. Ginna Plant, and Calvert Cliffs. Supported many operational and programmatic analyses, latest being the analyses of the Chemical Manufacturer's Association (CMA) Responsible Care (RC)® Initiative for DOE applications.

Robert Irwin

Mr. Irwin is a nuclear engineer responsible for Hanford Site configuration management for the Assistant Manager for Facility Transition. Mr. Irwin earned a B.S. in Nuclear Engineering from Arizona State University in 1989 and has over 10 years of experience in the nuclear field. He spent his first 5 years as a nuclear test engineer at Mare Island Naval Shipyard. In that capacity he qualified as a nuclear test engineer for two naval nuclear propulsion plants. As a test engineer, he was responsible for reactor plant conditions and testing during refueling, and overhaul and maintenance activities performed by the shipyard. He spent the next 4 years as a Hanford Site contractor cognizant engineer and engineering manager for Solid Waste Management (SWM). As the engineering manager for three RCRA SWM facilities, Mr. Irwin was responsible for development and implementation of facility safety analysis reports, USQs, permits, engineering drawings and documents, configuration control of plant modifications, the criticality safety program, and all other technical aspects of facility operation. Mr. Irwin has held his current position as the RL configuration manager for the last year and half. His primary responsibilities include the configuration management program, policy, and assessment support to the program offices.

Hope E. Matthews

Ms. Matthews is currently employed with Critique, Inc. as a Technical Writer/Editor with the DOE Office of External Affairs. Her current responsibilities include providing technical writing/editing support and coordinating all aspects of document preparation for the DOE ISMS Project Team. Ms. Matthews has nearly 10 years of experience (1990-1999) as a Technical Writer/Editor at the Hanford Site.

From 1994-1999, she worked at Bechtel Hanford, Inc. as a Senior Technical Writer/Editor. She served on the Hanford Technical Council as Bechtel's site representative and participated in monthly meetings/technical discussions with other Hanford Site contractors. She was the Project Lead for preparing and transmitting SGML-encoded metadata records to the Office of Scientific and Technical Information in Oakridge, Tennessee. Ms. Matthews also served on the Bechtel Internet Task Team and helped establish guidelines/policies for company web sites. She also helped design/write/and maintain company web sites.

From 1991 to 1994, Ms. Matthews worked at Westinghouse Hanford Company as an Engineering Writer. In that assignment, she was responsible for providing editorial support to the Safety and Analysis Division. She was also involved in beta testing of software for the environmental division. Ms. Matthews also prepared a summary of publication standards for use by authors and subcontractors. She trained the H&R Technical Associates publication group in Hanford-specific publication standards. She worked as a summer intern in 1990 for Westinghouse Hanford Company.

Ms. Matthews earned her B.A. in English in 1991 from Seattle University in Washington State. Her technical expertise includes SGML and HTML programming languages and numerous software applications.

Jeff McNeill

Mr. McNeill is currently assigned to the Fluor Daniel Hanford, Facility Evaluation Board (FEB) in the functional area of Emergency Preparedness. Mr. McNeill holds a B.A. degree in Business Administration from Washington State University. Mr. McNeill has 9 years experience in Emergency Preparedness at Rocky Flats and Hanford. He has participated in three FEB assessments and was a member of the Waste Receiving and Packaging (WRAP) ORR.

Prior to his appointment to the FEB, Mr. McNeill's duties as an Emergency Preparedness Specialist included conducting facility assessments in accordance with established criteria and schedules to verify that operational and management processes are in place which ensure compliance with emergency management, environmental, safety, health, and quality assurance requirements. He assisted in the development and revision of Hanford Site Emergency Preparedness procedures, assisted in the development and conduct of facility drills and exercises and conducted training sessions on all aspects of emergency response at both the Site and Facility level.

David J. Odland

Mr. Odland earned his Bachelor of Science in Applied Science and Physics and his Masters of Science in Engineering Physics. He has 24+ years experience in the professional and technical fields of Engineering Management, Power Reactor Operations and Management, Construction and Configuration Management, and was a Certified Operator License Examiner for the Nuclear Regulatory Commission. This experience includes the following:

- Four years experience as Engineering Supervisor at a boiling water reactor (BWR) plant, managing mechanical, electrical, design, and reactor engineering staff. Provided direct systems engineering support to operations, maintenance, and in-service inspection staff during operations and plant outages.
- Two years experience as a maintenance manager at a BWR.
- Twenty years experience in the operations and management of military and commercial nuclear power plants. Qualified Senior Reactor Operator.
- Certified Operator License Examiner for the Nuclear Regulatory Commission. Conducted licensing exams at more than 10 operating BWRs. Participated in the International Nuclear Safety Program activities in Russia and Ukraine.
- Numerous work history in the commercial, military, and DOE relative to configuration management, maintenance, testing, surveillance, quality control and assurance, start up engineering, and in-service inspection.

Mr. Odland is presently providing mentoring support to the Plutonium Facility (TA-55) and the Chemical Metallurgical Research Building at the Los Alamos National Laboratory in the development and implementation of a configuration management program, including development of a risk-based facility management model and the implementation of an improved Operational Surveillance Requirement program. Mr. Odland has participated in more than a dozen Operational Readiness Reviews as a team member and recently as a senior advisor. He was senior advisor for the ISMS Verification at the Superblock at Lawrence Livermore National Laboratory.

Bartlett Schmidt

Mr. Schmidt earned his Bachelor of Science in Engineering, majoring in Industrial Engineering. He has 31 years experience in the professional and technical fields of Industrial Engineering, quality assurance, and government contract management. This experience includes the following:

- Eleven years of technical support to the Defense Contract Administration Service Contracting Officer in administration of government contracts ranging from Global Positioning System satellites, Defense Advanced Research Projects Agency projects, conventional bombs, and tents
- Two years validating management information systems (Rockwell International, Morton Thiokol, Honeywell, Texas Instrument, Aerojet Propulsion, Boeing, and TRW) and training users for the Air Force Space and Missile Systems Organization
- Seven years as a manufacturing and quality assurance manager in Air Force System Program Offices (Space Defense and MILSTAR)
- Four years as a DOE Project Control Officer on a fuel processing plant project
- Four years as DOE Project Control Officer for Superconducting Super Collider Project.

Mr. Schmidt is presently in planning and integration at DOE, Richland Operations Office where his primary focus has been management systems. He has performed design reviews, functional and physical configuration audits, cost reviews, and lead production readiness reviews. He has hands-on experience in specifying and implementing manufacturing and management information systems. He developed requirements, implemented quality assurance programs, and conducted audits to MIL-Q-9858A, DOE Order 5700.6C and NQA-1. He was a team member in the ISMS Baseline, Budget and Contracts area for the Phase I verification of the Tank Waste Remediation Project at Hanford Site. He was a team member to develop the ISMS System Description for the DOE, Richland Operations Office. He was an independent consultant in management information systems implementation. He is a Certified Auditor for Nuclear Quality Assurance Programs and in Government Contract Management.

Michael J. Silvia

Mr. Silvia is employed by Duke Engineering and Services, Richland, WA office and is assigned to the Department of Energy Hanford Site Fluor Daniel Hanford, Facility Evaluation Board. Mr. Silvia is a Facility Evaluation Board Team Lead and Environmental Program Assessor. Mr. Silvia has been with the Facility Evaluation Board for the last 2 years and recently qualified as a Team Lead for the Waste Encapsulation and Storage Facility assessment. Mr. Silvia served on the Office of River Protection Phase II Verification of the River Protection Project. Mr. Silvia assessed the area of Environmental/Chemical Management as a Subject Matter Expert in Work Planning. Mr. Silvia holds a Masters of Management, Information Systems degree from West Coast University, California, and a B.S. Environmental Technology of Engineering degree from Norwich University, Vermont. Mr. Silvia has over 12 years of professional experience with environmental assessments, air quality management, regulatory permitting and analysis, policy and procedure development, information systems, and data evaluation.

Mr. Silvia was the Regulatory/Administrative Support Manager for International Technology (IT) Corporation's offices in Richland and Tacoma, Washington. Mr. Silvia was part of an IT team responsible for developing the Environmental Sites Database Procedures for the Hanford Environmental Restoration Contract. Mr. Silvia served as lead on the initial Department of Energy (DOE) Hanford Site Title V permitting effort and was integral in the development of the air emission inventory and database management system for the entire Hanford Site air emission program. Mr. Silvia served in the U.S. Air Force (USAF) and was responsible for managing over 100 air operating permits, overseeing air quality source testing plans including field sampling and analysis, and test. Mr. Silvia supervised the staff responsible for regulatory inspections, and negotiating operating permits, source test plans and notice of construction permits.

William L. Smoot

Mr. Smoot is the Senior Technical Advisor for Operations Startup reporting to the Director for Office of Spent Fuel, RL. He has over 30 years experience in the maintenance, operation, supervision, and oversight of nuclear power plants and nuclear support facilities. He was a member of the DOE-NR field office, PHNS, for 10 years providing oversight of the radiological controls program, defueling program, repair and inactivation programs, and hazardous material shipping program. Mr. Smoot was the manager of WHC Safety Compliance Assurance program for 3 years, providing oversight of the radiological control and occupational safety programs, providing oversight of both facilities and construction activities. He instituted the contractor unannounced Occupational Safety and Health Administration compliance program at the Hanford Site. Mr. Smoot was also the manager of WHC's Radiological Safety Standards and Requirements Organizations for 2 years. During this period, he issued and implemented an inhouse radiological controls manual for all WHC activities.

Mr. Smoot has participated on two DOE-Headquarters site radiological control evaluations, one of which included decommissioning and decontamination activities, three ISMS implementation evaluations, and two facility operational readiness reviews. He is a qualified Lead Auditor for both 10 CFR 820 and OCRWM programs, and is a certified DOE Accident Investigator.

Mark R. Steelman

Mr. Steelman is presently the Acting Director for the Fluor Daniel Hanford, Inc., Facility Evaluation Board. Mr. Steelman holds a B.S. degree in aeronautical engineering, a B.A. degree in economics from the University of Washington, and has completed an MBA from LaSalle University.

Mr. Steelman has commercial nuclear plant experience in Engineering/Configuration Management, Operations and Maintenance Advisor, Reactor Operator Training/Training Advisor, Root Cause Analysis, Licensing/Nuclear Safety, and Consultant to Nuclear Regulatory Commission. His DOE experience consists of Regulatory Integration Manager at the Rocky Flats Environmental Technology Site, and consultant in areas of Authorization Basis, Engineering, and Integrated Safety Management.

His assessment/operational readiness review/inspection qualifications include the participation in several safety system functional inspections (SSFIs) and operational readiness reviews (ORRs) at commercial nuclear facilities and participation in the Integrated Safety Management System reviews at Rocky Flats and the River Protection Program at Hanford. He was a member of the SRT for the restart and ORR of Buildings 559 and 707 at Rocky Flats and participated in the management self-assessment of Building 779 Glove Box Removal. Mr. Steelman served as a consultant and led the PNNL self-assessment of Building 325 Processing Laboratory Unreviewed Safety Question Process. He participated in the Plutonium Finishing Plant, Spent Nuclear Fuel Project, Fast Flux Test Facility, and single-shell tanks in the functional areas of Engineering/Nuclear Safety. Mr. Steelman participated in the contractor ORR for the Light Duty Utility Arm and contractor ORR for the Project W-320 Tank 241-C106 Sluicing for FDH.

John B. (Brian) Sullivan

Mr. Sullivan is the Team Leader for Facilities Projects reporting to the Director of Office of Spent Nuclear Fuels, Richland Operations Office. He holds a B.Sc., degree in Mechanical Engineering from Montana State University and a B.Sc. in Ag Business Administration from University of Minnesota. Mr. Sullivan is a Registered Professional Engineer in the State of Washington.

Mr. Sullivan began his career at the Puget Sound Naval Shipyard, where he successfully qualified as a Shift Test Engineer on Westinghouse S5W reactors. In 1989, he was hired as a Project Engineer on the Hanford Waste Vitrification Project, Richland Operations Office. His responsibilities included all primary and auxiliary mechanical systems. In 1991, he was promoted to be the Project Manager of the Waste Receiving and Processing Projects. As Project Manager, he was responsible for the design, construction and management of WRAP I and II. In 1993, Mr. Sullivan took a position with Anderson Perry & Associates, as a Staff Engineer. His responsibilities included the design, construction, and contract management of municipal projects. In 1995, he was hired as Project Engineer for the Canister Storage Building on the Spent Nuclear Fuels Division, Richland Operations Office. He is currently the Team Leader for the Canister Storage Building, Cold Vacuum Drying and the Multi-Canister Overpack projects within the Office of Spent Nuclear Fuels.

Joseph Henry Richards

Mr. Richards is in his eleventh year with the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR) Department of Natural Resources. Mr. Richards' responsibilities are to assist the CTUIR in the protection of natural resources impacted by Federal Facilities located within the tribe's ceded area (Hanford Nuclear Site, Umatilla Army Chemical Weapons Depot, Boardman Bombing Range). Currently, his primary activities are performed at the Hanford site. Mr. Richards focuses on environmental compliance activities and the Integrated Safety Management System (ISMS).

Mr. Richards' academic preparation includes an M.S. in Business Information Systems from Utah State University and specialized auditing, auditing research, and accounting information systems courses via the Master of Accountancy Program at Washington State University. Mr. Richards also received a Distinguished Associate Diploma in Environment, Safety & Health from the Government Institutes. Mr. Richards' prior professional experience includes senior level accounting positions in private industry and the instruction of accounting (cost accounting, accounting information systems, fund accounting), auditing, and economic courses at the 4 year collegiate level.

Mr. Richards is a Certified Professional Environmental Auditor, a Certified Environmental Inspector, and a Certified Environmental Specialist. Mr. Richards has also completed training as a Lead Auditor for ISO 14001.

Mr. Richards participates as a member of DOE HQ's Environmental Management System (EMS) Topical Committee (Technical Standards Program). As the ISMS Issues Manager for the Health, Safety & Waste Management Committee, Hanford Advisory Board, Mr. Richards participates in a variety of RL and contractor ISMS activities, including participation as a member of RL's ISMS Development Team. Mr. Richards also participates, by invitation of the National Co-Chair, in the National Steering Committee of the Enhanced Work Planning (EWP) organization, and is an active participant in DOE's ISM Lessons Learned Workshops.

Mr. Richards is currently active in several professional organizations including the Environmental Auditing Roundtable, the Institute of Internal Auditors, the Environmental Assessment Association, the Air & Waste Management Association, Sigma Xi (Scientific Research Society), and the Board of Environmental Auditor Certifications.

Mr. Richards is also the owner/operator of "Mother Earth Consulting."

Sandy Trine

Ms. Trine is a Facility Representative in Training for the Operational Oversight Division. Ms. Trine has a B.S. in Chemical Engineering from California State Polytechnic University. Ms. Trine has worked for RL for 12 years. She managed environmental compliance programs for 3 years. During that time, she developed implemented audit and surveillance programs, managed contractor implementation of a waste minimization program and negotiated *Resource Conservation and Recovery Act of 1976* (RCRA) closure plan implementation with the Washington State Department of Ecology for selected Hanford Site facilities. In 1990, Sandy Trine was selected by RL to participate in the Office of Personnel Management's Women's Executive Leadership Program. Following participation in that program, she managed contractor development and implementation of systems engineering for disposal of the radioactive tank waste at the Hanford Site. In 1995, Ms. Trine was selected by RL senior management to be the Defense Nuclear Facilities Safety Board Liaison. Ms. Trine is currently in the RL Facility Representative training program and is assigned to the Spent Nuclear Fuel Project. As a Facility Representative in Training, she has participated in three Conduct of Operations Assessments, one radiological controls assessment, and numerous surveillances.

Russell Warren

Mr. Warren is a certified Project Management Professional through the Project Management Institute (1994). His expertise is baseline management and change control. He is earning an Engineering Management Masters Degree at Washington State University (currently one-third complete), and has two Bachelor of Science Degrees in engineering from New Mexico State University (Agricultural [1986] and Mechanical [1987]) with a minor in Economics. Mr. Warren is a registered Engineering Intern (EIT) through the State of New Mexico (1988). He has 12 years of experience in developing and administering Project Management systems. His experience includes the oversight and management of design and/or construction activities on the Process Facility Modifications Project, Hanford Waste Vitrification Plant Project, Hanford Laboratory Projects, B Plant Projects, and the Hanford Spent Nuclear Fuels Project, as well as deactivation activities on the PUREX/UF₆ Facility Deactivation Project. Mr. Warren's responsibilities include the formulation and verification of contract incentives, the determination of project specific project management policies, and managing the planning and control of technical acquisition and operational projects.

APPENDIX C

**INTEGRATED SAFETY MANAGEMENT SYSTEM
PHASE I CRITERIA AND REVIEW APPROACH DOCUMENTS**

DOE/RL-99-73

Rev. 0

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1.0 PHASE I AND II ISMS CORE EXPECTATIONS

The *Integrated Safety Management Systems (ISMS) Verification DOE Team Leader's Handbook* (DOE 1999) recommends nine core expectations for conducting a Phase I Verification Review and eight core expectations for conducting a Phase II review. Because the scope of the SNF Project ISMSV-I/II does not include a verification review of RL, the requisite core expectations are not included. This results in eight core expectations for a Phase I Verification Review and six core expectations for the Phase II review. For combined reviews, the DOE Team Leader's Handbook (DOE 1999) recommends combining the core expectations into a single set. Many of the core expectations are directly related as shown in Table C-1.

Table C-1. Phase I and Phase II Core Expectations. (2 Sheets)

Phase I Core Expectations	Phase II Core Expectations	Combined Phase I/II Core Expectations (Remembered in This Document)
CE I-1 The ISMS documentation is consistent with DOE P 450.4, the DEAR, and the guidance provided to the contractor by the AA.		CE I/II-1 The ISMS documentation is consistent with DOE P 450.4, the DEAR, and the guidance provided to the contractor by the AA.
CE I-2 DOE and the contractor effectively translate mission into work, set expectations, provide for integration, and prioritize and allocate resources.	CE II-1 An integrated process has been established and is used to identify and prioritize specific mission-discrete tasks, mission process operations, modifications, and work items.	CE I/II-2 A process has been established and is used to translate mission into work, set expectations, and to identify and prioritize specific mission-discrete tasks, mission process operations, modifications, and work items.
CE I-3 An ISMS should include methods for identifying, analyzing, and categorizing hazards.	CE II-2 The full spectrum of hazards associated with the scope of work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the environmental, health and safety, and worker protection hazards are integrated with those personnel assigned to analyze the processes.	CE I/II-3 The full spectrum of hazards associated with the scope of work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the environmental, health and safety, and worker protection hazards work closely with those personnel assigned to analyze the processes.
CE I-4 The ISMS should include methods for establishing and maintaining an agreed-upon set of safety standards before work is performed.		CE I/II-4 The ISMS should include methods for establishing an agreed-upon set of safety standards before work is performed.

Table C-1. Phase I and Phase II Core Expectations. (2 Sheets)

Phase I Core Expectations	Phase II Core Expectations	Combined Phase I/II Core Expectations (Remembered in This Document)
<p>CE I-5 Contractor policies, procedures, and documents are established and are adequate for the work or process to be performed safely.</p>	<p>CE II-3 An integrated process has been established and is used to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensures adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms provide integration, which merge together at the workplace.</p>	<p>CE I/II-5 A process has been established and is used to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensures adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms (contractor policies, procedures, and documents) are adequate and merge together at the workplace.</p>
	<p>CE II-4 An integrated process has been established and is used to effectively plan, authorize, and execute the identified work for the facility or activity. Both workers and management demonstrate a commitment to ISMS. These mechanisms demonstrate effective integration.</p>	<p>CE I/II-6 A process has been established and is used to effectively plan, authorize, and execute the identified work for the facility or activity. Both workers and management demonstrate a commitment to ISMS.</p>
<p>CE I-6 The ISMS should be continuously improved through an assessment and feedback process, which should be established at each level of work and at every stage in the work process.</p>	<p>CE II-5 A process has been established and is used that ensures mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process.</p>	<p>CE I/II-7 A process has been established that ensures mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process.</p>
<p>CE I-7 The ISMS should establish that at every level of control, line management must be responsible for safety. Clear and unambiguous roles and responsibilities should be defined and maintained at all levels within the organization.</p>	<p>CE II-6 Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety.</p>	<p>CE I/II-8 Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety.</p>
<p>CE I-8 The ISMS should ensure that personnel are competent commensurate with their responsibility for safety.</p>	<p>CE II-6 Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety.</p>	

The SNF Project is scheduled for an ISMS Phase I/II Review in the first quarter of fiscal year 2000. A Phase I ISMS Verification was completed in January 1998 and a determination was made that the SNF Project was not yet ready for Phase I Verification. Consequently, the Phase I Verification Report (*Results of K Basins Phase I Integrated Environment, Safety and Health Management System (ISMS) Verification* [Wagoner 1998]) recommended a review of the ISMS Phase I immediately prior to conducting the ISMS Phase II Verification.

Table C-2 shows the relationship among the combined Phase I/II core expectations in this Review Plan, the five core functions, and the seven guiding principles in DOE G 450.4 1-A.

Table C-2. Core Expectations Versus Core Functions and Guiding Principles. (2 Sheets)

Phase I/II Core Expectation from SNF Project Review Plan	Core Function (CF) or Guiding Principle (GP)	Related (CRAD)
CE I/II-1 The ISMS documentation is consistent with DOE P 450.4, the DEAR, and guidance provided to the contractor by the AA.	CF 1 Define Scope of Work CF 2 Analyze Hazards CF 3 Develop and Implement Controls CF 4 Perform Work CF 5 Feedback and Improvement GP 1 Line Management Responsibility GP 2 Clear Roles and Responsibilities GP 3 Competence per Responsibilities GP 4 Balanced Priorities GP 5 Identification of Safety Standards GP 6 Tailor Hazard Controls to Work GP 7 Operations Authorization	MG.1a MG.1b
CE I/II-2 A process has been established and is used to translate mission into work, set expectations, and to identify and prioritize specific mission discrete tasks, mission process operations, modifications and work items.	CF 1 Define Scope of Work GP 4 Balanced Priorities GP 5 Identification of Safety Standards	BBC.1 MG.1b SME.x (c 1)
CE I/II-3 The full spectrum of hazards associated with the scope of work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the environmental, health and safety, and worker protection hazards work closely with those personnel assigned to analyze the processes.	CF 1 Define Scope of Work CF 2 Analyze Hazards CF 5 Feedback and Improvement GP 2 Clear Roles and Responsibilities GP 3 Competence per Responsibilities GP 5 Identification of Safety Standards	HAZ.1
CE I/II-4 The ISMS should include methods for establishing an agreed-upon set of safety standards before work is performed.	CF 1 Define Scope of Work CF 2 Analyze Hazards CF 3 Develop and Implement Controls GP 5 Identification of Safety Standards	HAZ.2

Table C-2. Core Expectations Versus Core Functions and Guiding Principles. (2 Sheets)

Phase I/II Core Expectations from SNF Project Review Plan	Core Function (CF) or Guiding Principle (GP)	Related (CRAD)
<p>CE I/II-5 A process has been established and is used to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensure adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms (contractor policies, procedures, and documents) are adequate and merge together at the workplace.</p>	<p>CF 3 Develop and Implement Controls CF 5 Feedback and Improvement GP 6 Tailor Hazard Controls to Work</p>	<p>HAZ.2 SME (c 3)</p>
<p>CE I/II-6 A process has been established and is used to effectively plan, authorize, and execute the identified work for the facility or activity. Both workers and management demonstrate a commitment to ISMS.</p>	<p>CF 1 Define Scope of Work CF 2 Analyze Hazards CF 3 Develop and Implement Controls CF 4 Perform Work GP 1 Line Management Responsibility GP 2 Clear Roles and Responsibilities GP 3 Competence per Responsibilities GP 4 Balanced Priorities GP 7 Operations Authorization</p>	<p>OP.1 OP.2 BBC.2 BBC.3</p>
<p>CE I/II-7 A process has been established that ensures mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process.</p>	<p>CF 4 Perform Work CF 5 Feedback and Improvement</p>	<p>MG.3 SME.x (c 5)</p>
<p>CE I/II-8 Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety.</p>	<p>GP 1 Line Management Responsibility GP 2 Clear Roles and Responsibilities GP 3 Competence per Responsibilities</p>	<p>HAZ.1 MG.2 MG.3 (c 2) SME.x (c 2/4)</p>

C = criterion or criteria
CF = core function
DEAR = Department of Energy Acquisition Regulation
GP = guiding principle
SME = subject matter experts

CE = core expectation
CRAD = Criteria and Review Approach Document
DOE = U. S. Department of Energy
ISMS = Integrated ES&H Management System
SNF = Spent Nuclear Fuel

2.0 CRITERIA AND REVIEW APPROACH DOCUMENTS FOR THE PHASE I // II ISMS VERIFICATION

The following set of CRADs provides the approach for conducting the combined Phase I/II ISMS verification of the implementation of ISMS at the SNF Project. These CRADs have been developed to provide the verification team the review criteria to evaluate the five core functions of ISMS as implemented at the facility- and activity-level. These CRADs support the expectation and attributes of ISMS described in the DOE Team Leader's Handbook (DOE 1999).

Each CRAD objective includes a reference to the specific combined ISMS Core Expectation (CE) it addresses. Table C-3 below provides a cross-reference of the combined Phase I/II Core Expectations to the specific CRAD.

Table C-3. Management Objective and Core Expectation Cross References.

Review Plan CRAD	Phase I/II Core Expectation
BBC.1	CE I/II-2
BBC.2	CE I/II-6
BBC.3	CE I/II-8
HAZ.1	CE I/II-3
HAZ.2	CE I/II-4, CE-I/II-5
MG.1a	CE-I/II-1
MG.1b	CE-I/II-1,
MG.2	CE-I/II-8
MG.3	CE-I/II-7
OP.1	CE-I/II-6,
OP.2	CE I. II-6
SME.x	CE-I/II-3, CE I/II-5, CE I/II 6, CE-I/II-7, CE-I/II-8

OBJECTIVE

BBC.1 - Contractor procedures ensure that missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
(CE I/II-2)

Criteria

1. SNF Project procedures translate mission expectations from FDH and DOE into tasks that permit identification of resource requirements, relative prioritization, and performance measures that are established consistent with DOE requirements (DEAR 970.5204-2, DOE P 450.5).
2. SNF Project procedures provide for FDH and DOE approval of proposed tasks and prioritization. Work planning procedures provide for feedback and continuous improvement.
3. SNF Project procedures provide for change control of approved tasks, prioritization, and identification of resources.
4. SNF Project procedures provide for flowdown of DEAR 970.5204-2, *Integration of Environment, Safety and Health into Work Planning and Execution* requirements into subcontracts involving complex or hazardous work.

NOTES:

- This criteria includes an actual review of lower-tier subcontractor mechanisms and methods for meeting ISMS contract requirements. Ensure alignment of their ISMS plans or equivalent to facility ISMS plans.
- "SNF procedures" refers to all procedure used by the SNF Project, including both the Project Hanford Management System and the SNF Policy and Procedure system.

Approach**Record Review**

- Review the DOE implementing procedures.
- Determine if there is adequate guidance for DOE involvement in the clear definition of the scope of work.
- Determine if the mechanisms for translation of the missions and policies from higher authority are appropriate, if a mechanism for assigning priorities has been established, and if performance objectives are reviewed and approved.

- Review personnel position descriptions, selection criteria, training programs, and training records to determine if the staff competency is adequate.
- Review mission prioritization procedures to determine if tailoring of resources is appropriate.
- Verify that the budget process allows adequate resources for standards selection, hazard controls, and work authorization processes to support work planning and scope definition.
- Review corporate/site manuals of practice that describe the budget and planning process and those documents that identify mission requirements, the approval of contractor plans, and those that address the assignment of budget priorities.
- Review corporate/site procedures for formally documenting change control procedures.
- Review how safety requirements are included in subcontracts as well as the flowdown of the DEAR clause into subcontracts for hazardous work.
- Select several mission tasks from the DOE programs and planning documents and track the tasks through the process to evaluate how the above criteria are met.
- Review future year planning and current year authorized work.
- Select several current year authorizations and track change control.
- Select several project-specific subcontracts and review for incorporation of the ISM DEAR clauses.

Interviews

- Interview project contractor personnel responsible for management of the budget process.
- Interview line managers responsible for Headquarters-directed mission accomplishment.
- Interview the ES&H manager to determine how the process for integration of safety into mission tasks is accomplished.
- Interview managers at selected project levels to determine their understanding and implementation of the defined process for translation of mission into work authorization.

- Interview selected ES&H professionals and line managers to determine how safety is incorporated into the budget plans and authorization.
- Interview project contractor procurement personnel regarding subcontract flowdown requirements.

Observations

If possible, observe actual budgetary discussions (including meetings involving the development of the outyear planning documents) within and between DOE and the project contractor.

OBJECTIVE

BBC.2 - Contractor budgeting and resource assignment procedures include a process to ensure the application of balanced priorities. Resources are allocated to address safety, programmatic, and operational considerations. Protecting the public, workers, and environment is a priority whenever activities are planned and performed. (CE I/II-6)

Criteria

1. The prioritization and allocation process clearly addresses both ES&H and programmatic needs. The process involves line management input and approval of the results.
2. Priorities include commitments and agreements to DOE, FDH, as well as stakeholders.
3. SNF Project procedures provide resources to adequately analyze hazards associated with the work being planned.
4. SNF Project procedures for allocating resources include provisions for implementation of hazard controls for tasks being funded.
5. Resource allocations reflect the tailored hazard controls.
6. The incentive and performance fee structure promotes balanced priorities.

Approach

Record Review

- Review corporate/site manuals of practice that describe the budget and planning process and those documents that address the assignment of budget priority as well as the procedures for their development.
- Review DOE procedures that identify mission requirements, balancing of resource allocations, and approval of contractor plans in the work authorization documents.
- Select several mission tasks from the DOE requirements and outyear planning documents to determine if they adequately address the assignment of resources with balanced priorities.
- Select several current year authorizations and review selected funded tasks at the individual task level to verify balanced priorities.

Interviews

- Interview responsible DOE and contractor personnel who manage the budget process to determine their understanding of the priority for assigning resources.
- Interview line managers responsible for DOE mission accomplishment.
- Interview the ES&H manager to determine the process used for integration of safety into mission tasks. Interview selected managers at each level of corporate/site organizations to determine their understanding of the allocation of resources with appropriate priority.

Observations

If possible, observe actual budgetary discussions (including meetings involving the development of the outyear planning documents) within and between DOE and the contractor.

OBJECTIVE

BBC.3 - The contractor procedures and practices ensure that personnel who define the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities. (CE I/II-6)

Criteria

1. SNF Project procedures ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.
2. Personnel who actually participate in definition of the scope of work and allocate resources demonstrate competence to prioritize and approve work with tailored hazard controls.

Approach

Record Review

- Review organizational documentation to determine the personnel positions with responsibility associated with this objective.
- Review the position description for those positions.
- Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions.
- Review any training or qualification material including corporate/site manuals that support gaining or verifying competence to fill the positions.

Interviews

Interview selected individuals and managers whose responsibilities include defining the scope of work and allocation of resources to determine competence in prioritizing and approving work with tailored hazard controls.

Observations

None.

BBC Team Leader and Team Perform

Reviews

- Corporate/site manuals of practice that describe the budget and planning process and those documents that identify mission requirements, the approval of contractor plans, and those that address the assignment of budget priorities.
- Procedures for formally documenting the change control process.
- Review how safety requirements are included in subcontracts, as well as the flowdown of the DEAR clause into subcontracts for hazardous work.
- Future year planning and current year authorized work.
- Select several current year authorizations and track change control.
- Select contractor subcontracts and review for incorporation of the ISM DEAR clauses.
- Organizational documentation to determine the personnel positions with responsibility associated with this objective.
- Review the position description for those positions.
- Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions.
- Review any training or qualification material (including corporate/site manuals) that support gaining or verifying competence to fill the positions.

Interviews

- Personnel responsible for management of the budget process to determine their understanding of the priority for assigning resources.
- The ES&H manager to determine how the process for integration of safety into mission tasks is accomplished.
- Managers at selected levels to determine their understanding and implementation of the defined process for translation of mission into work authorization.
- Selected ES&H professionals and line managers to determine how safety is incorporated into the budget plans and authorization.

- Contractor procurement personnel regarding subcontract flowdown requirements.
- Selected managers at each level of corporate/site organizations to determine their understanding of the allocation of resources with appropriate priority.
- Selected individuals and managers whose responsibilities include defining the scope of work and allocation of resources to determine competence in prioritizing and approving work with tailored hazard controls.

Observations

If possible, observe actual budgetary discussions (including meetings involving the development of the outyear planning documents) within and between DOE and the contractor.

Analysis

Perform a summary analysis of the findings from the Reviews, Interviews, and Observations to support development of final set of recommendations for the SNF Project ISMSV-I/II Review Report and the development of a management presentation on the Review Team activities and facility status regarding ISMS institutionalization and implementation.

OBJECTIVE

HAZ.1 - The full spectrum of hazards associated with the Scope of Work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the ES&H and worker protection hazards are integrated with personnel assigned to analyze the processes. (CE I/II-3, CE I/II-8)

Criteria

1. Procedures and/or mechanisms are in place and used by personnel to ensure hazards associated with the work throughout the facility have been identified and analyzed. The resulting documentation is defined, complete, and meets DOE expectations. The execution of these mechanisms ensures personnel responsible for the analysis of environmental, health and safety concerns are integrated with those assigned to analyze the hazards for the facility or activity. These mechanisms ensure direction and approval from line management and integration of the requirements.
2. Procedures and/or mechanisms are in place and used by personnel that describe the interfaces, roles and responsibilities of those personnel who identify and analyze the hazards of the scope of work. Personnel assigned to accomplish those roles are competent to execute those responsibilities.

Approach

Record Review

- Review the documents that govern the conduct, review, and approval of facility or activity hazard analysis and documentation such as Process Hazards Analysis (PHA), Preliminary Hazards Review (PHR), Preliminary Safety Analysis Report (PSAR), job hazards analysis (JHA), and Work Control Permits (WCP).
- Verify that these records conform to the hazard analysis requirements.
- Coordinate the review of work-related documents such as JHAs, and WCPs with the OP and SME functional area reviewers.

Interviews

- Interview personnel responsible for the identification and analysis of work hazards.
- In nuclear facilities, for example, this should include personnel responsible for unreviewed safety question (USQ) determination, lock and tag preparation, procedure technical reviews, etc.

Observations

If possible, observe the actual preparation and field implementation of the analysis of hazards. In nuclear facilities, this should include an Unreviewed Safety Question Determination, preparation of a JHA, SAR/TSR, or Criticality Safety Evaluation, etc.

OBJECTIVE

HAZ.2 - An integrated process has been established and is used to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensures adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace. (CE I/II-4, CE I/II-5)

Criteria

1. Procedures and/or mechanisms are in place to develop, review, approve and maintain current and implement all elements of the facility Authorization Basis Documentation with an integrated workforce.
2. Procedures and/or mechanisms that identify and implement appropriate controls for hazards mitigation within the facility or activity are developed and used by workers and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.
3. Standards and requirements are appropriately tailored to the hazards.
4. Procedures and/or mechanisms are in place to develop, maintain, and utilize (and effectively and accurately implement) Authorization Agreements (AA).
5. Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the Authorization Basis.

Approach**Record Review**

- Review a sample of hazard control documents to verify safety controls are provided for the hazards identified and that the control strategy encompasses a hierarchy of the following:
 - hazard elimination
 - engineering controls
 - administrative controls
 - personnel protective equipment.
- Typical documents include AAs, Safety Analysis Reports (SAR), Technical Safety Requirements (TSR), Health and Safety Plans (HASP), Radiological Work Permits (RWP), operating procedures, etc.

- Review procedures and mechanisms to ensure accurate and effective implementation of Authorization Basis documentation.
- Sample actual implementing documentation.
- Coordinate the review of work-related documents, such as RWPs and operating procedures with the OP and SME functional area reviewers.

Interviews

Interview personnel responsible for developing and implementing hazard controls and/or Authorization Basis Documentation at the facility level. This should include personnel such as those responsible for SAR/TSR preparations and implementation, as low as reasonably achievable (ALARA) review requirements, PHA activities, etc.

Observations

Observe the actual processes development, review, approval, and implementation of SAR/TSR, AA, and other Authorization Basis Documents as available.

HAZ Team Leader and Team Perform

Reviews

- The contractor's procedures for identifying, analyzing, and categorizing hazards at both the site as well as the facility level.
- Determine that these procedures are adequate to address the hazards associated with the work and operations.
- The approved or proposed hazard analysis documentation for selected facilities and activities to verify consistency and compliance with contractor procedures and mechanisms, as well as compliance with DOE review and approval mechanisms.
- Contractor procedures for identification and designation of standards that become contract requirements and assess their adequacy.
- Contractor procedures for identification and designation of standards that are incorporated into facility Authorization Basis documentation and assess their adequacy.
- The approach to tailoring the selection of standards and requirements to the identified hazards and maintenance of an appropriate set of standards over time.
- The procedures established to ensure that the appropriate requirements are included in the contract as specified in List A or List B.
- The processes established to develop, approve, and maintain authorization protocols and AAs as applicable.
- Contractor organization documentation to identify personnel including all levels of management to whom this objective applies.
- The position descriptions for those personnel to determine the required competencies.
- Corporate/site training manuals and qualification and competency procedures.
- Selected training and qualification records for those personnel identified above to determine how the required competency has been gained, retained, and validated.
- (PII) The documents that govern the conduct, review, and approval of facility or activity hazard analysis and documentation such as PHAs, PHRs, PSARs, JHAs, and WCPs.

- Verify that these records conform to the hazard analysis requirements. (Coordinate the review of work-related documents, such as JHAs, and WCPs with the OP and SME functional area reviewers.)
- (PII) A sample of hazard control documents to verify safety controls are provided for the hazards identified and that the control strategy encompasses a hierarchy of 1) hazard elimination, 2) engineering controls, 3) administrative controls, and 4) personnel protective equipment. Typical documents include AAs, SARs, TSRs, HASPs, RWPs, operating procedures, etc.
- (PII) Procedures and mechanisms to ensure accurate and effective implementation of Authorization Basis documentation. Sample actual implementing documentation. (Coordinate the review of work-related documents such as RWPs and operating procedures with the OP and SME functional area reviewers.)

Interviews

- Corporate/site personnel responsible for identification, analysis, and categorization of hazards to assess their understanding of the procedures and the underlying principles and requirements.
- Contractor site/corporate personnel responsible for the selection and approval of standards.
- Determine the understanding and compliance with the procedures for identification, tailoring, review, submittal, approval, and maintenance of the set of standards.
- Selected contractor individuals to verify their understanding of the required competencies and the degree to which they meet them.
- (PII) Personnel responsible for the identification and analysis of work hazards. For example, in nuclear facilities this should include personnel responsible for USQ determination, lock and tag preparation, procedure technical reviews, etc.
- (PII) Personnel responsible for developing and implementing hazard controls and/or Authorization Basis Documentation at the facility level. This should include personnel such as those responsible for SAR/TSR preparations and implementation, ALARA review requirements, PHA activities, etc.

Observations

- Contractor activities involving the preparation, review, approval and/or maintenance of the selected set of standards and requirements.
- Contractor activities that are scheduled to develop, approve, or maintain authorization protocols and AAs as applicable.
- (PII) If possible, observe the actual preparation and field implementation of the analysis of hazards. In nuclear facilities, this should include an Unreviewed Safety Question Determination, preparation of a JHA, SAR/TSR, or Criticality Safety Evaluation, etc.
- (PII) Observe the actual processes development, review, approval, and implementation of SAR/TSR, AA, and other Authorization Basis documents as available.
- (PII) Observe effective integration of ISMS with Enhanced Work Planning (EWP), the Environmental Management Systems (EMS), and the Voluntary Protection Program (VPP) at the activity level.

Analysis

Perform a summary analysis of the findings from the Reviews, Interviews, and Observations to support development of final set of recommendations for the SNF Project ISMSV-I/II Review Report and the development of a management presentation on the Review Team activities and facility status regarding ISMS institutionalization and implementation.

OBJECTIVE

MG.1a - The contractor policies and procedures ensure that the ISMS Description is maintained, implemented, and that implementation mechanisms result in integrated safety management. (CE I/II-1)

NOTE: This MG.1a objective should be addressed at the program/project level – not by functional area managers. Demonstrate alignment/linkage of SNF Project ISMS program description with the *Project Hanford Management Contract Integrated Environment, Safety Management System Plan* (FDH 1999, Appendix B). This objective should focus on the SNF Project “system description” to determine adequacy as a roadmap for implementation of ISMS at the SNF Project.)

Criteria

1. The contractor has mechanisms in place to direct, monitor, and verify the integrated implementation of the ISMS as described in the ISMS Description. Implementation and integration expectations and mechanisms are evident throughout all facility/activity organizational functions.
2. The contractor has assigned responsibilities and established mechanisms to ensure that the ISMS Program Description is maintained current and that the annual update information is prepared and submitted.
3. The contractor has established a process that establishes, documents, and implements safety performance objectives, performance measures, and commitments in response to DOE program and budget execution guidance. The ISMS describes how system effectiveness will be measured.

Approach**Record Review**

- Review the ISMS Description and the direction concerning the guidance on the preparation, content, review and approval of the ISMS at the SNF Project
- Review corporate/site procedures for the implementation review, and maintenance of the ISMS Description and associated items, including provisions for the annual review and update to DOE.
- Review charters and “output documentation” from any ISMS coordinating committees.
- Review contractor assessment activities incident to determination of the adequacy of implementation of ISMS.

- Review implementation planning efforts and any “gap analysis” reports, which may have been developed. Review the process established to measure the effectiveness of the ISMS to ensure that the methods support the establishment, documentation, and implementation of safety performance objectives that support DOE program and budget execution guidance.

Interviews

- Interview contractor managers who are responsible for the development and maintenance of the ISMS Description.
- Interview contractor line managers who are, or will be responsible for administering the mechanisms of the ISMS.
- Interview chairpersons and key members of any ISMS coordinating committees, if established.
- Interview managers, supervisors, and workers to determine if they are aware of and understand the various performance measures/indicators. What do the measures mean to them? Do they feel the measures are valuable for ensuring continuous improvement?

Observations

None.

OBJECTIVE

MG.1b - An integrated process has been established and is used to identify and prioritize specific mission discrete tasks, mission process operations, modifications and work items. (CE I/II-1, CE I/II-2)

Criteria

1. Procedures and/or mechanisms that require line management to identify and prioritize mission-related tasks and processes, modifications, and work items are in place and used by personnel.
2. Procedures and/or mechanisms are in place and used by personnel that define the roles and responsibilities for the identification and prioritization of mission-related tasks and processes, facility or process modification, and other related work items.
3. Procedures and/or mechanisms are in place and used by personnel that ensure identified work (i.e., mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.

Approach

Record Review

- Review the facility or activity long-range planning documentation. This should include such items as the following: summary schedules, plans of the week, long-range maintenance schedules, modification schedule, etc.
- Review the procedures and mechanisms that line managers utilize to identify and prioritize mission-related tasks and processes, modifications, and work items.
- Review organizational documentation to determine the personnel positions with responsibility associated with this objective.
- Review the position description for those positions.
- Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions.
- Review any training or qualification material including in training and qualification manuals that support gaining or verifying competence to fill the positions.
- Review the procedures and/or mechanisms that are used by the facility or activity to ensure that identified work is accomplished in accordance with established standards and requirements.

Interviews

Interview management personnel responsible for the identification and prioritization of work. This should include personnel, such as those responsible for long-range planning documentation, schedule preparation, etc.

Observations

Observe work definition and planning activities such as plans of the week meetings, long-range scheduling meetings, etc.

OBJECTIVE

MG.2 - Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Managers at all levels demonstrate a commitment to ISMS through policies, procedures, and their participation in the process. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety. (CE I/II-8)

Criteria

1. Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.
2. Facility or activity procedures specify that line management is responsible for safety.
3. Procedures and/or mechanisms are in place that ensure personnel who supervise work have competence commensurate with their responsibilities.
4. Procedures and/or mechanisms are in place that ensure personnel performing work are competent to safely perform their work assignments.

Approach

Record Review

- Review facility or activity manuals of practice that define roles and responsibilities of personnel responsible for safety.
- Review position descriptions and other documentation that describe roles and responsibilities related to ensuring safety is maintained.
- The review should consider personnel in line management and staff positions and should evaluate whether line managers are responsible for safety.
- Review the procedures established to ensure that managers and the work force is competent to safely perform work.
- Review the records of qualification and certification as applicable.

Interviews

- Interview selected personnel at all levels of facility or activity management that are identified by the record review above.
- Verify their understanding and commitment to ensuring that safety is maintained for all work at the facility or activity.

- Interview a selected number of supervisors and workers (see definition) to determine their understanding of competency requirements and their commitment to performing work safely.

Observations

Observe scheduled activities that demonstrate that clear roles and responsibilities are established and understood, that line managers are actively involved with decisions affecting safety, and that managers and workers are competent to perform their duties. Activities, such as weekly planning meetings, plans of the day, event critiques, safety training, and safety meetings are typical events that may provide good examples of the safety training and decision-making process.

OBJECTIVE

MG.3 - An integrated process has been established that ensures that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process. (CE I/II-7)

Criteria

1. Procedures and/or mechanisms are in place and used by personnel to collect feedback information, such as self-assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities.
2. Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels, as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is used to provide feedback and improvement during future similar or related activities.
3. Procedures and/or mechanisms are in place and used by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational, oversight, and assessment information into improvement processes and appropriate lessons learned.
4. Procedures and/or mechanisms are in place and used by managers to consider and resolve recommendations for improvement, including worker suggestions.
5. Procedures and/or mechanisms are in place, which include a process for oversight that ensures that regulatory compliance is maintained as required by rules, laws, and permits such as the *Price Anderson Amendment Act*, *National Environmental Policy Act of 1969*; *Resource Conservation and Recovery Act of 1976*; and the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, etc.
6. Procedures and/or mechanisms are in place and used by personnel to evaluate and analyze safety class, quality control, and procurement at the Facility and activity level.

Approach

Record Review

- (PI) Review procedures to ensure that a process is established to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process.
- (PII) Review the performance monitoring documentation for the feedback and continuous improvement process. This should include such documents as occurrence reports, shift orders, deficiency reports, post-job reviews, safety observer reports, employee concerns programs, and reports of self-assessments.
- (PII) Review procedures for work to determine that adequate feedback and improvement mechanisms are in place at the individual maintenance or activity level.
- (PII) Review actual data from these processes to evaluate the effectiveness of the implementation of these mechanisms.
- (PII) Review the performance measures and performance indicators established to determine that these tools provide information that is truly a direct indicator of how safely the work is being planned.

Interviews

Interview personnel responsible for administering the feedback and continuous improvement progress. This should include personnel such as those responsible for occurrence reporting, lessons learned preparation, shift orders preparation, worker concerns program, self-assessment, and oversight. Interview personnel responsible for capturing and utilizing feedback and improvement information during individual maintenance or other work activities.

Observations

Observe development and utilization of feedback and continuous improvement activities. This should include such things as conducting post-job critiques, monitored evolutions, post ALARA reviews, conducting a self-assessment or independent assessments, etc.

MG Team Leader and Team Perform

Reviews

- The ISMS Description and the direction concerning the guidance on the preparation, content, review, and approval of the ISMS.
- Corporate/site procedures for the implementation review, and maintenance of the ISMS Description and associated items, including provisions for the annual review and update to DOE.
- Review charters and output documentation from any ISMS coordinating committees.
- Review contractor assessment activities incident to determination of the adequacy of implementation of ISMS.
- Review implementation planning efforts and any gap analysis reports, which may have been developed.
- Review the process established to measure the effectiveness of the ISMS to ensure that the methods support the establishment, documentation, and implementation of safety performance objectives that support DOE program and budget execution guidance.
- Corporate/site manuals of practice that define roles and responsibilities of personnel responsible for safety.
- Position descriptions and other documentation that describes the roles and responsibilities related to ensuring safety is maintained when developing the definition of the scope of work.
- The review should consider personnel in both line management and staff positions and should evaluate whether line managers are responsible for safety.
- Corporate/site manuals of practice to determine that the procedures, processes and requirements that meet this objective are effective. The review should include determining compliance with regulations in accordance with laws, rules, and permits.
- The results and schedules of self and independent assessments.
- Procedures for scheduling and tracking routine assessments.
- Track issues identified during assessments to completion.

- Assess the effectiveness of the assessment and feedback process to achieve process improvement.
- The issues management program for adequacy, effectiveness, and support for process improvement.
- The performance measures or indicators and performance objectives.
- Ensure that a process has been established to measure the performance of the ISMS.
- Review the process for development of the performance indicators including how the development and change is coordinated with DOE.
- Contractor manuals of practice that define requirements to verify controls are in place prior to performing work and that these controls remain in place as long as the hazards are present.
- The processes for authorizing the commencement of work to ensure that managers are responsible for safety.
- The contractor's training and qualification process to ensure that personnel who plan, control, and conduct the work are competent.
- Procedures for selected disciplines to ensure consistency and adequacy.
- (PI) Review procedures to ensure that a process is established to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process.
- (PII) The facility or activity long-range planning documentation. This should include such items as summary schedules, plans of the week, long-range maintenance schedules, modification schedules, etc.
- (PII) The procedures and mechanisms that line managers utilize to identify and prioritize mission-related tasks and processes, modifications, and work items.
- (PII) Organizational documentation to determine the personnel positions with responsibility associated with this objective.
- The position description for those positions.
- The personnel records that identify the individual qualifications that meet the elements of the position descriptions. (PII) Any training or qualification material including in-training and qualification manuals that support gaining or verifying

competence to fill the positions.

- (PII) The procedures and/or mechanisms that are used by the facility or activity to ensure that identified work is accomplished in accordance with established standards and requirements.
- (PII) Facility or activity manuals of practice that define roles and responsibilities of personnel responsible for safety.
- (PII) Position descriptions and other documentation that describe roles and responsibilities related to ensuring safety is maintained. The review should consider personnel in line management and staff positions and should evaluate whether line managers are responsible for safety.
- (PII) The procedures established to ensure that managers and the work force is competent to safely perform work.
- Review the records of qualification and certification as applicable.
- (PII) The performance monitoring documentation for the feedback and continuous improvement process. This should include such documents as occurrence reports, shift orders, deficiency reports, post-job reviews, safety observer reports, employee concerns programs, and reports of self-assessments.
- (PII) Procedures for work to determine that adequate feedback and improvement mechanisms are in place at the individual maintenance or activity level.
- Review actual data from these processes to evaluate the effectiveness of the implementation of these mechanisms.

Interviews

- Contractor managers who are responsible for the development and maintenance of the ISMS Description.
- Contractor line managers who are, or will be responsible for administering the mechanisms of the ISMS.
- Interview chairman and key members of any ISMS coordinating committees, if established.
- Selected personnel at all levels of management who are identified by the record review above. Verify their understanding and commitment to ensuring safety during the processes of defining the scope of work.

- Selected managers to determine the adequacy and effectiveness of the assessment activities.
- Contractor assessment managers to determine the adequacy and effectiveness of the contractor's oversight program, as well as other compliance or independent assessment programs that may be established.
- Line and support personnel responsible for implementation of requirements to control work. Through interviews, assess their understanding, support, and implementation of the control of work within the approved controls.
- (PII) Management personnel responsible for the identification and prioritization of work. This should include personnel, such as those responsible for long-range planning documentation, schedule preparation, etc.
- (PII) Selected personnel at all levels of facility or activity management who are identified by the record review above.
- Verify their understanding and commitment to ensuring that safety is maintained for all work at the facility or activity.
- (PII) A selected number of supervisors and workers to determine their understanding of competency requirements and their commitment to performing work safely.
- (PII) Personnel responsible for administering the feedback and continuous improvement progress. This should include personnel, such as those responsible for occurrence reporting, lessons learned preparation, shift orders preparation, worker concerns program, self-assessment, and oversight.
- (PII) Personnel responsible for capturing and utilizing feedback and improvement information during individual maintenance or other work activities.

Observations

- Scheduled activities that demonstrate the planning and approval activities prior to authorizing work to assess that clear roles and responsibilities are established and that line management is responsible for safety.
- Activities such as weekly planning meetings, plans of the day, or site/corporate safety meetings are typical meetings, which may provide good examples of the safety decision-making process.
- If possible, observe senior management assessments or self-assessment activities, including documentation and post activity briefing of results.

- A critique or management review including development of lessons learned and determination of root causes.
- (PII) Work definition and planning activities such as plans of the week meetings, long-range scheduling meetings, etc.
- (PII) Scheduled activities that demonstrate that clear roles and responsibilities are established and understood, that line managers are actively involved with decisions affecting safety, and that managers and workers are competent to perform their duties.
- Activities such as weekly planning meetings, plans of the day, event critiques, safety training, and safety meetings are typical events that may provide good examples of the safety training and decision-making process.
- (PII) Development and utilization of feedback and continuous improvement activities. This should include such things as conducting post-job critiques, monitored evolutions, post-ALARA reviews, conducting a self-assessment or independent assessments, etc.
- (PII) Observe effective integration of ISMS with Enhanced Work Planning (EWP), the Environmental Management Systems (EMS), and the Voluntary Protection Program (VPP) at the Activity Level.

Analysis

Perform a summary analysis of the findings from the Reviews, Interviews, and Observations to support development of final set of Recommendations for the SNF Project ISMSV-I/II Review Report and the development of a management presentation on the Review Team activities and facility status regarding ISMS institutionalization and implementation.

OBJECTIVE

OP.1 - (Work-Planning). An integrated process has been established and is used to effectively plan work for the facility or activity. (CE I/II-6)

Criteria

1. Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual activity level and fully analyzes hazards and develops appropriate controls.
2. Procedures and/or mechanisms are in place that ensure safety requirements are integrated into work planning.
3. Workers actively participate in the work planning process. (OP.1 c6)
4. Procedures and/or mechanisms demonstrate effective integration of safety management

Approach

Record Review

- Review documents and/or mechanisms that govern the process for planning work with emphasis on the individual maintenance or activity level.
- Evaluate the adequacy of the division of responsibilities, worker involvement, and work planning process.
- Review the mechanisms used to prepare and maintain AAs for the SNF Project.
- Review these documents to determine if they are adequate, that they demonstrate effective integration, and that proper procedures were followed to prepare, review, and approve them.

Interviews

- Interview personnel responsible for authorizing, performing, and measuring the performance of the work. This should include personnel such as those responsible for preparing and maintaining documents such as the Plan of the Day (POD), equipment status files, pre-job briefings, and the conduct of facility or activity operations.
- Interview personnel responsible for development of maintenance or individual activity procedures and controls.
- Verify adequate worker involvement at each step of the process.

Observations

- **Observe the actual work planning processes and activities supporting the work planning, i.e., resource availability, training and qualifications of resources, Employee Job Task Analysis, and EWP. This should include such items as pre-job briefings, AJHA pre-job walk downs, work improvement team meetings, review of safety requirements, etc.**
- **Observe work hazard identification activities. This should include such things as validation of procedures, procedure tracking, compensatory measures determination, etc.**

OBJECTIVE

OP.2 - (Operations Authorization/Work Execution). An integrated process has been established and is used to authorize and execute the identified work for the facility or activity. (CE I/II-6)

Criteria

1. Procedures and/or mechanisms are in place which ensure that there is a process used to confirm that the facility or activity and the operational work force are in an adequate state of readiness prior to authorizing the performance of the work.
2. Procedures and/or mechanisms are in place that ensure there is a process used to gain authorization to conduct operations.
3. Procedures and/or mechanisms are in place that ensure safety requirements are integrated into work performance.
4. Procedures and/or mechanisms demonstrate effective integration of safety management.

Approach**Record Review**

- Review documents and/or mechanisms that govern the process for authorizing, and conducting work with emphasis on the individual maintenance or activity level.
- Evaluate the adequacy of the division of responsibilities, worker involvement, and work authorization process.
- Review the performance measures and performance indicators established to determine that these tools provide information that is truly a direct indicator of how safely the work is being performed.
- Review the mechanisms used to prepare AAs and protocols. Review these documents to determine if they are adequate, that they demonstrate effective integration, and that proper procedures were followed to prepare, review, and approve them.

Interviews

- Interview personnel responsible for authorizing, performing, and measuring the performance of the work. This should include personnel such as those responsible for preparing and maintaining documents such as the POD, equipment status files, pre-job briefings, and the conduct of facility or activity operations.

- Interview personnel responsible for development of maintenance or individual activity procedures and controls.
- Verify adequate worker involvement at each step of the process.

Observations

- Observe the actual authorization and performance of work activities. This should include such items as pre-job briefings, authorization by the managers to proceed, command and control of the work, review of safety requirements, etc.
- Observe work hazard identification activities. This should include such things as validation of procedures, procedure tracking, compensatory measures determination, etc.

OP Team Leader and Team Perform

Reviews

- (PII) Documents and/or mechanisms that govern the process for planning, authorizing, and conducting work with emphasis on the individual maintenance or activity level.
- (PII) Evaluate the adequacy of the division of responsibilities, worker involvement, and work authorization process.
- (PII) The performance measures and performance indicators established to determine that these tools provide information that is truly a direct indicator of how safely the work is being performed.
- (PII) The mechanisms used to prepare AAs and protocols.
- Review these documents to determine if they are adequate, that they demonstrate effective integration, and that proper procedures were followed to prepare, review, and approve them.

Interviews

- (PII) Personnel responsible for authorizing, performing, and measuring the performance of the work. This should include personnel such as those responsible for preparing and maintaining documents such as the POD, equipment status files, pre-job briefings, and the conduct of facility or activity operations. Interview personnel responsible for development of maintenance or individual activity procedures and controls.
- Verify adequate worker involvement at each step of the process.

Observations

- (PII) The actual authorization and performance of work activities. This should include such items as pre-job briefings, authorization by the managers to proceed, command and control of the work, review of safety requirements, etc.
- (PII) Work hazard identification activities. This should include such things as validation of procedures, procedure tracking, compensatory measures determination, etc.
- (PII) Observe effective integration of ISMS with EWP, the EMS, and the Voluntary Protection Program (VPP) at the activity level.

Analysis

Perform a summary analysis of the findings from the Reviews, Interviews, and Observations to support development of final set of Recommendations for the SNF Project ISMSV-I/II Review Report and the development of a management presentation on the Review Team activities and facility status regarding ISMS institutionalization and implementation.

Subject Matter Expert Interactions

The SME CRAD should be adapted as required and used by SMEs to assess whether the core functions and guiding principles of ISMS are met for the control of work within the specified discipline. Specific disciplines that have proven useful in past verifications include the following:

- **Criticality Safety/Authorization Basis (see HAZ and MG related CRADs)**
- **Occupational Health, Emergency Planning and Preparedness**
- **Radiation Protection**
- **Training and Qualification/Roles and Responsibilities (see HAZ and MG related CRADs)**
- **Maintenance and Work Control (see OP related CRADs)**
- **Configuration Management (see HAZ, MG, and OP related CRADs)**
- **Environmental Compliance/Chemical Management (including pollution prevention/waste minimization)**
- **Start-Up.**

OBJECTIVE

SME.1 - Emergency Preparedness. Within Emergency Preparedness, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Emergency Preparedness, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE I/II-3, CE I/II-5, CE I/II-6, CE I/II-7, CE I/II-8)

Criteria

1. Procedures and/or mechanisms for Emergency Preparedness require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Emergency Preparedness contain clear roles and responsibilities. Emergency Preparedness is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Emergency Preparedness require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Emergency Preparedness require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Emergency Preparedness require that within the subject area, feedback and continuous improvement occurs.

Approach**Record Review**

- Review the manuals of practice and selected records that define the procedures and interactions required for Emergency Preparedness at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that the Emergency Preparedness is effectively integrated into the facility or activity procedures.
- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the Emergency Preparedness area.
- Review training records of personnel in Emergency Preparedness area to determine they meet competency standards.

Interviews

- Interview personnel and responsible managers to determine their knowledge of Emergency Preparedness response.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided Emergency Response Organization.
- Interview personnel assigned to the SNF Project Emergency Response Organization to assess their level of competence.

Observations

- Weekly Emergency Response issues meeting.
- Development of an Emergency Response procedure (ERP, BEP, Drill Program).
- Development of an Emergency Response Hazards Assessment.
- Development of an SNF Project drill package.
- Facility Emergency Response Organization specific training, evolutions, or lesson plans, in lieu of actual team evolution.

OBJECTIVE

SME.2 - Maintenance and Work Control. Within Maintenance and Work Control, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Maintenance and Work Control, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE I/II-3, CE I/II-5, CE I/II-6, CE I/II-7, CE I/II-8)

Criteria

1. Procedures and/or mechanisms for Maintenance and Work Control require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Maintenance and Work Control contain clear roles and responsibilities. Maintenance and Work Control is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Maintenance and Work Control require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Maintenance and Work Control require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Maintenance and Work Control require that within the subject area, feedback and continuous improvement occurs.
6. Contractor procedures provide a method to ensure that controls are implemented during preparation for the initiation of work and start-up activities at each level. The procedures ensure that adequate controls are identified to mitigate the identified hazards and the controls are effectively implemented. Contractor procedures provide assurance that controls will remain in affect so long as the hazards are present.

NOTE: This objective will evaluate both the line management practices and mechanisms, as well as the practices and mechanisms associated with the selected individual disciplines such as conduct of operations, maintenance, radiological controls, industrial safety, criticality safety, nuclear safety, etc. as related to the phase start-up initiatives for the SNF Project.

Approach

Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for Maintenance and Work Control at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that Maintenance and Work Control is effectively integrated into the facility or activity procedures. In particular, note the methods of maintaining configuration management and the documentation during the execution of the facility work. Be alert to worker involvement in the processes reviewed.
- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within Maintenance and Work Control.
- Review training records of personnel in Maintenance and Work Control to determine they meet competency standards.
- Review performance indicators used to gauge effectiveness of the work control system; i.e., how many packages get worked to completion when they are originally scheduled, how many procedures require changes, how many changes per procedure, etc.

Interviews

- Interview personnel and responsible managers assigned to Maintenance and Work Control.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to Maintenance and Work Control to assess the level of competence.

Observations

- Observe events such as the development of a procedure, development of a hazards analysis such as an RWP, JHA, or the approval process for an individual work item, which includes interactions with personnel of the subject area.
- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements. Interview appropriate personnel to ensure they believe this is true.

OBJECTIVE

SME.3 - Radiological Controls and Protection. Within the Radiological Controls and Protection area, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Radiological Controls and Protection area, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE I/II-3, CE I/II-5, CE I/II-6, CE I/II-7, CE I/II-8)

Criteria

1. Procedures and/or mechanisms for Radiological Control and Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Radiological Controls and Protection contain clear roles and responsibilities. Radiological Controls and Protection is effectively integrated with line-support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Radiological Controls and Protection require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Radiological Controls and Protection require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Radiological Controls and Protection require that within the subject area, feedback and continuous improvement occurs.

Approach**Record Review**

- Review the manuals of practice and selected records that define the procedures and interactions required for Radiological Controls and Protection at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that the Radiological Controls and Protection are effectively integrated into the facility or activity procedures.

- Review selected lessons learned to assess that lessons learned have been effectively used within the Radiological Controls and Protection area.
- Review training records of personnel in Radiological Controls and Protection area to determine if they meet competency standards.

Interviews

- Interview personnel and responsible managers assigned to Radiological Controls and Protection area.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to the Radiological Controls and Protection area to assess the level of competence.

Observations

- Observe events such as the development of a procedure, development of a hazards analysis such as a RWP or JHA, or the approval process for an individual work item, which includes interactions with personnel in the subject area.
- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements. Interview appropriate personnel to ensure they believe this is true.

OBJECTIVE

SME.4 - Occupational Safety and Health/Fire Protection. Within the Occupational Safety and Health/Fire Protection, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Occupational Safety and Health/Fire Protection, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE I/II-3, CE I/II-5, CE I/II-6, CE I/II-7, CE I/II-8)

Criteria

1. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Occupational Safety and Health/Fire Protection require that within the subject area feedback and continuous improvement results.

Approach**Record Review**

- Review the manuals of practice and selected records that define the procedures and interactions required for Occupational Safety and Health/Fire Protection at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that Occupational Safety and Health/Fire Protection is effectively integrated into the facility or activity procedures.

- Evaluate the sufficiency of the oversight and interface with the Hanford Fire Department for support of fire systems testing and maintenance.
- Review records of Occupational Safety and Health (including subcontracted construction activity records)/Fire Protection surveillance and facility walkthroughs.
- Determine line management involvement in these processes.
- Review selected lessons learned to assess that lessons learned have been effectively used for Occupational Safety and Health/Fire Protection.
- Review training records of personnel in Occupational Safety and Health/Fire Protection to determine that they meet competency standards. Place special emphasis on qualifications from lower-tiered subcontractors at the SNF Project.
- Review performance indicators and metrics used by management to gauge the effectiveness of the Occupational Safety and Health/Fire Protection Programs.

Interviews

- Interview personnel and responsible managers assigned to the Occupational Safety and Health/Fire Protection area.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to Occupational Safety and Health/Fire Protection to assess the level of competence.

Observations

- Observe events such as the execution of a surveillance procedure, JHA, or the approval process for an individual work item, which includes interactions with personnel in the Occupational Safety and Health/Fire Protection area.
- Observe facility housekeeping and determine the impact on fire safety and physical access to combat emergency situations effectively.
- Observe the oversight for and interface and coordination with the Hanford fire Department involving fire systems testing, maintenance, and impairments.
- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements. Interview appropriate personnel to ensure they believe this is true.

OBJECTIVE

SME.5 - Environmental Compliance/Chemical Management Within Environmental Compliance/Chemical Management, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within Environmental Compliance/Chemical Management, line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE I/II-3, CE I/II-5, CE I/II-6, CE I/II-7, CE I/II-8)

Criteria

1. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for Environmental Compliance/Chemical Management contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for Environmental Compliance/Chemical Management require that within the subject area, feedback and continuous improvement occurs.

Approach**Record Review**

- Review the manuals of practice and selected records that define the procedures and interactions required for Environmental Compliance/Chemical Management at the facility or activity.
- Assess the adequacy of the documents to meet the criteria above and determine that Environmental Compliance/Chemical Management is effectively integrated into the facility or activity procedures. In particular, note the methods of maintaining configuration management and the documentation during the execution of the facility

work. Be alert to worker involvement in the processes reviewed.

- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used or implemented within Environmental Compliance/Chemical Management.
- Review the Chemical Management Implementation Plan and determine if the above criteria are being satisfied as result of implementation plan.
- Review training records of personnel in Maintenance and Work Control to determine that they meet competency standards.

Interviews

- Interview personnel and responsible managers assigned Environmental Compliance/Chemical Management.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to Environmental Compliance/Chemical Management to assess the level of competence.

Observations

- Observe events such as the development of a procedure, development of a hazards analysis such as an RWP or JHA, or the approval process for an individual work item, which includes interactions with personnel of the subject area.
- Observe field conditions and work performed to validate that work as planned is executable and meets established requirements.

OBJECTIVE

SME.6 - Startup. Within Startup, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an integrated process in place to identify SSC safety functions and confirm that these safety functions are adequately demonstrated by the startup program prior to authorization to operate. A process for identifying opportunities for feedback and improvement is implemented. Throughout testing and turnover line managers are responsible for safety, clear roles and responsibilities have been established, and there is a satisfactory level of competence. (CE I/II-3, CE I/II-5, CE I/II-6, CE I/II-7, CE I/II-8)

Criteria

1. Procedures and/or mechanisms for the functional subject matter area require adequate planning of individual work items to ensure that hazards are analyzed, controls are identified, and controls are implemented prior to performing work.
2. Procedures and/or mechanisms are in place, which ensure that there is a process used to confirm that the activity or SSC is in an adequate state of readiness prior to turnover and release to operations.
3. Procedures and/or mechanisms are in place that ensure authorization basis are developed and established for new activities and SSCs, and a process is used to demonstrate readiness and gain authorization to operate.
4. Procedures and/or mechanisms for startup require that feedback and continuous improvement occurs.
5. Procedures and/or mechanisms for startup require that personnel who are assigned to the subject area have a satisfactory level of competence.

Approach

Review the procedures associated with the development of the testing program. Review process for identifying SSC hazards and safety functions and development of criteria for use in construction and pre-operational acceptance testing. Assess mechanisms for capturing the full scope of testing for a particular SSC to demonstrate that the safety function is satisfied. Review process to determine readiness to test and testing authorization. Review configuration management process and personnel training during transition from startup to operations.

Record Review

- Review the manuals of practice and selected records that define the procedures and interactions required for the functional subject matter area at the facility or activity.

- Assess the adequacy of the documents to meet the criteria above and determine that the functional subject matter area is effectively integrated into the facility or activity procedures.
- Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the functional subject matter area.
- Review training records of personnel in the functional subject matter area to determine they meet competency standards.

Interviews

- Interview personnel and responsible managers in the subject area assigned.
- Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.
- Interview personnel assigned to the SNF Project functional subject matter area organization to assess their level of competence.

Observations

Observe events, such as the development of a procedure, development of a hazards analysis such as a RWP or JHA, or the approval process for an individual work item, which includes interactions with personnel involved with SNF Project functional subject matter area activities.

SME Team Leader and Team Perform

Reviews

- (PII) The manuals of practice and selected records that define the procedures and interactions required for the subject area at the facility or activity.
- Assess the adequacy of the documents to meet the criteria statements and determine that the individual subject area is effectively integrated into the facility or activity procedures.
- (PII) Lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the subject area.
- (PII) Training records of personnel in the subject area to determine that they meet competency standards.

Interviews

- (PII) Line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers by managers and personnel assigned to the subject area.
- (PII) Personnel assigned to the subject area to assess the level of competence.

Observations

- (PII) Events such as the development of a procedure, development of a hazards analysis such as a RWP or JHA, or the approval process for an individual work item, which includes interactions with personnel of the subject area.
- (PII) Observe effective integration of ISMS with EWP, the EMS, and the VPP at the activity level.
- (PII) Observe field conditions and work performed to validate that work as planned is executable and meets established requirements.

Analysis

Perform a summary analysis of the findings from the Reviews, Interviews, and Observations to support development of final set of recommendations for the SNF Project ISMSV-I/II Review Report and the development of a management presentation on the Review Team activities and facility status regarding ISMS institutionalization and implementation.

3.0 REFERENCES

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