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River Protection Project Integrated Safety Management System Phase II Verification Report, Volumes I and II (8/19/99)

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A-6001-401 (02/98)

August 18, 1999

Mr. Keith A. Klein, Manager
Richland Operations Office

Mr. Richard T. French, Manager
Office of River Protection

SUBJECT: CONTRACT NUMBER DE-AC06RL13200 – TRANSMITTAL OF RIVER PROTECTION PROJECT (RPP) INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS) PHASE II VERIFICATION REPORT

Dear Messrs. French and Klein:

Enclosed is the River Protection Project (RPP) Integrated Safety Management System (ISMS) Phase II Verification Report, Volumes I and II, DOE/RL-99-56, which documents the results of the review conducted by the ISMS Phase II Verification Team August 9-18.

The Verification Team has determined that the Fluor Daniel Hanford, Inc., facility level contractor, Lockheed Martin Hanford Corporation (LMHC), has met the criteria within the objectives of the review. The DOE Office of River Protection, while missing key organizational documents that are pending because of the planned reorganization, has sufficient mechanisms in place to assist LMHC in the implementation and execution of the LMHC ISM System. Specific noteworthy practices and opportunities for improvement were identified and are included in the report.

Sincerely,

Charles A. Hansen
Team Leader
Phase II Verification Review

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DOE/RL-99-56
U.S. DEPARTMENT OF ENERGY
OFFICE OF RIVER PROTECTION
RICHLAND OPERATIONS OFFICE

River Protection Project

Integrated Safety Management System Phase II Verification Report

Volume I

Richland, Washington
August 9-18, 1999

I, by signature here, acknowledge that I concur with the TEAM LEADER and SENIOR ADVISOR in the issues and conclusions of this report of the Integrated Safety Management System Verification in my assigned functional area.

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8/18/99
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RELEASE AUTHORIZATION

Document Number:	DOE/RL-99-56, Rev. 0
Document Title:	River Protection Project Integrated Safety Management System Phase II Verification Report, Volumes I and II (8/19/99)

This document, reviewed in accordance with DOE Order 241.1, "Scientific and Technical Information Management," and DOE G 241.1-1, "Guide to the Management of Scientific and Technical Information," does not contain classified or sensitive unclassified information and is:

APPROVED FOR PUBLIC RELEASE

Christine Willingham — 9/10/99

C. Willingham — Date

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EXECUTIVE SUMMARY

The Department of Energy (DOE) has issued a policy and associated standard contract clause addressing Integrated Safety Management. The Manager, Richland Operations Office (RL), and the Manager, Office of River Protection (ORP), proactively initiated a review to confirm that the Lockheed Martin Hanford Corporation (LMHC) has successfully integrated safety into mission accomplishment. This report documents the results of the Phase II effort to evaluate compliance with this policy at the facility and activity level. The review was conducted at the River Protection Project.* Previously, a Phase I review was conducted, which found that in response to the policy, Project Hanford Management Contract (PHMC) submitted an Integrated Environment, Safety, and Health Management System (ISMS) description, and enabling documents and processes that conformed to the guidance provided by the Manager, RL.

This review sought to confirm that the Facility Manager of the River Protection Project (RPP) has instituted an ISMS that is consistent with the Department's policy as implemented by the PHMC [Fluor Daniel Hanford (FDH) and its RPP contractor, LMHC]. Also, the review evaluated the ability of the ORP to fulfill assigned responsibilities for oversight of RPP operations. The Verification Team developed a review process that is consistent with the direction provided by the Under Secretary's Draft Safety Management System Review and Approval Protocol.

The Verification Team was comprised of a combination of Headquarters, Savannah River Operations Office, RL, ORP staff, and contractors. Many of the team members had participated in previous ISMS reviews. Also, this review included experts who had participated on an earlier Operational Readiness Review of the RPP. The RL and ORP staff participants were selected for their potential to form a cadre of experienced assessors for future facility level ISMS reviews in support of the Managers of RL and ORP.

The review approach covered all the functions described in the PHMC policy. However, the definition of work, feedback process, and the identification and control of hazards as they relate to operations and maintenance were highlighted during the review. The team also addressed the effectiveness of the DOE-ORP staff in its oversight role.

Summaries of the functional area reviews are contained in Section 7 of the report with descriptions provided in Volume II. The review was conducted over 9 days. The Criteria and Review Approach Documents (CRADs) were based on the Core Functions and Guiding Principles from the DOE policy.

The team noted a very positive attitude by senior managers and union leadership toward ISMS implementation. Senior leadership embraced worker involvement actively. This attitude will enhance full implementation of ISMS at the earliest time. This positive attitude was demonstrated in interviews, meetings, and at job sites. Additionally, as members of the team

* Formerly the Tank Waste Remediation System (TWRS)

observed activities for work planning, Facility Excellence Program, and the President's/Area Zero Accident Council, worker involvement was very visible and important to the success of the overall safety program. Roles and responsibilities are established to ensure that safety is maintained at all levels. It was evident that personnel are aware of their roles and responsibilities and that line management has accepted responsibility for safety.

The processes and mechanisms observed were well thought out and clearly demonstrated that safety was a visible part of work planning and work execution. Both FDH and LMHC procedures were found to be in place and utilized to develop and maintain the ISM System Description. The team approach to work planning observed and the implementation of the Automated Job Hazard Analysis (AJHA) process provides an efficient and credible way to identify hazards and develop the controls necessary to conduct work in a safe manner. However, that process is currently applied to only high hazard activities. It is expected to be applied to medium and selected low hazard activities by the end of the fiscal year. Additionally, the definition of high, medium, and low hazard is not well defined for activities outside of the Radiological Controls area. This hazard identification and control development is an area LMHC needs to improve.

During this review, team members observed occasions where the appropriate hazard controls were not executed by employees at the work activity level. In a specific case, the execution of the requirements of a radiological control hold point was deficient. This deficiency was identified and provided to DOE and LMHC for investigation and corrective action. Additionally, this team observed other weaknesses in the performance of the Field Work Supervisor in the execution of required work controls. It is important that the LMHC improve this area by establishment of accountability in the enforcement of the identified hazard controls. Senior managers need to spend sufficient time in the field working with their organizations to ensure expectations for procedural compliance are met.

Improvement is required in the area of tracking identified deficiencies and completion of corrective actions. Issues include lack of timely post-work reviews, inadequate critiques, and deficiencies tracked on many separate lists (making management of corrective actions very difficult). In addition, the team observed that contractor self-assessment is not geared to identification of significant problems being found by external reviews.

DOE was not able to complete all the actions identified in the Phase I review due in part to impacts associated with transition to ORP. This area requires improvement and will require Senior DOE management attention to ensure these gaps are adequately addressed during the upcoming transition. This team acknowledged the difficulty in the formalization of ORP roles and responsibility because of the fluid organizational changes caused by the reorganization. However, DOE has adequate mechanisms in place to assist LMHC in the execution of their safety system. ORP has a Facility Representative assessment program that performs walkthroughs to evaluate health and safety in the field.

Transition by LMHC to the new organization will also require detailed senior management attention. Two critical examples are (1) the key documents that establish hazard controls are

contained within the PHMC procedures and processes, and (2) LMHC will need to provide for an Independent Oversight function similar to the PHMC Facility Evaluation Board (FEB). In the first case the use of, responsibility for, and the correction of those crucial documents must be addressed. In the second case the independent oversight function should be addressed and a review should be conducted in the near term to establish a baseline for follow-on reviews.

Conclusion

The ISMS described by FDH and LMHC is considered implemented. Concerns regarding satisfactory execution of medium hazard, low hazard, and routine work should be resolved with senior management attention at work sites and other planned actions. Transition to a different contract will bring many challenges to ensure the ISMS maintains effectiveness. It is recommended that ORP and LMHC self-assessments in the next year focus on execution of work in the field and the feedback system to ensure ISM full implementation. Also ORP should formally examine its implementation of ISM in the next year to verify that planned actions are accomplished. DOE/ORP should evaluate the results of this validation and direct appropriate DOE and contractor actions to effect required improvements in ISMS implementation.

NOTEWORTHY PRACTICES

- The Integrated Planning Process used by LMHC is excellent.
- LMHC and Hanford Fire Department have issued an excellent interface document that defines responsibilities for fire protection systems.
- LMHC implementation of the team approach to work planning [Enhanced Work Planning (EWP) and AJHA] is effective and active worker participation is evident.
- ISMS concepts are communicated very well at the worker level.
- RPP training web page is an effective means for employee access to training requirements.
- Senior management and union leadership have encouraged worker involvement in ISMS.
- LMHC has a competent management team with a positive attitude toward ISM implementation.
- Subcontractor safety oversight of the construction subcontractor is thorough and comprehensive.
- Establishment of the Nuclear Regulatory Compliance Support (NRCS) group gives an operations perspective to Authorization Basis implementation.

DOE-ORP

- The Office of River Protection has demonstrated leadership through the development of a system description that defines the DOE procedures and processes credited for implementing the five Core Functions and seven Guiding Principles of ISM and assessment of federal interfaces with the contractor *as well as* internal federal processes that implement ISM.
- ORP and LMHC are working together to develop a River Protection Strategic System Execution Plan (SSEP). The SSEP is a systematic analysis of the programmatic and strategic functions necessary to support tank farm storage, retrieval, and vitrification operations.
- ORP has "projectized" its organizational structure so that its project/program managers are aligned with their LMHC counterparts, improving DOE involvement in ongoing work, enhancing communication, and establishing clearer lines of responsibility.

OPPORTUNITIES FOR IMPROVEMENT

- Increased senior management attention to the work execution and the feedback process.
- Weaknesses exist in providing feedback—performance indicators and post-job reviews.
- Work planning improvements—environmental hazards integration, criteria for determination of work hazard levels, and full implementation of the work control process.
- Determine applicability of Enhanced Job Task Analysis (EJTA) to lower tier subcontractors.
- Self-assessment programs do not find the significant issues that are being found by external groups.
- LMHC subcontractor safety oversight procedure is not fully implemented.

DOE-ORP

- Without an Integrated Priority List (IPL) that describes the relative priority of ORP work scope with respect to other work scope at the Hanford site, Headquarters allocation of site funding may not allow line managers to fully discharge their responsibilities or maintain balanced priorities. This concern is an outstanding finding noted during the Phase I ISM assessment of RL-TWRS.
- ORP has not yet identified all functions performed by FDH, such as the Acceptance and Inspection function, which must be put in place when the project transitions to a condition where LMHC is the prime contractor.
- Although ORP line management is actively involved in the contractor's decision-making process for a positive Unreviewed Safety Question (USQ), no responsibilities or process has been put into place to periodically review the contractor's implementation of USQ screenings and negative USQ determinations [DOE O 5480.21, Section 9.e.(3)].
- No formal process has been developed for ORP self-assessment and feedback regarding federal work processes.

Integrated Safety Management System
Phase II Verification

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VOLUME I

Integrated Safety Management System
Phase II Verification

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LIST OF ACRONYMS AND INITIALISMS

AJHA	Automated Job Hazard Analysis
ALARA	as low as reasonably achievable
BIO	Basis for Interim Operation
CRAD	Criteria and Review Approach Document
DEAR	Department of Energy Acquisition Regulations
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
EJTA	Employee Job Task Analysis
ES&H	Environment, Safety, and Health
EWP	Enhanced Work Planning
FDH	Fluor Daniel Hanford, Inc.
FDNW	Fluor Daniel Northwest, Inc.
FEB	Facility Evaluation Board
FRAM	Functions, Responsibilities, and Authorities Manual
FSAR	Final Safety Analysis Report
HAZ	Hazards Identification and Standard Selection (subteam)
HLW	high-level waste
IPL	Integrated Priority List
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISMSV	Integrated Safety Management Systems Verification
JHA	Job Hazard Analysis
LLW	low-level waste
LMHC	Lockheed Martin Hanford Corporation
MGO	Management Oversight (subteam)
MSO	Management Systems Office
NRCS	Nuclear Regulatory Compliance Support

LIST OF ACRONYMS AND INITIALISMS (Continued)

OPN	Operations (subteam)
ORP	Office of River Protection
PHMC	Project Hanford Management Contract
QA	quality assurance
RL	Richland Operations Office
RPP	River Protection Project
S/RID	Standards/Requirements Identification Document
SSEP	Strategic System Execution Plan
SST	single-shell tank
TOD	Tank Farm Oversight Division
TSR	Technical Safety Requirements
TWRS	Tank Waste Remediation System
USQ	Unreviewed Safety Question

1. INTRODUCTION

The Department of Energy policy (DOE P 450.4) is that safety is integrated into all aspects of the management and operations of its facilities. In simple and straightforward terms, the Department will "Do work safely." The purpose of this River Protection Project* (RPP) Integrated Safety Management System (ISMS) Phase II Verification was to determine whether ISMS programs and processes are implemented within RPP to accomplish the goal of "Do work safely." The goal of an implemented 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 RPP life cycle. The ISMS is comprised of the (1) described functions, components, processes, and interfaces (system map or blueprint) and (2) personnel who are executing those assigned roles and responsibilities to manage and control the ISMS. Therefore, this review evaluated both the "paper" and "people" aspects of the ISMS to ensure that the system is implemented within RPP.

Richland Operations Office (RL) conducted an ISMS Phase I Verification of the TWRS from September 28-October 9, 1998. The resulting verification report recommended that TWRS-RL and the contractor proceed with Phase II of ISMS verification given that the concerns identified from the Phase I verification review are incorporated into the Phase II implementation plan.

2. PURPOSE

The purpose of this review was to verify the implementation status of the ISMS for the RPP facilities managed by Fluor Daniel Hanford (FDH) and operated by Lockheed Martin Hanford Corporation (LMHC). This review was also to ascertain whether within RPP facilities and 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 RPP life cycle. The RPP ISMS should support the Hanford Strategic Plan (DOE/RL-96-92) to safely clean up and manage the site's legacy waste and 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 for this review were adapted from DOE P 450.4, DOE G 450.4, and the Integrated Safety Management Systems Verification (ISMSV) DOE Team Leader's Handbook.

* Formerly the Tank Waste Remediation System (TWRS).

3. BACKGROUND

The RPP mission is to store, retrieve, treat, immobilize, and dispose of the high-level tank waste in a safe, environmentally sound, and cost-effective manner. Waste will be separated into high-level waste (HLW) and low-level waste (LLW) fractions. The LLW will be immobilized and disposed of onsite. The HLW will be immobilized for disposal in an offsite federal repository. The RPP operates the Department's largest tank farm, which includes 55 million gallons of HLW in 177 underground storage tanks. This equates to about 200 million curies of radioactivity. Sixty-eight of the single-shell tanks (SSTs) are suspected to have leaked into the soil. The removal of the remaining wastes is hindered by the persistence of flammable gas, organic solvents, hazardous chemicals, and in-tank quantities of fissile material sufficient for criticality. To meet RL Radioactive Tank Waste Goal of the Department's 10-Year Plan, all tank safety issues must be resolved by 2001. By 2006, waste removal will be initiated on 10 SSTs and all tanks will have to be characterized to allow 6-13% of tank waste to be treated by a private contractor in 2006. The implementation of the RPP ISMS for the storage and retrieval mission is a crucial step in achieving these milestones at Hanford.

The RPP facilities represent one of two Defense Nuclear Facilities Safety Board (DNFSB) 95-2 priority facilities at Hanford. Both facilities are under the scope of the Project Hanford Management Contract (PHMC) managed by Fluor Daniel Hanford, Inc. (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 DOE Acquisition Regulations (DEAR) clause 970.5204-2 for the PHMC and 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. These contractual requirements, including FY-1999 Performance Agreement (PA) 5.1.2, represented the Contracting Officer's guidance as required by 970.5204-2. The PHMC was recently modified to incorporate the 970.5204-2 DEAR clause and HNF-MP-003 is being revised accordingly. Additionally, an Integrated Safety Management System Description (ISM System Description) document was required to address documentation and implementation of the FDH ISMS plan at the facility level. The TWRS/RPP facility level system description document augments the HNF-MP-003 with facility specific polices, procedures, etc.

4. SCOPE

The scope of this review is associated with the RPP and operations conducted by LMHC (and its lower tiered subcontractors) and managed by FDH. This review did not address the RPP privatization contractor (e.g., British Nuclear Fuel Limited, Inc.) activities but covered the interfaces between that contractor and the RPP. In response to the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (PL-105-261), the DOE Office of River Protection (ORP), which is responsible for the RPP work scope, is currently transitioning many of the DOE business processes that were reviewed in the Phase I Verification. Despite this transition the ORP Assistant Manager for Storage and Retrieval (AMSR) and Management

System Office organizations participated in the Phase II Verification in support of the contractor's implementation of ISMS.

As directed in the Verification Team Leader letter of appointment, the results of the Line Management Readiness Review, as well as a number of ORP AMSR Management Assessments that were recently conducted, were considered to avoid unnecessary duplication by reducing the scope of the ISMS review.

The primary objectives of this Phase II verification were to

a. Assess whether ISMS is adequately "institutionalized" in contractor organizations at the facility and activity level.

b. Assess ISMS implementation progress of the DOE ORP.

c. Determine whether the contractor is meeting the requirements of DEAR clauses 970.5204-2, "Integration of environment, safety, and health into work planning and execution," and 970.5204-78, "Laws, regulations, and DOE directives," as established in the acceptance criteria for this ISMS Phase II verification.

The secondary objectives of the review were to

a. Determine whether the schedule for completion of the remaining identified gaps given in the Contractor Corrective Action Plan is acceptable.

b. Determine whether any of the remaining gaps require closure as a prerequisite to completing the implementation of ISMS in the RPP facilities. In making this determination, the team should consider which remaining gaps represent deficiencies and which represent improvements. The team should make any recommendations deemed appropriate with respect to follow-up review actions and confirm closure of deficiencies post the Phase II verification.

c. Develop lessons learned from this verification effort to improve the effectiveness of future ISMS reviews at Hanford.

d. 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 PHMC facilities. The FEB performs an independent assessment function for FDH.

This review was an evaluation of the adequacy of implementation of the ISM System Description at the facility and activity level and included a general evaluation of the training and knowledge of management and staff with respect to the ISMS principles, functions, mechanisms, and responsibilities.

5. PREREQUISITES

The DOE's overall judgment of acceptability to proceed with the RPP Phase II Verification was based on the following.

a. Compliance with the requirements of the PHMC DEAR clause H.5.E (DEAR 970.5202-2) is substantially demonstrated.

b. 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 a sizeable portion of the ISM System Description would be required.

6. OVERALL APPROACH

6.1 Review Approach

The ISMS Phase II Verification Team evaluated the implementation of the ISM System Description, supporting procedures and processes, and implementation plans against the guiding principles and core functions defined in DOE P-450.4. The review focused on the safety controls at the work activity level.

6.2 Organization of Review Approach

The review was conducted using the Criteria Review and Approach Documents (CRADs) developed by the team leader, assisted by a senior technical advisor and team members. The CRADs for the review are provided in Appendix C of the Review Plan in Volume II and are identified by functional area. The review was divided into four functional areas, which correspond to the four Verification Team subteams:

a. DOE-ORP (DOE)

b. Hazards Identification and Standard Selection (HAZ)

c. Management Oversight (MGO)

d. Operations (OPN)

Radiological Controls (RC)
Fire Protection (FP)
Maintenance and Work Control (WP)

The major focus of this review was the integration of hazard work controls at the activity level. Within the subject area of Maintenance and Work Control, configuration management and

chemical, electrical, and waste stream hazards were assessed. Additionally, ORP was assessed to determine the extent to which DOE meets its ISMS responsibilities.

As allowed by the Verification Team Leader letter of appointment provided in Appendix A of the Review Plan, the subject area of training relative to personnel competence was not assessed as part of this review due to the minimum number of issues identified within the results of the ORP Line Management Readiness Review. However, training relative to the ISMS was reviewed as part of management review and competence was reviewed within each focus area.

Each CRAD is structured with an objective that evaluated the ISMS framework based on the core functions and the applicable guiding principles from DOE P 450.4. After the objective is one or more criteria, which if met would lead to a conclusion as to whether that objective was met.

Following the criteria is a discussion of the approaches for conducting the review for the objective. The approaches describe the records that were reviewed with as much specificity as possible. The approaches also included proposed interviews, which would enhance the understanding of the ISMS and validate the consistency and integration of the ISMS. Some CRADs specified activities that were to be observed to further support the evaluation of the implementation of the ISMS.

An integral part of the process for evaluation of the ISMS implementation against the individual CRAD was the presentations by the responsible PHMC and DOE Managers. From those presentations, the review team members gained information which allowed them to determine whether the implementation of ISMS was met at RPP.

6.3 Sequence of Activities

6.3.1 Conduct of Review

The ISMS Phase II Verification Team was established to conduct the review. Team composition, qualification information, and functional area assignments are provided in Appendix B of the Review Plan in Volume II. The team developed CRADs for core requirements in four specific functional areas. These were used to guide the team during the review. The CRADs are provided in Volume II.

6.3.2 Orientation

An indoctrination period of approximately 4 days, including Verification Team orientation and training, site-specific training, and CRAD finalization was conducted at Hanford 2 weeks prior to the start of the Phase II review. The Verification Team received ISMS presentations and briefings by DOE-ORP and FDH/LMHC during the orientation.

6.3.3 Review

Two weeks were devoted to the onsite review and writing of the final report. The first week of the actual review consisted of observations of activities, interviews, and document reviews. During the second week of the review, the Verification Team completed their evaluation of the criteria in the individual CRADs to support conclusions for meeting the objectives identified in Section 4.

7. ASSESSMENT OF RIVER PROTECTION PROJECT ISMS IMPLEMENTATION

7.1 General Summary

This section provides a summary of the ISMS at the DOE/ORP and the LMHC that has been implemented at the work activity level. The core functions and the guiding principles of safety management provide the essential criteria for evaluating the implementation of the LMHC safety system. This includes an evaluation of line management's performance in ensuring an effective safety management program, identifying the requirements that apply to work processes, and ensuring that the necessary analysis and controls have been established to ensure that work can be performed safely and in an environmentally sound manner. The functions and principles also provide a useful framework and tool for analyzing strengths and concerns in the implementation of the safety management programs.

This review was conducted in accordance with the Review Plan and fulfilled the requirements of the CRADs of that plan. The review approach focused on the functions described in the policy; specifically, the definition of work, the feedback process, and the identification and control of hazards as they relate to operations and maintenance. The team also addressed the effectiveness of the DOE-ORP staff in its oversight role.

Summaries of the functional area reviews, including DOE, are contained in the following sections of the report with the detailed Assessment Forms (Form 1) provided in Volume II. The Criteria and Review Approach Documents (CRADs) were based on the Core Functions and Guiding Principles from the DOE policy.

7.2 Functional Area Summaries

The record of the evaluation is provided in the Assessment Forms (Form 1) in Volume II. Assessment Forms were prepared for each Objective in the CRADs and document the basis for the conclusions reached concerning the objective and criteria.

7.2.1 Department of Energy ISMS Implementation (DOE)

The DOE subteam assessed the extent to which the DOE ORP has implemented ISM core function processes that incorporate the seven Guiding Principles of integrated safety

management. The ORP and RL have not completed full implementation of ISM within DOE. As noted in the Team Leader's appointment letter, ORP is currently transitioning many of the processes reviewed during the Phase I ISM assessment. The RL and ORP Managers tasked the DOE subteam to evaluate the existing status of ISM implementation and assess implementation progress.

The ORP is the first office to put into place a system description that defines the DOE procedures and processes credited for implementing the five Core Functions and seven Guiding Principles of ISM. Furthermore, this Phase II ISM verification is the first to assess federal interfaces with the contractor as well as internal federal processes that implement ISM.

The discussion in the DOE CRAD Assessment Forms are oriented toward the five Core Functions of ISM. The functions include the following:

a. Define the scope of work
b. Identification and analysis of hazards
c. Develop and implement hazard controls
d. Perform work within controls
e. Providing feedback

CRAD DOE.1 assesses processes related to items a. and d. CRAD DOE.2 assesses processes associated with items b. and c. CRAD DOE.3 assesses processes associated with item e. The final CRAD DOE.4 assesses the ORP System Description.

Strengths and concerns described in the CRAD Assessment Forms (Form 1) are categorized by ISM Guiding Principles and summarized as follows.

Line Management Responsibility for Safety and Clear Roles and Responsibilities

ORP line roles and responsibilities are understood by the ORP staff. However, these roles and responsibilities have not been institutionalized in a manner that effectively communicates key line, support and interface responsibilities. ORP staff understanding of their responsibilities has been effectively communicated during informal discussions of management expectations. Internal and external interface responsibilities need to be better defined. Development of an ORP Functions, Responsibilities, and Authorities Manual (FRAM) has been deferred until the transition to an independent office is complete.

ORP has an assessment program that has DOE line managers perform walkthroughs to evaluate health and safety in the field, and recent use of critical item/risk lists was observed to be a valuable oversight and feedback tool.

However, no formal process has been developed for ORP self-assessment and feedback regarding federal work processes. The RL-FRAM assigns responsibility for independent assessments to the RL Office of Environment, Safety and Health, but the Tank Farm Oversight Division (TOD) self-assessments were the only ORP self-assessment activity currently found to

be in place. These RL functions, and other functions like them, must be identified and institutionalized as ORP transitions to an independent office.

The TWRS Phase I ISMS assessment also concluded that there were no processes for ORP oversight/assessment of LMHC's self-assessment and feedback programs. Although the Phase I corrective action plan addresses this issue, implementation of these actions has been deferred until after the Phase II ISM assessment is completed.

Competence Commensurate With Responsibility

ORP staff demonstrated competence commensurate with responsibility during interviews with the DOE subteam. No significant concerns were identified during training record reviews. A noted strength was the use of technical personnel hired under excepted service authority. Both RL and ORP have implemented a practice of recruiting highly competent technical personnel under this authority and placed them in key advisory and supervisory roles within their organizations.

Balanced Priorities

CRAD DOE.1 and DOE.4 describe processes that define work scope, maintain balanced priorities, and communicate expectations to the contractor. Concerns were identified with the lack of a process to integrate ORP priorities with other DOE priorities at Hanford. A concern was also identified that the process to change the project baseline does not involve line management until late in the change process and results in late notification to line managers responsible for maintaining balanced priorities and accountable for programs adversely affected by the increased scope change.

Identification Safety Requirements and Tailoring Controls to Work

ORP uses the Standards/Requirements Identification Document (S/RID) process to tailor operational and safety-related requirements to the conditions existing at the tank farms. S/RID requirements have been incorporated into the contract. DOE has institutionalized and implemented processes and qualification requirements associated with S/RID development.

Operations Authorization

Operations authorization was reviewed under CRAD DOE.1. ORP has formal procedures that govern the determination of a contractor's readiness to authorize operations to commence. These procedures have been implemented recently at the tank farms and no strengths or concerns were identified during this assessment.

Conclusion

The DOE subteam concluded that DOE ISM processes discussed in the system description have been disrupted by the actions necessary to transition RL-TWRS into an independent ORP and

has prompted ORP to reevaluate its ISM processes. This delay prevented the organization from fully implementing its integrated safety management program. Actions to some of the concerns noted during the TWRS Phase I ISM assessment have not been completed.

The DOE subteam concluded that, as the first DOE system description put into effect in the field, the ORP System Description does a good job cross-walking processes to ISM Core Functions. However, additional work is needed to ensure the seven Guiding Principles of ISM are embedded within these processes. Continued management attention and active participation will be necessary for ORP to meet the goal of full implementation by September 2000.

Noteworthy Practices

- ORP has "projectized" its organizational structure so that its project/program managers are aligned with their LMHC counterparts, improving DOE involvement in ongoing work, enhancing communication, and establishing clearer lines of responsibility. (DOE.1.1)

- A draft ORP memorandum, which would transmit the ORP mission, structure, and roles and responsibilities, could effectively communicate management expectations and ORP roles and responsibilities. (DOE.4.1)

- ORP and LMHC are working together to develop a River Protection Strategic System Execution Plan (SSEP). The SSEP is a systematic analysis of the programmatic and strategic functions necessary to support tank farm storage, retrieval, and vitrification operations. (DOE.4.2)

Opportunities for Improvement

- When LMHC identifies a change in scope, cost, or schedule, they work with representatives in the Management Systems Office (MSO) to define needs associated with additional funding and personnel and identify other RPP activities that could be slowed or halted to provide the needed resources. Line management's responsibility to maintain balanced priority and define clear roles/responsibilities is not actively involved until late in the baseline change request process. (DOE.1.2)

- When MSO works directly with LMHC to reallocate funds/resources, the competence of its personnel is not necessarily commensurate with this line management responsibility. (DOE.1.3)

- Without schedule and cost reports at the project level, DOE line managers are not provided with the tools or information necessary to discharge their responsibility to oversee the contractor's ability to meet contractual requirements that affect worker and public safety. (DOE.1.4)

- Without an Integrated Priority List (IPL) that describes the relative priority of ORP work scope with respect to other work scope at the Hanford site, Headquarters allocation of site funding may not allow line managers to fully discharge their responsibilities or maintain balanced priorities. This concern is an outstanding finding noted during the Phase I ISM assessment of RL-TWRS. (DOE.1.5)

- Program managers in the line rely heavily on the presence of independent contractor Acceptance and Inspection representatives to discharge their responsibility to evaluate and assess LMHC in the area of quality assurance (QA). However, this program only oversees LMHC QA activity on construction projects and does not monitor LMHC post-construction QA activities. (DOE.1.6)

- ORP has not yet identified all functions performed by FDH, such as the Acceptance and Inspection function, which must be put in place when the project transitions to a condition where LMHC is the prime contractor. (DOE.1.7)

7.2.2 Hazards Identification and Standard Selection (HAZ)

The Hazards Identification and Standard Selection functional area subteam assessed the implementation and effectiveness of contractor mechanisms to (1) identify, analyze, and control hazards at the facility and activity level for work activities performed by the contractor and subcontractors, and (2) identify, approve, and implement the applicable standards and requirements.

Identify Hazards and Requirements

The current condition of the RPP S/RID is a significant improvement over 1 year ago during the ISMS Phase I Verification. The previous version of the S/RID had not been updated since its release in 1996, and numerous standards and requirements had changed as well as contractor implementing procedures. Now the S/RID is completely updated, and the procedures are in place to maintain it as a living document as well as conduct the necessary Phase I and II assessments. It is too early to evaluate the long-term effectiveness of these improvements, and continued management commitment is vital to success, but the S/RID program is moving in the right direction.

LMHC has a very comprehensive process in place for oversight of the construction subcontractor. LMHC project integration staff work closely with the construction subcontractor to develop, review, and approve specific work packages, including the Job Safety Analysis and the Unreviewed Safety Question (USQ) screening. LMHC shift management authorizes performance of the work and together with project integration staff, performs field inspections of the subcontractors. To ensure appropriate subcontractor safety standards, LMHC reviewed and approved the Fluor Daniel Northwest, Inc. (FDNW) Industrial Safety and Health Manual.

The LMHC system description and Subcontractor Safety Oversight procedure require subcontractors to develop, the LMHC Subcontractor Technical Representatives to approve, and the subcontractor to comply with the elements of a safe work plan, which explicitly calls for identification of the hazards associated with the work scope. LMHC personnel interviewed indicate no "safe work plans" as required by the relatively newly approved Subcontractor Safety Oversight procedure have yet been developed thus limiting the ability of the Verification Team to assess the implementation. Specific requirements associated with Subcontractor Safety Oversight procedure were not evident in the Fluor Daniel Northwest Contract for the site utility system portion of the W-519 Project. It is not clear if the subcontractor safety oversight for the W-519 Project will be in accordance with the Subcontractor Safety Oversight procedure.

Analyze Hazards and Implement Controls

Worker involvement in work planning, hazard identification, and control selection and implementation engenders a greater understanding of how safety is achieved, "buy-in" about the requirements for safety, and a sense of pride in doing work safely. These attributes are seen as a result of worker participation in EWP, Automated Job Hazard Analysis (AJHA), the hazard identification and controls identification for tank 241-SY-101, the President's/Area Zero Accident Council, and the Facility Excellence Program.

The team approach to identifying hazards and identifying and establishing controls resolves conflicts that arise because of parochial views of safety within the technical disciplines. Instead of the integration and solution of these conflicts taking place at the operator level, the conflicts are resolved in the planning stages, and synergistic exchanges of ideas create a more robust and "operations friendly" set of controls. The results of this team approach are seen in applications of work procedures, AJHA, and in development of the safety basis and control set for tank 241-SY-101 operations.

Management commitment to ISM was evident in their knowledge of core functions and guiding principles, but was also demonstrated by their participation in the Joint Review Group, Plant Review Committee, and the President's/Zero Accident Council. The Joint Review Group tackled detailed specifics on the procedure to install new pumping equipment in tank 241-SY-101 and made many improvements. The Plant Review Committee functioned in the same manner, drawing together top management and engineering talent to perform a contractor review of USQ evaluations. As the name implies, the President's/Zero Accident Council was chaired by the PHMC Presidents. Safety issues were substantive and aggressively pursued by the council's representatives.

The newly formed Nuclear Regulatory Compliance Support (NRCS) group functions to inject operations and work-related precepts into the implementation and use of controls, generally from the AB. This focus is required to expedite implementation of the new Final Safety Analysis Report (FSAR) and to engage operations and maintenance personnel in understanding the FSAR and its implications for operations. Additionally the NRCS has, along with Nuclear Safety and Licensing, initiated feedback on the controls established by the current Basis for Interim Operation (BIO) to improve the effectiveness of the controls.

Hazards and the controls necessary to mitigate the hazards for specific work activities are identified through the work planning and job hazard analysis (JHA) process. LMHC has previously identified certain deficiencies in the process including (1) ensuring involvement of appropriate ES&H personnel and workers during development of controls and (2) direction to work planning teams to agree on and document controls. LMHC is transitioning from the previously used work planning and JHA process to a team approach to work planning and the use of an AJHA. To facilitate this transition, the RPP Work Control procedure has recently been revised to reflect this approach and other changes to the work control process (e.g., team approach to work planning, pre-job briefings, post-job reviews, and creation of new hazards).

Prior to declaration of readiness for the Phase II verification, LMHC and ORP indicated that the AJHA was not yet fully implemented. The RPP Work Control procedure indicates full implementation of the AJHA tool shall be based on the hazard classification of the work to be performed. The methodology used to determine the hazard classification and thus the use of the AJHA is based on the as low as reasonably achievable (ALARA) Work Planning procedure. This approach obviously only addresses radiological hazards and may result in work being performed without the proper hazard analysis. A similar concern was also identified during the Phase I verification.

Noteworthy Practices

- Workers are actively involved in various elements of the safety program including work planning, JHA, President's/Area Zero Accident Council meetings, safety awareness, Facility Excellence Program, and accident analysis. (HAZ.1.1, HAZ.1.3, HAZ.1.6, HAZ.2.2)

- The attitude of senior managers and union leadership towards ISMS and employee involvement in the safety program was excellent. (HAZ.1.2, HAZ.1.5)

- The team approach to work planning with the use of the AJHA was demonstrated to be efficient and provided a comprehensive hazard analysis. (HAZ.1.4, HAZ.2.2)

- Subcontractor safety oversight of the construction subcontractor was thorough and comprehensive in nature. (HAZ.1.7)

- Establishment of the NRCS organization to aid in implementing Authorization Basis changes and review the changes from an operations perspective (HAZ.2.1)

Opportunities for Improvement

- All aspects of the RPP Work Control procedure have not yet been implemented. Additionally, the methodology used to determine high, medium, and low hazard work is based on radiological hazards only and as such may result in work being performed without the proper hazard analysis. (HAZ.1.8 through HAZ.1.8.10)

- The Subcontractor Safety Oversight procedure has not yet been fully implemented. (HAZ.1.11)

7.2.3 Management Oversight (MGO)

The Management Oversight (MGO) functional area subteam assessed the institutionalization and effectiveness of the definition and prioritization of work and that the contractor roles and responsibilities (specifically, line management responsibilities) are documented and are aligned with the ISMS core functions. In addition, the Management Oversight functional area reviewed the feedback and improvement functions including the LMHC QA program.

Define the Scope of Work

The RPP uses an integrated planning process that incorporates multiple layers of work plans and activities from the multi-year work plan down to the in-field work package. An integral component of the integrated planning process is the technical basis review planning package that establishes the technical basis, inputs, deliverables, reference documents, enabling assumptions, prioritization, and functional requirements of activities. The LMHC process for planning work activities was found to be effectively used by all personnel responsible for planning and scheduling mission tasks and work activities.

Provide Feedback and Continuous Improvement

The RPP 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. Use of these tools provides for worker involvement with input from various support organizations in the pre-planning and post-job reviews.

The AJHA process effectively allows worker involvement in determining and evaluating hazards during the planning phase for work activities.

Although LMHC's management self-assessment program identifies numerous deficiencies, it does not identify the level of significance that is identified during external reviews. Coupled with the Management Self-assessment 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 is 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.

The QA organization is an active participant in the line organization's implementation of continuous improvement. A QA surveillance program has been institutionalized to support compliance reviews to ensure regulatory compliance.

Management Review

Roles and responsibilities have been established within the facility or for an activity to ensure that safety is maintained at all levels. It was evident that personnel were aware of their roles and responsibilities and felt that management played an intricate role in ensuring this happens. Line management is responsible for safety and the procedures that specify this responsibility are being utilized. The team found that responsibility of the Senior Technical Representative was not clearly demonstrated in the Subcontractor Oversight Procedure, HNF-IP-0842 IX Safety 2.3, Rev. 1a, relating to Employee Job Task Analysis (EJTA).

The Training and Qualification Program ensures that personnel performing work are competent to safely perform their work assignments. However, implementation of HNF-IP-0842 III, Training 10.14, Rev. 0, could not be observed. This procedure outlines the process for qualifying Project Engineers and Project Managers and personnel that perform work on RPP life cycle project design.

Procedures and/or mechanisms are in place and utilized to incorporate the best practices of the various safety initiatives (e.g., Environmental Management System, Voluntary Protection Program, EWP, etc.)

Establish ES&H Policy

Both the FDH and LMHC procedures were found to be in place and utilized to develop, review, approve, maintain, and update the ISM System Description consistent with DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses, and direction to FDH from the DOE-RL Approval Authority. The PHMC documents are maintained and controlled in accordance with HNF-MP-013, Configuration Management Plan, HNF-PRO-244, and other governing FDH procedures and policies. Furthermore, HNF-SD-WM-PLN-114 has been revised three times and can be mapped back to the FDH ISMS Plan, HNF-MP-003, Rev. 0. The team found that HNF-SD-WM-PLN-114 is comprised of the FDH facility and activity level expectations including those implementing procedures. A crosswalk has also been prepared by LMHC that clearly maps the RPP process back to the DOE Policies and FDH expectations. Notwithstanding the above, the FDH ISMS Plan had not been updated annually as required by the DOE Policies until July 1999.

The PHMC (DE-AC06-96RL13200) clause H.5 contains specific requirements for the integration of environment, safety, and health into work planning and execution. Paragraph I of H.5 states, "The contractor shall include a clause substantially the same as this clause in subcontracts involving complex or hazardous work on site..." This requirement was derived from the DEAR clause 970.5204-2. A similar clause has been flowed down to LMHC as demonstrated in subcontract 80232764-9-K001, Section 7, Subparts A through I.

LMHC has demonstrated that mechanisms are in place to direct, monitor, and verify the integrated implementation of ISMS in accordance with their ISM System Description.

Noteworthy Practices

- Tailgate sessions are held and in these sessions the concepts of ISM are communicated very well at the worker level.

- The RPP Training Web Page is a good tool for helping the employees access training requirements, lessons learned, training procedures, and updates on changes in training in the Training Bulletin.

- The AJHA effectively allows worker involvement in determining and evaluating hazards during the planning phase for work activities.

- The Integrated Planning Process used by LMHC is excellent.

Opportunities for Improvement

- HNF-IP-0842 IX Safety 2.3, Rev. 1a, does not require the Subcontractor Technical Representative to assist subcontractor employees in completing an EJTA as required by the LMHC ISM System Description.

- Implementation of HNF-IP-0842 III, Training 10.14, Rev. 0, could not be observed.

- Although LMHC's management self-assessment program identifies numerous deficiencies, it does not identify the level of significance that is identified during external reviews.

- 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.

- Additional action is required to ensure that all issues identified during critiques are addressed during corrective action development.

7.2.4 Operations (OPN)

The Operations subteam evaluated the following ISMS plan core functions: identify hazards and requirements, analyze hazards and implement controls, perform work within controls, and feedback and improvement. The scope of this subteam verification was Operations, Work Planning, Radiological Controls, and Fire Protection. The review approach followed the outline illustrated in the CRAD that stressed (1) document review, (2) interviews, and (3) in-field observation at the activity level.

Identify Hazards and Requirements

LMHC demonstrated effective integration of safety management throughout tank farms operations. Enhanced Work Planning (EWP) is viewed by management and workers as a valuable tool both to analyze and mitigate hazards. The use of the ALARA Joint Review Group and the AJHA by personnel from the Radiological Controls organization and the Operations and Maintenance organizations clearly benefited high risk work such as the SY-101 tank.

The LMHC gap analysis, with respect to the HNF-MP-003, Integrated ES&H Management System Plan, pointed out that the AJHA was not yet implemented in the tank farms, and that the older JHA process did not address six of the 15 features of the AJHA. As of August 1, 1999, LMHC implemented the AJHA for high risk jobs and plans to implement it for medium risk and selected low risk jobs by September 30, 1999.

Analyze Hazards and Implement Controls

Newer procedures and work packages written in the last 6 months are much more thorough and effective than those written previously. This is a direct result of the increase in employee awareness and efforts to have greater employee involvement in the identification of the work scope and work planning.

In the area of environmental integration, the facility still relies on informal and independent programs to achieve many of the functions for work planning and control. The same formality, rigor, and concerns demonstrated for safety and radiological hazards need to be incorporated into the working planning for environmental (chemical hazards and waste stream). Several EWP meetings were observed for moderate and low risk activities that lack the necessary preparation, focus, and facilitation to ensure the same level of success as a high risk jobs.

Perform Work Within Controls

Fire Protection assessments are comprehensive and performed by competent and qualified individuals following established procedures and guidance. Review of procedures and selected records of work performance, in support of maintaining fire protection systems, showed that work performed meets requirements. Also, Fire Protection activities are effectively integrated with other activities to prevent conflicts. Roles and responsibilities were clearly understood.

Shift management carefully controls release of tank farms work to ensure facility conditions support planned activities. Pre-job briefs were a strong point observed during the verification. Significant improvement is still required in the formality of work in the tank farms. The need for formality improvement was illustrated by a Technical Safety Requirements (TSR) violation and nonprofessional conduct during a medium risk tank intrusive job during the review.

Weakness was noted in the area of performing work within the established controls. As observed in the Extent of Conditions Phase 2 Review, Issue Number ECR-2-7, procedures are not always

followed. This was demonstrated during this ISMS Phase II Verification assessment when a radiological hold point was not performed as required.

Feedback and Improvement

Field walkdowns comprised of engineers, planners, craft, and support services were viewed as an extremely effective ISMS tool. Additionally, the post-job review of the Waste Retrieval Sluicing System operation was demonstrative as an excellent ISMS feedback mechanism. However, wide-spread usage of post-job reviews are not being performed and other feedback weaknesses were identified in electrical safety and corrective action management programs. Lack of accessible indicators showing safety performance and benefits of the team approach to work planning does not allow workers to connect their individual efforts with the successful accomplishment of the LMHC mission.

Noteworthy Practices

- The interface agreement between LMHC and the Hanford Fire Department is an excellent document that clarifies and defines the parties respective areas of responsibility for the inspecting, testing, temporary deactivation, modifying, and maintaining of the Fire Protection systems. It also provides expectations for conducting work within LMHC managed facilities. (FP.1.1)

- LMHC implementation of the EWP process in the area of pre-job briefs and field walkdowns are effective tools for identifying hazards, controls, task descriptions, emergency actions, and safety requirements. (OPN.1.1, WP.1.1)

Opportunities for Improvement

- Weakness exists in the process for providing feedback. Examples are performance indicators and post-job reviews. (WP.1.5, OPN.1.3)

- Work planning and controls for environmental hazards/impacts are not evaluated with the same consistency or intensity as safety or radiological hazards and are not fully integrated in the work planning process. Additionally, clear definitions of high, medium, and low hazard are not available except when concerning radiological conditions. (WP.1.6, WP.1.8)

8. CONCLUSION AND RECOMMENDATION

The team noted a very positive attitude by senior managers and union leadership toward ISMS implementation. Senior leadership embraced worker involvement actively. This attitude will enhance full implementation of ISMS at the earliest time. This positive attitude was demonstrated in interviews, in meetings, and at job sites. Additionally, as members of the

team observed activities for work planning, the Facility Excellence Program, and the President's/Area Zero Accident Council, worker involvement was very visible and important to the success of the overall safety program. Roles and responsibilities are established to ensure that safety is maintained at all levels. It was evident that personnel are aware of their roles and responsibilities and that line management has accepted responsibility for safety.

The processes and mechanisms observed were well thought out and clearly demonstrated that safety planning was a visible part of the planning to execute the "work" to be conducted by RPP. Both FDH and LMHC procedures were found to be in place and utilized to develop and maintain the ISM System Description. The team approach to work planning and the improvement of the AJHA process provides an efficient and credible way to identify hazards and develop the controls necessary to conduct work in a safe manner. However, that process is not yet applied to all activities. Presently it is only required for high hazard activities. It is expected to be applied to medium and selected low hazard activities by the end of the fiscal year. Additionally, the definition of high, medium, and low hazard is not well defined for activities outside of the Radiological Controls area. This hazard identification and control development is an area the LMHC needs to improve.

During this review, team members observed occasions where the appropriate hazard controls were not executed by employees at the work activity level. In a specific case, the execution of the requirements of a radiological control hold point was deficient. This deficiency was identified and provided to DOE and LMHC for investigation and corrective action. Additionally, this team observed other weaknesses of the Field Work Supervisor in the execution of the required controls. It is important that LMHC improve this area by establishment of accountability in the enforcement of the identified hazard controls. Senior managers need to spend sufficient time in the field working with their organizations to ensure expectations for procedure compliance are met.

Improvement is required in the area of tracking identified deficiencies and completion of corrective actions. Issues contributing to this problem were lack of timely post-job reviews, inadequate critiques, and deficiencies are tracked on many different lists (making management of corrective actions very difficult). In addition, the team observed that contractor self-assessments are not geared to identification of significant problems being found by external reviews.

DOE was not able to complete all the actions identified in the Phase I review due in part to impacts associated with transition to ORP. This area requires improvement and will require Senior DOE management attention to ensure these gaps are adequately addressed during the upcoming transition. This team acknowledged the difficulty in the formalization of ORP roles and responsibility because of the fluid organizational changes caused by the reorganization. However, DOE has adequate mechanisms in place to assist LMHC in the execution of their safety system. The ORP has a Facility Representative assessment program that performs walkthroughs to evaluate health and safety in the field.

Transition by LMHC to the new organization will also require detailed senior management attention. Two critical examples are (1) the key documents that establish hazard controls are contained within the PHMC procedures and processes, and (2) LMHC will need to provide for an Independent Oversight function similar to the PHMC Facility Evaluation Board (FEB). In the first case the use of, responsibility for, and the correction of those crucial documents must be addressed. In the second case the independent oversight function should be addressed and a review should be conducted in the near term to establish a baseline for follow-on reviews.

The ISMS described by FDH and LMHC is considered implemented. Concerns regarding satisfactory execution of medium hazard, low hazard, and routine work should be resolved with senior management attention at work sites and other planned actions. Transition to a different contract will bring many challenges to ensure the ISMS maintains effectiveness. It is recommended that ORP and LMHC self-assessments in the next year focus on execution of work in the field and the feedback system to ensure ISM full implementation. Also ORP should formally examine its implementation of ISM in the next year to verify that planned actions are accomplished. DOE/ORP should evaluate the results of this validation and direct appropriate DOE and contractor actions to effect required improvements in ISMS implementation.

9. LESSONS LEARNED

9.1 Preparation

Contractor documentation concerning the verification and required reading should be transmitted to team members at least 2 weeks prior to verification. Additionally, it would be beneficial to have more instructions and evidence documentation up front.

The Detailed Approach Form helped the review team members to organize their approach as to what their review would entail. This form allowed each member to list interviews, records, and observations needed to perform an accurate review. LHMC in return took this list to create a schedule of requested activities as provided by each team member's Detailed Approach Form. This also helped to decrease the impact of redundant interviews. The contractor is to be commended for the task.

Reviewing previous reports helped the Technical Editor prepare for this report. This was unique because this review team used a technical editor from the ORP organization. The technical editing function was previously provided by DOE Headquarters for ISMS verification.

The PHMC and LMHC ISMS crosswalks were valuable in preparing for this verification.

Scheduling of meetings/interviews was not well coordinated. There was only 1 week between the LMHC presentations and the actual review rather than the normal 2-week period.

A completed Assessment Form (Form 1) from a previous ISMS Phase II verification would have been beneficial to the review team.

9.2 Facility Evaluation Board Participation

FEB participation was found to be mutually beneficial to the FEB and to DOE. The FEB brings a wealth of facility and independent oversight experience to the ISMS verification process. Participation in the ISMS verification also allowed the FEB to become more familiar with specific aspects of ISMS, which will assist them in future independent oversight activities.

9.3 Team Composition

The team composition worked well. There were five FEB participants, one participant from DOE Headquarters, two participants from the Savannah River Site, which included the Team Leader and a Facility Representative, two from DOE-ORP, and three from DOE-RL. The team possessed diverse experiences. This allowed for very beneficial feedback among the team members. Overall the team had a good mix.

Administrative support for this review team was excellent. The administrative team played an intricate role in facilitating communication between review team members and LMHC personnel.

DOE Facility Representative participation should remain an integral part of future verifications. The wealth of knowledge of the Facility Representative relating to the facility proved very beneficial to the review team.

9.4 Logistics

Logistical support and the work environment were good. The availability of office space and computers was very helpful. Computer access to policies and procedures proved to be a useful tool. Hard copies were also provided on request.

9.5 CRADs

Becoming familiar with the CRADs takes considerable time. Long facility orientations/briefings, which contributed little to understanding ISM implementation, took time away from discussing the CRADs and review philosophy. Future orientations/briefings should focus on the contractor's ISM System Description and the mechanisms used to implement it.

The unique CRAD relating to Maintenance and Work Control was beneficial in terms of combining multiple criteria into a single objective.

9.6 Communication

The open daily outbriefs with the contractor helped to minimize surprises and allowed the contractor to take action and respond to potential issues.

A short daily meeting of review teams by functional area might be useful in sharing information and coordinating efforts. Some of this was done informally with team members and it was helpful.

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River Protection Project

Integrated Safety Management System Phase II Verification Report

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RPP ISMS PHASE II VERIFICATION ASSESSMENT FORMS

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

OBJECTIVE

DOE.1 DOE ISMS procedures and mechanisms are utilized and should ensure that work is formally and appropriately authorized and performed safely. DOE line managers should be involved in the review of safety issues and concerns and should have an active role in authorizing and approving work and operations. (CE II-7)

Criteria

DOE procedures and/or mechanisms are in place and utilized that establish a process for confirming readiness and authorizing operations. (FRAM 9.5.1 and 9.5.2)

DOE procedures and/or mechanisms are utilized to ensure that the safety management system is properly implemented and line management oversight of the contractor's worker, public, environment, and facility protection programs is performed. (FRAM 9.5.2)

DOE procedures and/or mechanisms are utilized to require day-to-day operational oversight of contractor activities through Facility Representatives. (FRAM 9.5.2)

DOE procedures and/or mechanisms are utilized to ensure the implementation of quality assurance (QA) programs and ensure that contractors implement QA programs. (FRAM 9.5.3)

ORP interfaces with contractors and RL representatives are clearly identified, integrated, and utilized when defining work scope and performing work.

Approach

Record Review: Review the FRAM/FRA and DOE implementing guidance to determine that the process for the authorization and oversight of work is adequate. Verify that those DOE personnel assigned to perform these functions have clear roles and responsibilities. Determine if the oversight policy is balanced with risk and priority of mission. Review the QA program established by DOE and the interactions of that program with the contractors QA program. Verify DOE programs hold line management responsible for safety and contain clear roles and responsibilities.

Interviews: Discuss work authorization and performance activities with DOE and contractor personnel to determine if there are adequate mechanisms to ensure that work is properly authorized at all levels. Determine if worker safety is perceived as an integral part of the work authorization process and that workers are involved in issue resolution if appropriate. Discuss the oversight programs with DOE and contractor personnel. Discuss the Facility Representative (FR) programs with facility

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

representatives and contractor personnel to determine if the FR program is effective. Discuss oversight programs with DOE staff who perform ES&H management and supervision assignments. During interviews, verify understanding of line management responsibility for safety and understanding of clear roles and responsibilities.

Observations: Observe selected facility representative and DOE staff oversight activities.

Record Review:

- DOE/RL-98-69, *ORP Integrated Safety Management System Description*, August 1999
- DOE 425.1, *Startup and Restart of Nuclear Facilities*, U.S. DOE, September 29, 1995
- DOE-EM-STD-3006-96, *Planning and Conduct of Operational Readiness Reviews (ORR)*, November 1995
- DOE HDBK 3012-96, Guide to Good Practices for Operational Readiness Reviews (ORR) Team Leader's Guide, June 1996
- RLID 425.1, *Startup and Restart of Facilities*, U.S. DOE, September 10, 1996.
- DOE/RL-97-72, *Determination of Readiness to Implement Tank Waste Remediation System (TWRS) System Basis for Interim Operations*
- RL Facility Representative Instructions
- 98-SCD-098, Letter from J. D. Wagoner, RL, to R. D. Hanson, FDH, *Contract Number DE-AC06-96RL 13200-Issuance of the Tank Waste Remediation System (TWRS) Project Authorization Agreement (AA)*, July 24, 1998
- ORP Procedures: 08-01, *Safety Documentation Review and Approval*, May 1997; 06-01-02, *Continuous Improvement – Management Assessments*, April 1994; 06-01-03, *Continuous Improvement – Independent Assessment – Audits*, April 1994; 06-01-04, *Continuous Improvement – Independent Assessment – Surveillances*, April 1994
- ORP Operational Readiness Reviews Conducted (1996-1998)
- 99-TSD-042, Letter, *Formalization of Office of River Protection (RPP) Nuclear Criticality Safety Program and Appointment of ORP Criticality Safety Representative (CSR)*, April 9, 1999
- Guidance Document for the ORP Safety Management Process
- TWRS-05-01, *Management Walkthrough*, March 1, 1997

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

- GPG-FM-001-033, *Field Management Good Practice Guides, Project Management Overview*
- DOE 5700.6C, *Quality Assurance*, U.S. DOE, August 21, 1991 (2)
- GPG-FM-017, *Life Cycle Asset*, U.S. DOE, Office of Field Management, Office of Project and Fixed Asset Management
- RLP 1000.1, *RL Corrective Action Management System*, U.S. DOE, Richland Operations Office, July 11, 1996
- RL Quality Assurance Program Description
- 99-TOD-013, *RPP Corrective Action Management Assessment*, April 1999
- DOE/ORP-414.1, *Quality Assurance Program Implementation Assessment*

Interviews Conducted:

- Manager, Office of River Protection
- Manager, Richland Operations Office
- Assistant Manager, Tank Waste Processing and Disposal
- Deputy Assistant Manager, Tank Waste Processing and Disposal
- Director, Management Systems Office (MSO)
- Director, Operations Program Division (OPD)
- Director, Program Development Division (PDD)
- Director, Technical Support Division (TSD)
- Director, Tank Farm Oversight Division (TOD)
- Engineer, OPD (2)
- Facility Representative
- Physical Scientist, TSD (2)
- Team leader, TSD

Observations:

- ORP critical risk/issue integration meeting
- LMHC senior staff meeting
- TSD staff meeting
- OPD/TSD interface meeting
- AMSR staff meeting
- ORP "War Room"

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

Discussion of Results:

The Office of River Protection (ORP) and the Richland Operations Office (RL) have not completed full implementation of ISM within DOE. As noted in the Team Leader's appointment letter, ORP is currently transitioning many of the business processes reviewed during the Phase I ISM assessment. The RL and ORP Managers tasked the assessment team to evaluate the existing status of ISM implementation and assess implementation progress. To meet the objective of this criteria and review document (CRAD), the team evaluated implementation of mechanisms that ensure DOE defines work scope, communicates expectations to the operating contractor, and remains involved in the review and oversight of day-to-day work activities.

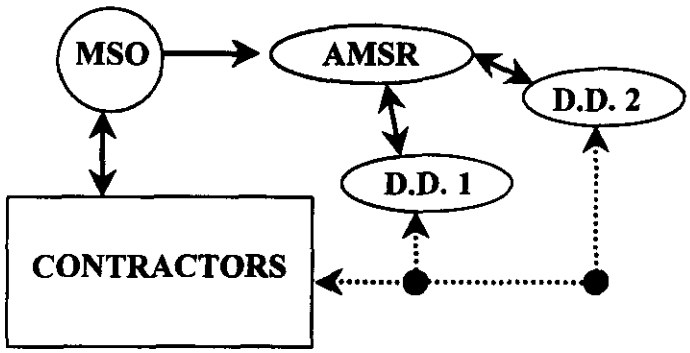
The first criterion assesses mechanisms for assuring readiness and authorizing contractor operations. Procedures and personnel interviews were conducted to assess DOE processes in this area. Readiness and startup approval activities are institutionalized within RLIDs and RLPs. Within the last year, these procedures were effectively implemented to assess contractor readiness prior to authorizing sluicing operations in C-106.

The second criterion addresses safety management system implementation and line management oversight of contractor work. Document reviews and staff interviews were conducted to evaluate processes associated with this criterion. DOE sets expectations of work scope and schedule through the development of an integrated site baseline, a multi-year work plan (MYWP), project specification, and an integrated priority list (IPL). Change control processes are in place to manage revisions to the information contained within these documents. These expectation documents are currently in place for use by the tank farm contractor, LMHC.

LMHC uses its Technical Basis Review Process to convert DOE expectations into project work scope and schedule. The output of this process, a project baseline summary, is coordinated with ORP to ensure DOE expectations (as defined by the integrated site baseline, MYWP, and the IPL) are met. LMHC has implemented change control processes for configuration management of the project baseline and system engineering documents.

Line management responsibility, clear roles, and balanced priorities are essential principles of an integrated safety management system. However, when the contractor implements changes to the project baseline change request (BCR), these principles are not incorporated into DOE's portion of the change control process. (DOE.1.2) The figure illustrated below represents DOE's portion of the change control process as described during interviews.

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99



"D.D. 1" represents the division director responsible for an activity that increases in scope, schedule, or cost. "D.D. 2" represents the division director whose activities are adversely affected by D.D. 1's increase in scope, schedule, or cost. Solid lines represent the actual coordination process observed for baseline change requests. Dashed lines represent coordination between LMHC and affected line managers that does not routinely occur.

When LMHC identifies a change in scope, cost, or schedule, it generates a baseline change request. LMHC works with representatives in the Management Systems Office (MSO) to define needs associated with additional funding and personnel and identify other River Protection Project activities that could be slowed or halted to provide the needed resources. Once these changes have been identified, MSO forwards a complete package to the Assistant Manager for Storage and Retrieval (AMSR) for review and concurrence. DOE line managers responsible and accountable for programs adversely affected by the increased scope change are typically notified of the pending changes in their program scope and schedule late in the change process. (DOE.1.2) At this point, DOE and LMHC have expended a significant amount of resources analyzing the scope change and line management must raise a significant issue in order to change the modifications brokered by MSO. Although the competence of MSO personnel (budget analysts, systems engineers, and environmental regulatory experts) is commensurate with their responsibility for providing strategic planning and business administration functions, their competence is not commensurate with the responsibilities assigned to program line management. (DOE.1.3)

ORP is has "projectized" its organizational structure so that its project/program managers are aligned with their LMHC counterparts. This improves DOE involvement in ongoing work, enhances communication, and establishes clear lines of responsibility. (DOE.1.1) Among these responsibilities, line management has charged program engineers and division directors with the responsibility for tracking and maintaining contractor schedule

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

and budget performance for their projects. Program engineers and division directors are functionally aligned to specific projects in order to manage contractor implementation of individual projects such as C-106 sluicing, SY-101 remediation, or interim stabilization of single shell tanks. However, LMHC only provides DOE with status reports that describe schedule and cost variance at the project baseline schedule level (e.g., TW03). At this level, LMHC status reports "roll-up" progress of several key projects (e.g., TW03 covers C-106 sluicing, SY-101 remediation, and interim stabilization of single shell tanks) under a single project baseline account.

LMHC project managers manage work at the Technical Basis Review level of detail. At this level, risks, resource requirements, cost and schedule are tracked for a specific project or activity. This information is available to DOE, but not routinely provided to line managers. DOE must obtain this information through routine day-to-day interactions and meetings with LMHC managers. Without schedule and cost reports at the project level, DOE line managers are not provided with the tools or information necessary to discharge their responsibility to oversee the contractor's ability to meet contractual requirements that affect worker and public safety. (DOE.1.4)

The integrated priority list (IPL) functions as a mechanism for maintaining balanced priorities and managing changes to baseline work scope. Implementation of the ORP IPL process does prioritize tank farm work scope and provides DOE and LMHC with a tool to assist with the redistribution of resources as a result of changes in baseline work scope. During the next budget cycle, ORP and RL IPLs will be provided to Headquarters as a basis for assigning funds to the Hanford site. However, the IPL process does not integrate ORP priorities with RL priorities. Without an IPL that describes the relative priority of ORP work scope with respect to other work scope at the Hanford site, Headquarters allocation of site funding may not allow line managers to fully discharge their responsibilities or maintain balanced priorities. This observation is an outstanding finding noted during the Phase I ISM assessment of RL-TWRS. (DOE.1.5)

The third criterion assesses Facility Representative oversight of contractor day-to-day activities. The criterion was assessed through interviews and observing Facility Representative tours of work in progress. The results indicate that implementation of the Facility Representative program is effective in producing DOE personnel capable of monitoring contractor activity on a day-to-day basis. The facility representative program is also effective in assuring personnel competence is commensurate with assigned responsibilities.

For the last criterion, processes that ensure quality assurance requirements are implemented were assessed through interviews with staff responsible for this function. Tank Farm Oversight Division, through its assessment program, is not assigned the responsibility for overseeing LMHC quality assurance activity. This responsibility has been assigned to line management. The ORP ISM system description contains an

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

implementation crosswalk of the ten Quality Assurance (QA) Criteria within 10 CFR 830.120 against sections of the system description. The crosswalk is intended to communicate QA is fully integrated and embedded into ISM processes described within the system description. In order to discharge their responsibility to evaluate and assess LMHC in the area of quality assurance, interviews indicate that program managers in the line rely heavily upon the presence of independent contractor Acceptance and Inspection (AI) representatives. However, the AI program only oversees LMHC quality assurance activity on construction projects. The AI function does not monitor LMHC post-construction quality assurance activities. (DOE.1.6)

Currently, DOE has a contract with FDH as a prime management and integration contractor responsible for operation of the tank farm and other Hanford facilities. FDH has subcontracted LMHC to perform tank farm operations. In October, ORP will put in place a new contract that eliminates the management and integration contractor. ORP has not yet identified all functions performed by FDH, such as the AI function, which must be put in place when the project transitions to a condition where LMHC is the prime contractor. (DOE.1.7)

Conclusion:

The team found that DOE has placed ISM requirements in the contract, communicates expectations to the contractor, and performs oversight of contractor work activity. However, these business and work processes have been disrupted by the actions necessary to transition RL-TWRS into an independent ORP and has prompted ORP to reevaluate its ISM process. Organizational changes, procurement of RL and FDH services, and integration of ORP priorities/baseline activities with those of the RL have not been developed or implemented.

The objective of this CRAD has not been met, but ORP is making progress toward full implementation of the ISM processes associated with this CRAD. Continued management attention and active participation will be necessary to meet the goal of full implementation by September 2000.

Issue(s):

Strengths

- ORP has "projectized" its organizational structure so that its project/program managers are aligned with their LMHC counterparts, improving DOE involvement in ongoing work, enhancing communication, and establishing clearer lines of responsibility. (DOE.1.1)

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FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

Concerns

- When LMHC identifies a change in scope, cost, or schedule. They work with representatives in the MSO to define needs associated with additional funding and personnel and identify other River Protection Project activities that could be slowed or halted to provide the needed resources. Line management's responsibility to maintain balanced priority and define clear roles/responsibilities is not actively involved until late in the baseline change request process. (DOE.1.2)

- When MSO works directly with LMHC to reallocate funds/resources, the competence of its personnel is not necessarily commensurate with this line management responsibility. (DOE.1.3)

- Although cost and schedule information, by specific project, is available to DOE, it is not routinely provided to line managers. Without schedule and cost reports at the project level, DOE line managers are not provided with the tools or information necessary to discharge their responsibility to oversee the contractor's ability to meet contractual requirements that affect worker and public safety. (DOE.1.4)

- Without an IPL that describes the relative priority of ORP work scope with respect to other work scope at the Hanford site, Headquarters allocation of site funding may not allow line managers to fully discharge their responsibilities or maintain balanced priorities. This concern is an outstanding finding noted during the Phase I ISM assessment of RL-TWRS. (DOE.1.5)

- In the absence of a functional self-assessment program that evaluates implementation of cross-walked processes against the QA criteria, the sub-team cannot credit implementation. Program managers in the line rely heavily upon the presence of independent contractor AI representatives to discharge their responsibility to evaluate and assess LMHC in the area of QA. However, this program only oversees LMHC quality assurance activity on construction projects and does not monitor LMHC post-construction QA activities. (DOE.1.6)

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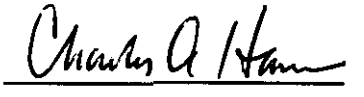
FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.1** DATE: 08/16/99

- ORP has not yet identified all functions performed by FDH, such as the Acceptance and Inspection function, which must be put in place when the project transitions to a condition where LMHC is the prime contractor. (DOE.1.7)

Submitted:  **Michael A. Mikolanis** ***Team Member***	**Approved:**  **Charles A. Hansen** ***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.2** DATE: 8/16/99

OBJECTIVE

DOE.2 DOE ISMS procedures and mechanisms ensure that hazards are analyzed, controls are developed. DOE line managers are using these processes effectively, consistent with FRAM and FRA requirements. DOE personnel shall possess the experience, knowledge, skills and abilities that are necessary to discharge their responsibilities. (CE II-8)

Criteria

DOE processes and/or mechanisms are in place and utilized to ensure that the contractor's hazard analysis covers the hazards associated with the work and are sufficient for selecting standards. (FRAM 9.3.1)

DOE procedures and/or mechanisms are in place and utilized in which DOE directs the contractor to propose facility or activity-specific standards tailored to the work and the hazards. DOE procedures are in place and utilized that require that appropriate safety requirements in necessary functional areas are included in contracts. (FRAM 9.4.1)

DOE procedures and/or mechanisms are in place and utilized that direct DOE line manager oversight to ensure that implementation of hazards mitigation programs and controls are established. (FRAM 9.4.2)

DOE procedures and/or mechanisms are in place and utilized that direct the preparation of the authorization basis documentation and oversee the implementation by the contractor. Procedures for development, review, approval, maintenance, and utilization of Authorization Agreements are implemented. (FRAM 9.4.3)

DOE personnel who analyze hazards and identify adequate controls demonstrate and maintain competence that is commensurate with their responsibility.

ORP interfaces with contractors and RL representatives are clearly identified, integrated, and utilized when analyzing hazards and developing controls.

Approach

Record Review: Review the FRAM/FRA and DOE implementing guidance to determine that a process for ensuring that effective interfaces with the contractor's ISMS has been established. Review DOE procedures for ensuring that adequate provisions are included for verification that hazards are properly identified, analyzed, and categorized. Review the approved and in-process hazards analysis documentation to verify that contractor procedures and mechanisms have been

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.2** DATE: 8/16/99

properly reviewed and approved. Review DOE procedures that specify the process to be followed for the review and approval of standards and hazard controls. Ascertain that DOE has approved the process used by the contractor to tailor the selection of standards and requirements.

Review the process used for the review, approval, and implementation of authorization basis documentation including authorization protocols and agreements.

Interviews: Interview selected DOE personnel responsible for the review and approval of the results of the contractor's identification, analysis, and categorization of hazards to assess their understanding of the procedures and the underlying principles and requirements. Interview DOE personnel responsible for the review and approval of the standard selection process including the approval of the authorization protocols and agreements

Observations: Observe the programs, processes, and mechanisms identified in practice.

Record Review

- DOE/RL-98-69, *ORP Integrated Safety Management (ISM) System Description*, August 1999
- RLP 5480.21, *Unreviewed Safety Questions*, April 10, 1996
- RLP 5480.23, *Review and Approval of Nuclear Safety Documents, March 20, 1996*
- RL TWRS (ORP) Formal Procedures: 01-04, *Key Decision Process*, June 1, 1995; 08-01, *Safety Documentation Review and Approval*, May 13, 1997; 08-03, *Unreviewed Safety Questions*, April 13, 1994; 08_04-01, *Technical Safety Requirements – Review and Approval*, April 13, 1994; 08-04-02, *Justification for Continued Operations – Review and Approval*, April 13, 1994
- Employee Job Task Analysis (EJTA) (selected examples)
- RLID 1300.1C, *Office Facility Representative Program*, January 26, 1996 (2)
- Safety Management Process Procedure
- Guidance Document for the ORP Safety Management Process
- TWRS Authorization Amendment Approvals and Safety Evaluation Reports
- 98-TSD-054, Letter from J. E. Kinzer, ORP, to R. D. Hanson, FDH, *Approval of Tank Waste Remediation System (TWRS) Standards/Requirements Identification Document (S/RID) Program Implementation Plan (PID)*, May 12, 1999

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.2** DATE: 8/16/99

- RLP 5000.6A, *RL Procedure Change Control*, Richland Operations Office Implementing Policy/Procedure, March 8, 1994
- RLP 1380.1, *RL Qualification and Orientation for S/Rid Activities*, November 16, 1994 (2)
- TWR 5.1.1, FY 1999 Performance Agreement (PA)
- RPP Authorization Basis Docket
- ORP Master Assessment Program
- 98-SCD-098, Letter from J. D. Wagoner, RL, to R. D. Hanson, FDH, *Contract Number DE-AC06-96RL13200 – Issuance of the Tank Waste Remediation System (TWRS) Project Authorization Agreement (AA)*, July 24, 1998
- RL FRAM, *Richland Operations Office Functions, Responsibilities, and Authorities Manual (FRAM)*, March 6, 1998, Rev. 5
- RL TWRS Staffing Analysis
- RL Technical Qualifications Program Plan

Interviews Conducted

- Manager, Office of River Protection
- Manager, Richland Operations Office
- Assistant Manager, Tank Waste Processing and Disposal
- Deputy Assistant Manager, Tank Waste Processing and Disposal
- Director, Management Systems Office (MSO)
- Director, Operations Program Division (OPD)
- Director, Program Development Division (PDD)
- Director, Technical Support Division (TSD)
- Director, Tank Farm Oversight Division (TOD)
- Engineer, OPD (2)
- Facility Representative
- Physical Scientist, TSD (2)
- Team leader, TSD

Observations

- ORP critical risk/issue integration meeting
- LMHC senior staff meeting
- TSD staff meeting
- OPD/TSD interface meeting

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.2** DATE: 8/16/99

- AMSR staff meeting
- ORP "War Room"

Discussion of Results

The Office of River Protection (ORP) and the Richland Operations Office (RL) have not completed full implementation of ISM within DOE. As noted in the Team Leader's appointment letter, ORP and RL are currently transitioning many of the ISM processes reviewed during the phase one ISM assessment. The RL and ORP Managers tasked the assessment team to evaluate the existing status of ISM implementation and assess implementation progress. To meet the objective of this criteria and review document (CRAD), the team evaluated implementation of ISM processes that oversee contractor hazard analyses and ensure appropriate controls are identified and put into place.

The first two criteria evaluate DOE processes that oversee contractor performance of hazard analyses and direct the contractor to propose facility or activity-specific standards tailored to the work and the hazards. The ORP/RL Integrated Management Plan states that the office has adopted RL processes until ORP develops its own unique policies and procedures. ORP uses the Standards/Requirements Identification Document (S/RID) process to tailor operational and safety-related requirements to the conditions existing at the tank farms. Incorporation of the S/RID into the contract makes S/RID requirements contractually binding upon the contractor. RLP 1380 describes DOE processes and qualification requirements associated with S/RID development, which are being implemented during the ongoing review and approval of an S/RID update. The status of the S/RID update is discussed in CRAD HAZ.3.

The next two criteria assesses whether DOE practices are in place and utilized to direct the preparation of the authorization basis and authorization agreement documentation and oversee their implementation by the contractor.

Implementation of DOE Order 5480.21, 5480.22, and 5480.23 establishes requirements upon the contractor that govern the development, maintenance, and configuration management of a facility authorization basis. These requirements are included in List B of the contract with FDH and were used to develop a Basis for Interim Operation (BIO) and a draft Final Safety Analysis Report (FSAR) that are compliant with the requirements of DOE Order 5480.23. RLP 5480.21 and TWRS 08-03, which define ORP actions in the Unreviewed Safety Question (USQ) process, do not adequately assign responsibility for line management to actively monitor the USQ identification, review, and decision making process performed by contractors. [DOE Order 5480.21, Section 9.e.(3)] Although ORP line management is actively involved in the contractor's decision making process for a positive USQ, no responsibilities or process has been put into place to periodically review the contractor's implementation of USQ screenings and negative USQ determinations. (DOE.2.2)

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.2** DATE: 8/16/99

GPG-FM-023 provides guidance for the review and incorporation of safety requirements throughout the life cycle of a project. Structure and guidance for life-cycle project development and execution is provided within the DOE Order 430.1, *Life-Cycle Asset Management* (LCAM), and Good Practice Guides (GPGs). Application of LCAM requirements are applied to formal ORP line-item construction projects. However, the application of LCAM requirements have not been placed within the contractor S/RID requirements. Utilization of the guides by DOE staff was observed, although the level of rigor between construction projects is inconsistent. Development of LCAM implementing procedures is a planned "to be" Strategic System Executive Plan (SSEP) activity.

During interviews, TSD personnel described division practices that provide day-to-day line management oversight of contractor work by ORP safety professionals (e.g., industrial hygienists). These oversight activities include attending contractor plan-of-the-day meetings, pre-evolutionary briefings, review of approved work packages, and observing work practices in the field. These safety professionals also coordinate with TOD to perform formal surveillance and assessments. However, these discussions did not reveal any DOE oversight of "in-process" hazard analysis performed by the contractor prior to execution of approved work. (DOE.2.3) DOE oversight of contractor hazards analysis is reactive/heavily weighted towards checking controls once the worker is potentially exposed to the hazards. This situation is aggravated by the lack of clear roles and responsibilities, including management expectations, described in CRAD DOE.4.

In the tank farms, the Authorization Agreement is used to support and define the facility authorization envelope. The authorization envelope establishes the limits of safe operation for all tank farm activities and includes requirements and setpoints not identified in documents contained within the authorization basis (e.g., limits established in environmental permits issued by the State of Washington). However, practical implementation of the Authorization Agreement is somewhat limited to specific environmental limits are not identified within the Authorization Agreement or in a separate set of environmental technical specifications. This environmental deficiency is recognized by the ORP ISM System Description and corrective action plan. Corrective actions for improvement of environmental management should be identified during development of the SSEP. (DOE.2.4)

Under the next criterion, the team assessed the competence of DOE personnel who analyze hazards and oversee the implementation of prevention/mitigation controls. RL and ORP have made extensive use of Excepted Service authority to attract and recruit high-quality technical personnel to provide expertise in this area. Excepted Service personnel are generally placed in a senior advisory role to perform these functions and mentor other staff. (DOE.2.1) In addition to line management oversight, Facility

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.2** DATE: 8/16/99

Representatives are used to oversee the implementation of controls in the field. Completion of the Facility Representative qualification program is another process used by ORP to ensure competence is commensurate with responsibility.

Finally, CRAD DOE.4 discusses ORP roles and responsibilities, including interfaces with contractor organizations.

Conclusion

The team found that DOE has institutionalized the hazard analysis and identification of controls processes necessary to support LMHC's ISM program. However, implementation of these ISM processes is inconsistent and has been disrupted by the actions necessary to transition RL-TWRS into an independent Office of River Protection and has prompted ORP to reevaluate its ISM processes.

The objective of this CRAD has not been met, but ORP is making progress toward full implementation of the ISM processes associated with this CRAD. Continued management attention and active participation will be necessary to meet the goal of full implementation by September 2000.

Issue(s)

Strengths:

- RL and ORP have made extensive use of Excepted Service authority to attract and recruit high-quality technical personnel to provide expertise in this area. Excepted Service personnel have generally placed in a senior advisory role to perform these functions and mentor other staff. (DOE.2.1)

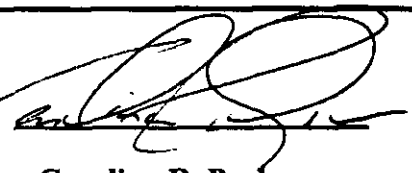
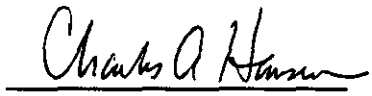
Concerns:

- Procedures that define ORP actions in the USQ process do not adequately assign responsibility for line management monitoring of the USQ identification, review, and decision-making process performed by contractors. (DOE O 5480.21, Section 9.e.(3)) Although ORP line management is actively involved in the contractor's decision making process for a positive USQ, no responsibilities or process has been put into place to periodically review the contractor's implementation of USQ screenings and negative USQ determinations. (DOE.2.2)

- ORP does not provide oversight of the "in-process" hazard analysis performed by the contractor prior to execution of approved work. Oversight of contractor hazards analysis is reactive/heavily weighted towards checking controls once the worker is potentially exposed to the hazards. (DOE.2.3)

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.2** DATE: 8/16/99

- Practical implementation of the authorization agreement is somewhat limited due to a lack of specific environmental limits in the authorization agreement or the Technical Specifications. (DOE.2.4)

Submitted: 	**Approved:** 
Carolina R. Pacheco	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.3** DATE: 8/16/99

OBJECTIVE

DOE.3 DOE processes have been established and utilized that ensure that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process. DOE procedures and mechanisms ensure that feedback and improvement programs are in place and effective. DOE line managers are using these processes effectively, consistent with FRAM and FRA requirements. (CE II-8)

Criteria

DOE procedures and/or mechanisms require that contractors develop and utilize a lessons-learned program and monitor its implementation. A process is established and utilized for reviewing occurrence reports and approving proposed corrective action reports. A DOE process is established and effectively implemented to continuously improve efficiency and quality of operations. Corrective actions are developed, implemented, and tracked to profit from prior experience and the lessons learned.

DOE provides effective line oversight of the contractor's self-assessment programs. (FRAM 9.6.2)

DOE ensures that applicable opportunities for improvement and lessons learned are appropriately communicated to the work force.

DOE ensures that competence at the facility level and activity level is commensurate with the responsibilities to provide oversight, feedback, and continuous improvement.

DOE processes for priorities are balanced to ensure issues are managed for continuous improvement.

ORP interfaces with contractors and RL representatives are clearly identified, integrated, and utilized when analyzing hazards and developing controls.

Approach

Records Review: Review the DOE process established to provide line oversight of the contractor's self-assessment programs. Review DOE guidance to the contractor concerning the establishment of a lessons-learned program. Determine if the lessons learned between federal safety offices and offices of similar functions are appropriately integrated and shared. Evaluate the DOE issues management and tracking system to ensure that there is an adequate system in place.

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.3** DATE: 8/16/99

Interviews: Interview DOE personnel responsible for administering the issues management program and those DOE line managers who provide oversight of the contractor's self-assessment programs.

Observations: Observe the programs, processes, and mechanisms identified in practice.

Record Review

- DOE/RL-98-69, ISM ORP System Description, August 1999
- RLID 1300.1C, *Office Facility Representative Program*, U.S. DOE, Richland Operations Office, January 26, 1996 (2)
- RL TWRS Formal Procedures: 05-01, *Management Walkthrough*, March 1, 1997; 06-01-02, *Continuous Improvement – Management Assessments*, April 1994; 06-01-03, *Continuous Improvement – Independent Assessments – Audits*, April 1994; 06-01-04, *Continuous Improvement – Independent Assessment – Surveillances*, April 1994; 06-01-08, *Continuous Improvement – Corrective Actions*, April 13, 1994
- RL Facility Representative Instructions
- *Bri's Little Bits*, Operations Feedback, July 1999
- RL Self-Assessment (based on Malcolm Baldridge Criteria)
- DOE/RL-99-05, Corrective Actions to the EH-22 Independent Oversight Evaluation
- TOD 001, Monthly Facility Representative Reports
- Performance Indicator Charts
- DOE-STD-7501-95, *DOE Standard Development of DOE Lessons Learned Programs*, May 1995
- ORP Facility Representative Program
- ORP Operational Readiness Reviews (1996-1998)
- 99-TOD-020, Letter from A. B. Sidpara, ORP, to R. T. French, ORP Manager, *Transmittal of Line Management Readiness Review of the River Protection Project (RPP) Integrated Safety Management (ISM) Implementation,* June 9, 1999
- RLP 5000.6A, *RL Procedure Change Control*, U.S. DOE, Richland Operations Office Implementing Policy/Procedure, March 8, 1994
- ORP Risk Management Process
- 99-BUD-051, Letter from R. R. Tibatts, RL, to Addressees, RL, *RL Budget Briefing,* March 1, 1999
- ORP Management Assessment Plan (MAP)

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.3** DATE: 8/16/99

Interviews Conducted

- Manager, Office of River Protection
- Manager, Richland Operations Office
- Assistant Manager, Tank Waste Processing and Disposal
- Deputy Assistant Manager, Tank Waste Processing and Disposal
- Director, Management Systems Office (MSO)
- Director, Operations Program Division (OPD)
- Director, Program Development Division (PDD)
- Director, Technical Support Division (TSD)
- Director, Tank Farm Oversight Division (TOD)
- Facility Representative
- Team leader, TSD

Observations

- ORP critical risk/issue integration meeting
- LMHC senior staff meeting
- TSD staff meeting
- OPD/TSD interface meeting
- AMSR staff meeting
- ORP "War Room"

Discussion of Results

The Office of River Protection (ORP) and the Richland Operations Office (RL) have not completed full implementation of ISM within DOE. As noted in the Team Leader's appointment letter, ORP and RL are currently transitioning many of the ISM processes reviewed during the phase one ISM assessment. The RL and ORP Managers tasked the assessment team to evaluate the existing status of ISM implementation and assess implementation progress. To meet the objective of this criteria and review document (CRAD), the team evaluated implementation of ISM processes for ORP assessment of federal and contractor self-assessment and feedback mechanisms.

The requirements for development and implementation of a lessons learned program are captured and communicated to LMHC through implementation of the Standards/ Requirements Identification Document (S/RID) process.

Staff interviews revealed a prevalent belief that responsibility for ORP self-assessment is the functional responsibility of the Tank Oversight Division (TOD). The RL-FRAM assigns the RL Office of Environment, Health, and Safety the responsibility to perform

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.3** DATE: *8/16/99*

independent assessments of the federal organization. Internal TOD self-assessments were the only ORP self-assessment activity currently found to be in place. These RL functions, and other functions like them, must be identified and institutionalized as ORP transitions to an independent office. (DOE.3.2)

Other TOD oversight activities are performed in a repeatable, predictable and consistent manner through the use of Facility Representative Instructions. Roles and responsibilities, work definition, work controls, work performance, and feedback functions are driven by this institutionalized practice.

The TWRS phase one ISMS assessment concluded that there were no processes for ORP self-assessment and feedback mechanisms. Several recent ORP activities were credited for performance of DOE self-assessments (e.g., development of a response to the Rudzinski Report). However, the activities credited by ORP as "self-assessment" activities were actually performed in response to external assessments. No formal process has been developed for ORP self-assessment and feedback regarding federal work processes. Although the Phase 1 corrective action plan addresses the issue, implementation of these actions has been deferred until after the Phase 2 ISM assessment is completed on the contractor. (DOE.3.2)

Recent use of critical item/risk lists was observed to be a valuable oversight and feedback tool. (DOE.3.1) Continuous improvement of this tool should occur once ORP puts a self-assessment program in place.

The next criterion evaluates ORP's oversight of contractor self-assessment programs. ORP provides oversight of contractor programs through TOD's development and execution of a Master Assessment Plan (MAP). However, it was observed that LMHC's lessons learned program and the contractor's self-assessment program are not standard focus areas identified within the MAP. (DOE.3.3) TOD oversight of other LMHC activities is performed in a repeatable, predictable, and consistent manner through the use of the formal TOD Assessment Program. Roles and responsibilities, work definition, work controls, work performance, and feedback functions are driven by institutionalized practice.

However, the TWRS Phase I ISMS assessment also concluded that there were no processes for ORP oversight/assessment of LMHC's self-assessment and feedback programs. Although the Phase I corrective action plan addresses this issue, implementation of these actions has been deferred until after the Phase II ISM assessment of the contractor is completed. (DOE.3.4)

Under the next criterion, the team assessed the competence of DOE personnel responsible for oversight, assessment, feedback, and continuous improvement processes. Additionally, CRAD DOE.3 discussed RL and ORP's use of Excepted Service authority

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.3** DATE: 8/16/99

to attract and recruit high-quality technical personnel. Excepted service personnel have been involved in assessing oversight activities to assist and mentor ORP staff. In addition TOD oversight, Facility Representatives are used to assess and provide feedback regarding contractor assessment activities in the field. Completion of the Facility Representative qualification program is another process used by ORP to ensure competence is commensurate with responsibility. In addition, ORP personnel are actively participating in the qualification process required by the 93-3 Implementation Plan.

ORP processes for maintaining balanced priorities are discussed in CRAD DOE.1 and ORP roles/responsibility and interface issues are addressed in CRAD DOE.4

Conclusion

The subteam found that DOE has not institutionalized or implemented processes to assess itself and LMHC self-assessment programs. Actions identified to address this condition have been delayed/disrupted by the actions necessary to transition RL-TWRS into an independent Office of River Protection. and has prompted ORP to reevaluate its ISM processes.

The objective of this CRAD has not been met, but ORP is making progress toward full implementation of the ISM processes associated with this CRAD. Continued management attention and active participation will be necessary to meet the goal of full implementation by September 2000.

Issue(s)

Strengths:

- Recent use of critical item/risk lists was observed to be a valuable oversight and feedback tool. (DOE.3.1)

Concerns:

- No formal process has been developed for ORP self-assessment and feedback regarding federal work processes. The RL-FRAM assigns responsibility for independent assessments to the RL Office of Environment, Safety, and Health, but TOD self-assessments were the only ORP self-assessment activity currently found to be in place. These RL functions, and other functions like them, must be identified and institutionalized as ORP transitions to an independent office. (DOE.3.2)

- ORP provides oversight of contractor's self-assessment program through TOD's development and execution of a MAP. However, it was observed that LMHC's

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.3** DATE: 8/16/99

lessons learned program and the LMHC self-assessment program are not standard focus areas identified within that plan. (DOE.3.3)

- The TWRS Phase I ISMS assessment also concluded that there were no processes for ORP oversight/assessment of LMHC's self-assessment and feedback programs. Although the Phase I corrective action plan addresses this issue, implementation of these actions has been deferred until after the Phase II ISM assessment is completed on the contractor. (DOE.3.4)

Submitted: _____	**Approved:** _____
Carolina R. Pacheco	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.4** DATE: 08/16/99

OBJECTIVE

DOE.4 DOE implements the ISMS Description/FRAM equivalent, DOE Policy 450.4, and the DEAR. The RL implementing mechanisms ensure that the ISM System Description is updated, maintained, and implemented and are sufficient to result in integrated safety management. (CE I-7, CE II-8)

Criteria

DOE practices and processes are consistent with procedures and policies.

DOE practices are consistent with the ISM System Description, DOE Policy, and the DEAR Requirements for Integrated Safety Management.

DOE evaluates and improves the effectiveness of the ISMS and the ISM System Description.

DOE demonstrates the ISMS is in place to direct, monitor, and verify the integrated implementation of ISMS in accordance with the ISM System Description. Implementation and integration expectations and mechanisms are evident throughout all organizational levels and across all organizations from the facility to the individual activities.

DOE ensures that the ORP ISM System Description/FRAM is maintained current.

Approach

Records Review: Review procedures and mechanisms for updating and maintenance of the ISM System Description. Review the procedures and mechanisms for the evaluation of system effectiveness.

Interviews: Interview personnel for updating the ISM System Description and those personnel that determine ISMS effectiveness. Determine the understanding and compliance to those processes and mechanisms.

Observations: None.

Record Review

- DOE/RL-98-81, *Office of River Protection Integrated Safety Management System Phase I Verification Corrective Action Plan*, August 9, 1999

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.4** DATE: 08/16/99

- 99-ESH-025, Letter from S. A. Sierecki, RL, to R. D. Hanson, FDH, *Guidance for Preparation, Content, Review, and Approval of the Integrated Environmental Safety and Health Management System description*, May 28, 1999
- DOE/RL-98-69, *Office of River Protection Integrated Safety Management System Description*, Rev. 1, August 9, 1999
- DOE/RL-98-63, *Office of River Protection Policy Statement, Environment, Safety, and Health*, Rev. 1, June 30, 1999
- RL Integrated Environmental, Safety, and Health Management System Development Team Charter
- ORP ISMS Division Training Modules, July-August 1999
- DOE/RL-99-05, *Status of RL TWRS Corrective Actions in Response to EH-22 Independent Oversight Evaluation*, Rev. 0, April 1996, Rev. 0, January 1999
- ORP ISMS briefings, 1998-1999
- ORP ISM System Description briefing to ORP staff, January 20, 1999

Interviews Conducted

- Manager, Office of River Protection
- Manager, Richland Operations Office
- Assistant Manager, Tank Waste Processing and Disposal
- Deputy Assistant Manager, Tank Waste Processing and Disposal
- Director, Management Systems Office (MSO)
- Director, Operations Program Division (OPD)
- Director, Program Development Division (PDD)
- Director, Technical Support Division (TSD)
- Director, Tank Farm Oversight Division (TOD)
- Engineer, OPD (2)
- Facility Representative
- Physical Scientist, TSD (2)
- Team leader, TSD

Observations

- ORP critical risk/issue integration meeting
- LMHC senior staff meeting
- TSD staff meeting
- OPD/TSD interface meeting
- AMSR staff meeting
- ORP "War Room"

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.4** DATE: 08/16/99

Discussion of Results

The Office of River Protection (ORP) and the Richland Operations Office (RL) have not completed full implementation of ISM within DOE. As noted in the Team Leader's appointment letter, ORP is currently transitioning many of the business processes reviewed during the Phase I ISM assessment. The RL and ORP Managers tasked the assessment team to evaluate the existing status of ISM implementation and assess implementation progress. To meet the objective of this criteria and review document (CRAD), the team evaluated implementation of ISM processes described within the ORP ISM System Description.

The first two criteria address the consistency of ISM practices with ISMS procedures, policies and the system description. The Phase I ISMS assessment reviewed DOE processes and practices that implement ISMS within the federal organization. These processes and practices have been institutionalized within the ORP System Description. ORP implementation of formal processes, which implement the five core functions of ISM, is discussed in CRAD DOE.1, DOE.2, and DOE.3.

The Integrated Management Plan defines the high-level roles and responsibilities, including reporting relationships, necessary to create a "stand alone" ORP. Implementation of this document has guided, and should continue to guide, the transition of TWRS from RL to the ORP.

The RL FRAM, augmented by a staffing analysis, represents the institutionalized mechanism for communicating ORP roles and responsibilities. Staff interviews to determine the accuracy and extent to which individual roles and responsibilities were understood indicate that the institutionalized mechanism has not been effective in communicating individual roles and responsibilities. Although the FRAM identifies generic functions and links implementation to specific divisions, it does not identify internal/external interface functions and it lacks the link to the individual responsible for implementing a particular function. The staff analysis, which does link FRAM roles and responsibilities to individuals, is not understood or readily available to ORP staff. Neither document adequately defines key interface responsibilities. (DOE.4.3)

A draft ORP memorandum was reviewed which would transmit the ORP mission, structure, and roles and responsibilities for use within ORP and by external organizations. The document describes duties and responsibilities for each position in ORP. Some positions are not addressed (e.g., Director, Operations Program Division), key interface responsibilities are not identified, and interviews revealed instances where minor functions were omitted. However, when updated and implemented, the draft memorandum should effectively communicate management expectations and ORP roles and responsibilities. (DOE.4.1)

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.4** DATE: 08/16/99

In general, most of the ORP staff did not recall reviewing the responsibilities described within either the staff analysis or the draft memorandum. When interviewed, ORP staff members were able to describe what they thought were the line responsibilities assigned by their supervisors. This understanding was confirmed during interviews with their supervisors, and few inconsistencies were noted. However, there was some ORP staff confusion regarding interface responsibilities with external organizations such as RL, Headquarters, or Federal/State agencies. (DOE.4.3)

The DOE ability to measure the effectiveness of ISM within the LMHC and its own organization, was evaluated through a document review of the RL FRAM, ORP System Description, and interviewing the individuals responsible for maintaining the system description and periodically assessing its implementation. Although the ORP System Description does not discuss a process for its periodic review and update, it has been revised to address ORP roles and responsibilities and transition issues. In practice, it is apparent that the system description is being maintained current. As previously discussed, ORP does not intend to update the FRAM until the transition from RL is fully implemented. In the meantime, the System Description provides a crosswalk between old and new job titles and their associated roles and responsibilities.

DOE has not fully implemented an in place ISM system within DOE ORP. As discussed in CRAD DOE.1, DOE.2, and DOE.3, ORP must correct some issues before the federal organization can be considered to have implemented an ISM program. Correction of the DOE deficiencies observed during the Phase I assessment has been delayed as a result of the transition from an RL organization to a stand-alone office. However, DOE is making significant progress toward putting in place a system that will direct, monitor, and assess its ISM program. To that end, ORP and LMHC are working together to develop a River Protection Strategic System Execution Plan (SSEP). The SSEP is a systematic analysis of the programmatic and strategic functions necessary to support tank farm storage, retrieval, and vitrification operations. Development of the SSEP should correct known ISM problems and enhance existing ISM processes. (DOE.4.2)

Finally, DOE's communication of expectations was assessed by observing DOE planning/coordination meetings and through interviews of federal personnel. Divisional meetings provide a forum for project managers to discuss items/actions within the division, allow the division director to pass down information from the assistant manager, and discuss critical issues at the divisional level. Interdivisional meetings are routinely held to coordinate issues between different divisions and discuss key critical items/actions that could affect more than one division. Every two weeks, all division directors and MSO meet to discuss ORP critical issues/actions. Weekly, the Assistant Manager holds a staff meeting to pass down information and discuss critical issues at the assistant manager level. Critical item lists are maintained and managed at the division director, assistant manager, and manager levels. These meetings effectively facilitate communication of expectations and issues at all levels of ORP.

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **DOE ISMS Implementation**	OBJECTIVE: **DOE.4** DATE: 08/16/99

Conclusion

The team found that DOE has developed a comprehensive system description addressing the DOE functions necessary to support LMHC's ISM program. However, the ISM processes discussed in the system description have been disrupted by the actions necessary to transition RL-TWRS into an independent ORP and has prompted ORP to reevaluate its ISM processes.

The objective of this CRAD has not been met, but ORP is making progress toward full implementation of the ISM processes associated with this CRAD. Continued management attention and active participation will be necessary to meet the goal of full implementation by September 2000.

Issue(s)

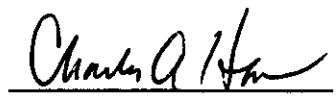
Strengths

- A draft ORP memorandum, which would transmit the ORP mission, structure, and roles and responsibilities, could effectively communicate management expectations and ORP roles and responsibilities. (DOE.4.1)

- ORP and LMHC are working together to develop a River Protection SSEP. The SSEP is a systematic analysis of the programmatic and strategic functions necessary to support tank farm storage, retrieval, and vitrification operations. (DOE.4.2)

Concerns

- Federal staff roles and responsibilities, including interface functions, have not been formalized. (DOE.4.3)

Submitted: 	**Approved:** 
Michael A. Mikolanis	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

OBJECTIVE

HAZ.1 The full spectrum of hazards associated with the Scope of Work is identified, analyzed, and categorized including subcontract work. Hazards that are considered include nuclear, chemical, process, industrial, or others applicable to the work being considered. Those individuals responsible for the analysis of the environment, health, and safety hazards work closely with those personnel assigned to analyze the processes. (CE II-2)

Criteria

Procedures and/or mechanisms are in place and utilized by personnel to ensure hazards associated with the work, including subcontract work, throughout the facility have been identified and analyzed. The resulting documentation is defined, complete, and meets DOE expectations. The execution of these mechanisms ensure personnel responsible for the analysis of environment, health, and safety concerns work closely 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.

Procedures and/or mechanisms are in place and utilized by personnel that describe the 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. Workers are involved in the identification and determination of hazards.

Approach

Record Review: Review the documents that govern the conduct, review, and approval of facility or activity hazard analysis, including subcontract work, and documentation such as Process Hazards Analysis (PHA), Preliminary Hazards Review (PHR), Final Safety Analysis Report (FSAR), USQ Determinations, 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 Job Hazard Analysis (JHAs), and WCPs with the Operations and SME functional area reviewers. Determine worker involvement in job related hazard identification.

Interviews: Interview personnel responsible for the identification and analysis of work hazards. In nuclear facilities, for example, this should include personnel responsible for USQ determination, lock and tag preparation, procedure technical reviews, etc. Include personnel responsible for hazard analysis of subcontract work.

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

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 (USQD), preparation of a JHA, SAR/TSR, or Criticality Safety Evaluation, etc.

Record Review

- HNF-SD-WM-PLN-114, *Description of TWRS ISM System to Meet Expectations of HNF-MP-003*, Revision 3
- HNF-PRO-079, *Job Hazard Analysis*, Revision 3
- HNF-PRO-074, *Safety Responsibilities*, Revision 1
- HNF-PRO-078, *Subcontractor Safety and Health Management*, Revision 1
- HNF-IP-0842, *TWRS Administrative Manual*,
  Volume V, Section 7.1, *RPP Work Control*, Revision 4a
  Volume V, Section 4.1, *Pre-job Briefing*, Revision 4a
  Volume IX, Section 1.1, *RPP Safety Services Program Plan*, Revision 2a
  Volume IX, Section 2.3, *Subcontractor Safety Oversight*, Revision 1a
  Volume VII, Section 1.1, *ALARA Work Planning*
- HNF-SD-WM-HSP-002, *Tank Farms HASP*, Revision 3
- LMHC – River Protection Project, Employee Roles and Responsibilities, various disciplines
- AJHA Report (TF-13)
- Hanford Job Safety Analysis checklists
- Construction Subcontractor Job Safety Analysis and Task Specific Job Safety Analysis
- AJHA Smart Book
- Draft Memorandum of Understanding, Project W-519 and TWRS Operations
- FDNW Contract for site utility system portion of the W-519 Project (RFP/Contract No. 100631-0-K00001-RP; Scope of Work)

Interviews Conducted

- ES&H personnel
- Work Planners
- Various Workers
- FDH AJHA Administrator
- LMHC AJHA Administrator
- FDNW Construction Managers
- Field Services for Tank Operations Manager
- Retrieval Support Operations Manager
- Production Control Manager
- Maintenance Control Manager

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

- Field Integration Manager
- Project Support and Safety Programs Lead Engineer
- Safety Services Manager
- SY Project Manager
- Tank Farms Facilities Operations Manager
- Union Safety Representative
- Voluntary Protection Program Steering Committee Chairman

Observations

- AJHA review/session including ALARA enhanced work planning – 101 AZ Manual Tape Replacement
- Plan of the week meeting
- Plan of the day, Tank Farms East and West
- Plan of the day, SY Farm
- Tailgate, Tank Farm Operations
- President's Zero Accident Council meeting
- ALARA Joint Review Group meeting, install Pre-Fabricated Pump in SY-101
- Post-job review (SY-101 PPP)
- Plant Review Committee meeting
- Facility Excellence Program in West Area, Observation of Housekeeping Work

Discussion of Results

Hazards and the controls necessary to mitigate the hazards for specific work activities are identified through the work planning and Job Hazard Analysis (JHA) process. As indicated in DOE/RL-98-73, LMHC has identified certain deficiencies in the process including (a) ensuring involvement of appropriate environmental, safety, and health (ES&H) personnel and workers during development of controls; and (b) direction to work planning teams to agree upon and document controls. To address these deficiencies, LMHC is transitioning from the previously used work planning and JHA process to a team approach to work planning (e.g., enhanced work planning) and the use of an Automated Job Hazard Analysis (AJHA). To facilitate this transition, HNF-IP-0842 Section 7.1 *RPP Work Control*, HNF-IP-0842 Section 1.1, *RPP Safety Services Program Plan* and HNF-SD-WM-HSP-002, *Tank Farms HASP*, have been revised to reflect this approach. HNF-IP-0842 Section 7.1 has also been revised to require personnel to reevaluate the hazard analysis following an in-progress change to the work scope. Additionally, LMHC has developed "generic" positions descriptions for work planners, various craft personnel, supervisors, etc, which specify employee roles and responsibilities and requires employees to comply with HNF-IP-0842 Section 7.1. Work planners have also been trained on the use of HNF-IP-0842 Section 7.1, and work

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

planners, ES&H personnel and supervisors have received training on the basic concepts of ISMS, team approach to work planning and use of the AJHA.

Work Planners, ES&H personnel and workers interviewed indicated that the team approach to work planning and use of the AJHA resulted in a more efficient process for work planning and a more comprehensive hazard analysis (HAZ.1.1). Personnel indicated that they felt that there was less work stoppage due to inadequate work procedures, concerns associated with compliance with regulatory requirements, and/or inadequate hazard identification and control (HAZ.1.4). Some personnel interviewed indicated that work packages developed using the previous work planning process (which is still partly in use) did not always result in the necessary review to ensure that the environmental hazards were appropriately identified and controlled (HAZ.1.10).

LMHC, as part of the "Declaration of Readiness for Phase 2 Verification of the River Protection Project Integrated Safety Management System" and ORP, as part of the "Line Management Readiness Review of the River Protection Project Integrated Safety Management Implementation" have indicated that the AJHA has not yet been fully implemented (HAZ.1.8). HNF-IP-0842 Section 7.1 indicates "full implementation of the AJHA tool shall be as follows:

- August 1, 1999 – all work classified as high hazard
- September 30, 1999 – all work classified medium hazard and selected work in the low hazard classification."

The methodology used by LMHC to determine the hazard classification and thus the use of the AJHA is based on HNF-IP-0842, Volume VII, Section 1.1 (ALARA Work Planning). This approach obviously only addresses radiological hazards and may result in work being performed without the proper hazard analysis (HAZ.1.9). A similar concern was also identified during the Phase I verification (e.g., inadequate guidance provided for application of the graded approach). LMHC has indicated that they recognize the shortcoming associated with their current criteria for determining when a hazard analysis will be conducted and is in the process of re-defining the criteria.

HNF-IP-0842, Volume VII, Section 1.1, also specifies the use of enhanced work planning and the ALARA Joint Review Group for medium and high hazard radiological work activities. The ALARA Joint Review Group, as well as the Plant Review Committee, observed demonstrated superior knowledge, excellent balance to achieve results, a high level of expectation relative to the required standards of performance, and a detailed questioning attitude (HAZ.1.5). The groups required follow-up answers to the detailed questions that could not be answered within the meeting and demonstrated that the safety process must be an integral part of the work process.

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

As indicated by HNF-IP-0842 Section 7.1, the "Production Control manager will designate which work packages are to be walked down or planned through the use of the enhanced work planning process. "Work that has not been previously planned and successfully accomplished using enhanced work planning, shall require enhanced work planning". Based on interviews and observations conducted enhanced work planning sessions are beginning to occur on a fairly regular basis and are achieving the desired outcome (e.g., work being conducted safely and efficiently). Personnel interviewed indicated that senior management is very supportive of enhanced work planning and that this support will need to continue to ensure that enhanced work planning is "institutionalized" within LMHC operations. Another challenge will be to ensure, to the extent possible, that personnel who participate in the enhanced work planning session also actually perform the work that was planned.

HNF-IP-0842, Volume V, Section 4.1, *Pre-job Briefing*, has been revised to address the concern identified in the Phase I verification relative to the ISMS Core Functions (e.g., Define Scope of Work, Identify Hazards, Hazard Control, Perform Work and Feedback) being addressed as part of the Pre-Job Briefing. HNF-PRO-079, *Job Hazard Analysis*, has also been revised to address this concern. Pre-job Briefings observed appeared to be effective and comply with the requirements specified in the aforementioned procedures.

Employee involvement was visible from the Senior Management Level. Three distinct areas were identified that indicated employee actions that would have impact on the LMHC safety program. These three programs were the (1) Facility Excellence Program, (2) President's Zero Accident Council and associated Area Accident Councils, and (3) employee involvement mechanism called "Tank Farm Land" (HAZ.1.2).

- The Facility Excellence Program involves a panel of crafts, supervisors, safety experts, and managers that review facilities quarterly for safety and housekeeping items (HAZ.1.6). At the end of the review a grade from one to ten is assigned and is posted on the outside of the facility for all to observe. The obvious benefit of such a program would be that employees are involved in achieving higher grades and employees are involved in the grading of the facility. For example, a millwright identified an exposed flexible hose that had been overheated and was concerned that the hose when it contained hot air; would be a personnel burn hazard. In addition, he suspected that the fittings on the end of the hose were not the kind of fitting that would support the higher temperatures. This demonstrated excellent employee involvement in the safety program of LMHC.

- The President's Zero Accident Council monthly meeting was attended. Several issues were addressed from lights in a parking lot to decontamination stations deficiencies. The council was chaired by the PHMC Presidents with several senior line and safety managers and attended by Area Zero Accident Council Representative's. The issues were substantive and the representatives were

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

aggressive in insuring resolution to their issues. Interviews with the Area representatives indicated good participation by other employees and generally good support by line managers (HAZ.1.1).

- One issue discussed at then Council meeting was the LMHC-wide "game" to promote better employee involvement in the safety program called "Tank Farm Land". Employees are encouraged to participate in this program of achieving safety knowledge for personnel safety, home safety and LMHC safety programs. Employees are to achieve and display knowledge to have various subjects "signed off" or to participate in the correction of a safety item or other similar activities. After a percentage of these items are completed the employee is eligible for a "prize" and is provided recognition at a LHMC sponsored breakfast. The results are demonstrating a strong employee involvement. Interviews with both management and employee indicated a sharp increase in employee involvement in safety as a result of this and other similar mechanisms. Another example of positive worker involvement was demonstrated when co-workers stopped and corrected another worker that had climbed onto a scaffolding to inspect an item without the appropriate training and inspection of the scaffolding. (HAZ.1.3)

Based on specifics from the W-314 Upgrade Project, it appears that LMHC has a very comprehensive process in place for oversight of the construction subcontractor. LMHC works closely with the construction subcontractor to develop specific work packages, reviews and approves the subcontractors work packages including Job Safety Analysis, conducts USQ screening as necessary, authorizes the work to be performed, and conducts periodic field inspections of the subcontractor (HAZ.1.7). Reportedly, LMHC has also reviewed and approved the construction subcontractors' Industrial Safety and Health manual.

The LMHC system description and HNF-IP-0842, Volume IX, Section 2.3 (Subcontractor Safety Oversight) "requires subcontractors to develop, the LMHC Subcontractor Technical Representatives to approve, and the subcontractor to comply with the elements of a safe work plan, which explicitly calls for identification of the hazards associated with the work scope". LMHC personnel interviewed indicate no "safe work plans" as required by the relatively newly approved Subcontractor Safety Oversight procedure have yet been developed thus limiting the ability of the verification team to assess the implementation of HNF-IP-0842, Volume IX, Section 2.3. Specific requirements associated with Subcontractor Safety Oversight procedure were not evident in the Fluor Daniel Northwest Contract for the site utility system portion of the W-519 Project (HAZ.1.11). It is not clear if the subcontractor safety oversight for the W-519 Project will be similar to that provided for the W-314 Upgrade Project or if it will be in accordance with the Subcontractor Safety Oversight procedure.

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

Conclusion

The first criterion for this objective has only partially been met as the procedures and/or mechanisms are not yet fully implemented and environmental hazard identification and control are not yet fully integrated into the work planning process. The second criterion for this objective has been met.

Issue(s)

Strengths:

- Strong employee involvement in the LMHC safety program was noted in several areas ranging from enhanced work planning (SY-101) to the President's Zero Accident Council/Area Zero Accident Councils. (HAZ.1.1)

- Attitude of senior managers and union leadership toward ISMS and employee involvement in the safety program was excellent. (HAZ.1.2)

- Methodology for achieving employee involvement in the safety program through "Tank Farms Land" demonstrated a serious commitment to that goal. Workers were able to identify potential hazards/non-compliances and take the appropriate corrective actions. (HAZ.1.3)

- Team approach to work planning with the use of the AJHA was demonstrated to be efficient and provided a comprehensive hazard analysis. (HAZ.1.4)

- The ALARA Joint Review Group and Plant Review Committee demonstrated that they were aggressive and very detailed in the full execution of their responsibilities and that management expects that safety be an integral part of the work planning process. (HAZ.1.5)

- The use of employees as part of the Facility Excellence Program was demonstrated as a strength by a millwright finding a potential burn hazard that was not properly shielded. (HAZ.1.6)

- Subcontractor safety oversight of the construction subcontractor was thorough and comprehensive in nature. (HAZ.1.7)

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.1** DATE: 08/16/99

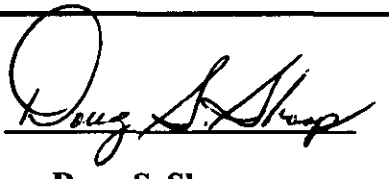
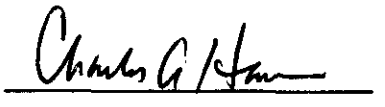
Concerns:

- All aspects of the RPP Work Control procedure have not yet been implemented. The Team approach to work planning and the use of the AJHA is not yet fully implemented. (HAZ.1.8)

- The methodology used to determine high, medium, and low hazard work is based on radiological hazards only and as such may result in work being performed without the proper hazard analysis. (HAZ.1.9)

- Environmental hazard identification and control are not well integrated in the work planning process. (HAZ.1.10)

- The Subcontractor Safety Oversight procedure has not yet been fully implemented. (HAZ.1.11)

Submitted: 	**Approved:** 
Doug S. Shoop	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.2** DATE: 08/16/99

OBJECTIVE

HAZ.2 An integrated process has been established and is utilized 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 is established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace. (CE II-3)

Criteria

Procedures and/or mechanisms are in place and utilized to develop, review, approve and maintain current all elements of the facility authorization basis documentation.

Procedures and/or mechanisms that require line managers to identify and implement appropriate controls for mitigation of the hazards present within the facility or activity are in place and utilized by personnel. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE. These procedures or similar procedures exist and are utilized for subcontractor work.

Standards and requirements are appropriately tailored to the hazards.

Procedures and/or mechanisms are in place and implemented to develop, maintain, and utilize Authorization Agreements.

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, *including subcontractor work*, 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 Authorization Agreements (AAs), Safety Analysis Reports (SARs), Technical Safety Requirements (TSRs), Health and Safety Plans (HASPs), Radiological Work Permits (RWPs), 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 Operations 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

- Reviewed Basis for Interim Operation, HNF-SD-WM-BIO-001, Revision 1
- Reviewed Tank 241-SY-101 Safety Basis for Remedial Activities and Operations Before Closure of the Unreviewed Safety Question on Waste Surface Change, HNF-3737, Revision 0
- Reviewed the TWRS Project Authorization Agreement between the Richland Operations Office (RL) and Fluor Daniel Hanford (FDH) of June 24, 1998
- Reviewed Authorization Basis Document Process, HNF-IP-0842, Volume IV Engineering, Section 5.10, Revision 1a
- Reviewed Tier 1 Review of Authorization Basis Documents, HNF-IP-0842, Volume IV Engineering, Section 5.14, Revision 0
- Reviewed Technical Staff Qualification Program Description, HNF-IP-0842, Volume III Training, Section 10.3, Revision 5
- Reviewed TWRS Nuclear Regulatory Compliance Support Charter, HNF-IP-0842, Volume I Administration, Section 3.45, Revision 0
- Reviewed FSAR Phase I Implementation Plan, LMHC correspondence number 9950834A - R1
- Reviewed HNF-IP-0842, Volume IV Engineering, Unreviewed Safety Questions, Section 5.4, Revision 11b
- Reviewed HNF-PRO 062, Identifying and Resolving Unreviewed Safety Questions
- Reviewed LMHC Correspondence (Letter) LMHC-9953908, Corrective Action Status for Inconsistencies Identified by Defense Nuclear Facilities Safety Board Staff (....Unreviewed Safety Question inconsistencies)
- Reviewed WRSS Technical Review Group Meeting Minutes, 12-17-98 and 12-28-98
- Reviewed HNF-IP-1266, Chapter 5.26, revision 0, Tank 241-C-106 Waste Temperature Controls
- Reviewed Tank Waste Operations Standing Order TWO-99-004, Recovery Plan - Loss of Tank 241-C-106 Subcooling Margin (reviewed revision 0 and revision 3)
- Reviewed HNF-SD-WM-TSR-006 revision 0-D, Tank 241-C-106 Waste Temperature Controls (Administrative Control)

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.2** DATE: 08/16/99

Interviews Conducted

- Manager of Nuclear Safety and Licensing
- Manager of Nuclear Licensing.
- Shift Supervisors (3)
- Personnel responsible for developing and implementing an AB control on ammonia level for tank 241-SY-101 and its environs. The group included representatives from Nuclear Safety and Licensing (including the Manager, the Manager of Nuclear Licensing, and a Licensing Engineer), the Cognizant Engineer for tank 241-SY-101, the Manager of Nuclear Regulatory Compliance Support, the Operations Manager of SY Tank Farm, a planner for the SY Tank Farm, and a Nuclear Trained Operator for the SY Tank Farm.
- Personnel responsible for developing an administrative control for sluicing activities to reduce the heat generation in tank 241-C-106. The group consisted of representatives from the Nuclear Safety and Licensing Group (including the Manager, the Manager of Nuclear Licensing, and several Licensing Engineers), the Manager of Nuclear Regulatory Compliance Support, Manager of Operations for C Tank Farms, the Design Authority for the sluicing operations, and the Cognizant Engineer for C Tank Farms.
- Personnel responsible for developing the implementation plan for the new FSAR for RPP. This group consisted of the Nuclear Safety and Licensing Manager, the Nuclear Licensing Manager, the Manager for Nuclear Regulatory Compliance Support, and several licensing engineers

Observations

- USQ screening action

Discussion of Results

Review of (1) Basis for Interim Operation (BIO), HNF-SD-WM-BIO-001, Revision 1; (2) Authorization Basis Document Process, HNF-IP-0842, Volume IV Engineering, Section 5.10, Revision 1a; (3) Tier 1 Review of Authorization Basis Documents, HNF-IP-0842, Volume IV Engineering, Section 5.14, Revision 0; and, (4) HNF-IP-0842, Volume IV Engineering, Unreviewed Safety Questions (USQ), Section 5.4, Revision 11b, indicates that procedures and/or mechanisms are in place and utilized to develop, review, approve and maintain current all elements of the facility authorization basis documentation.

The Manager of Nuclear Safety and Licensing and the Manager of Nuclear Licensing stated that the accidents for analysis are appropriately selected by examination of the planned process operation by doing process walk-downs and using teams of selected safety professionals and operations people to ensure that the accidents are appropriate and

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.2** DATE: 08/16/99

sufficient for the process operations. This is validated by interviews with teams that developed controls for tank 241-C-106 (sluicing operations) and tank 241-SY-101 (waste level reduction).

In both of the above instances a cross-functional team with operations line management participation was instituted to develop both the processes used to perform the tank operations and the controls necessary for safe operation.

In the case of tank SY-101, a team of people comprised of Operations, Engineering, Safety, Licensing, and Craft personnel was convened. This team identified the hazards likely to be encountered by walking through the processes used to stop and reverse the crust growth in the tank. The hazards were analyzed to determine the risk they posed and to determine the parameters that should be controlled to prevent or mitigate the risk. Another team of Operations, Engineering, Safety, Licensing, and Craft personnel was convened, having some members in common with the first team. This team assisted in ranking the hazards and determined the controls (surveillance, administrative controls, Technical Safety Requirements, etc.) that should be established to prevent or mitigate the risk. The second team also assisted in developing training for operations personnel who perform the surveillance on the safety class equipment associated with controlling the hazards. (HAZ.2.2)

In the case of tank C-106, a team was formed consisting of representatives from the Nuclear Safety and Licensing Group, Manager of Operations for C Tank Farms, the Design Authority for the sluicing operations, and the Cognizant Engineer for C Tank Farms. This team developed the initial model for heat generation and transfer, and developed administrative controls and a plan for sluicing, including temperature limits and waste removal limits. The team also oversaw development of procedures and training of operators to perform the first sluicing operations.

During the first sluicing operation, feedback made it apparent that the initial model was inaccurate and needed revision. The team considered the data from the first sluicing operation, developed a corrected model, then derived new temperature and waste removal limits. Procedures were modified, operators were re-trained, and another sluicing operation was conducted.

Data from the sluicing operations was compared to predictions by the model, more corrections were made, and the entire cycle was repeated. This iterative process resulted in refinements to the model such that predictive accuracy became acceptable, and the sluicing operations proceeded, based in part on the administrative controls established by the model.

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.2** DATE: 08/16/99

The examples of tank 241-C-106 and 241-SY-101 demonstrate procedures and/or mechanisms that require line managers to identify and implement appropriate controls for mitigation of the hazards present within the facility or activity. The hazard analysis processes use DOE Order 5480.23 and associated standards, and the TWRS S/RID (see HAZ.3 for more details on the S/RID). Including operations personnel on a team with safety personnel enhances tailoring the controls to the hazards encountered in the processes. The Unreviewed Safety Question Process applies to all work performed by subcontractors, thus ensuring that all work is reviewed for any effect on the established Authorization Basis (AB).

Feedback is essential to continuous improvement or refinement of work control processes and hazard controls. Nuclear Safety and Licensing (NS&L) and Nuclear Regulatory Compliance Support (NRCS) have requested feedback about the efficiency and efficacy of existing controls (Technical Safety Requirements, Administrative Controls) by selecting about 40 Subject Matter Experts who regularly use these controls to fill out questionnaires.

Lessons learned from the implementation of the BIO (two years ago) identified that the NS&L group was ineffective at determining the total requirements for implementation. Evidence of this is that a substantial revision of the BIO was required to implement it. To avoid this problem in the future the Nuclear Regulatory Compliance Support group has been established by LHMC to focus on the operations aspect of implementation of Authorization Bases. (HAZ.2.1)

LMHC personnel responsible for the implementation of the Facility Safety Analysis Report (FSAR) acknowledge that the current version of the FSAR implementation plan does not adequately treat issues like Operations Tempo, Budget, and performance measures. The Manager of Nuclear Regulatory Compliance Support has convened a cross-functional team to develop methods for dealing with these issues and is beginning to address them. This strategy should be effective if plans are followed up.

DOE/RL has an Authorization Agreement (AA) for the operation of the Tank Farm Remediation System with FDH. FDH sent a letter to LMHC requesting them to verify all the aspects of the Authorization Agreement. LMHC responded to that letter by informing FDH that the routine monitoring of work at TWRS ensured the requirements of the Authorization Agreement were in place and were being utilized. There are some minor issues with the method of implementation of the AA by FDH: 1) the expectation was that FDH would have directed LMHC to conform to the requirements of the AA and to report any violations instead of asking LMHC to validate the Authorization Basis, 2) there was no method of reporting violations of the agreement identified in the AA, and 3) the AA did not contain ties to the FDH or LHMC configuration management system except to require that the AA be a controlled document.

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.2** DATE: 08/16/99

Despite these minor deficiencies, the AA is satisfactory because an AA is in place, LMHC is conducting operations in accordance with the AA, and LMHC managers intend to report violations to FDH via the ORPS.

Technical Safety Requirements, surveillances, and administrative controls implement the BIO. A review of selected TSRs, surveillances and administrative controls indicates that these procedures are in place and used as appropriate. Additionally, shift supervisors determine the status of the AB by reviewing logs talking to the off-going shift, and reviewing status boards and work packages. They satisfy themselves that they understand what is going on (that could affect the AB) before they assume their duties.

The USQ process is used to determine that activities do not cause conditions to exist that are not analyzed by the AB. A USQ screen performed by a qualified screener was observed in some detail. He followed the procedure, was reasonably thorough, and adopted a questioning attitude.

Maintaining configuration control of systems, drawings, and components is a key factor in maintaining the AB in place. It should be noted in passing that the Configuration Management processes established by LMHC has reduced the ECN backlog from about 180 in February, 1999, to a current value of 18.

It was noted by the DNFSB during the Phase I Verification of TWRS that the Fluor Daniels Hanford Procedure for USQ, HNF-PRO-062 and the LMHC procedure for USQ, HFN-IP-0842 Volume IV, Engineering, Section 5.4 were inconsistent in a number of areas. LMHC has addressed each of these inconsistencies and changed the appropriate procedures to eliminate them. These changes have been reviewed by the Phase II assessment team and found to be satisfactory and the inconsistencies resolved.

Conclusion

The criteria has been met.

Lockheed Martin Hanford Corporation has implemented the ISMS in the area of performing hazard identification and establishing hazard controls.

Issue(s)

Strengths:

- Establishing the position of Nuclear Regulatory Compliance Support Manager, with a staff, aids greatly in implementing AB changes and reviewing them from an operations perspective. (HAZ.2.1)

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.2** DATE: 08/16/99

- Excellent integration of hazards identification, hazards controls, and the first stages of controls implementation were observed in the 241-TY-101 tank crust level reduction task. Participation by employees at all levels helped make this a success. (HAZ.2.2)

Concerns:

None

Submitted: Michael D. Gaden	**Approved:** Charles A. Hansen
Michael D. Gaden	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.3** DATE: 8/16/99

OBJECTIVE

HAZ.3 Applicable standards and requirements are identified, approved, and implemented. Contractor implementing mechanisms ensure that before operations are commenced or work is performed, safety standards and requirements are identified, approved and implemented such that there is adequate assurance the public, workers, and the environment are protected from adverse impacts from the hazards. (CE II-2, CE II-3)

Criteria

Procedures and/or mechanisms are in place and utilized to identify adequate hazard control standards to protect the public, worker, and environment.

The contractor ensures that the identified controls, standards, and requirements are agreed upon and approved prior to the commencement of the operations or work being authorized.

The contractor utilizes accepted and structured methods and processes to identify, select, and gain approval for safety standards and requirements.

Approach

Records Review: Review contractor procedures for identification and designation of standards that are to be incorporated into facility authorization basis documentation and assess their adequacy. Review mechanisms that implement those standards into the operations or work being performed.

Interviews: Interview contractor personnel for selection and approval of standards. Interview personnel responsible for the implementation of standards into the processes for doing work. Determine the understanding and compliance with procedures for identification submittal and approval of standards.

Observations: None

Record Review

- HNF-SD-MP-SRID-001, *Tank Waste Remediation System Standards/Requirements Identification Document,* Revision 2
  - Chapter 9, *Operations*
  - Chapter 18, *Nuclear Safety*
  - Chapter 19, *Occupational Safety and Health*
- HNF-3714, *Tank Waste Remediation System Standards/Requirements Identification Document Program Implementation Plan*, Revision 0

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.3** DATE: 8/16/99

- HNF-PRO-265, *Standards/Requirements Identification Document Process*, Revision 3
- HNF-IP-0842, *TWRS Administrative Manual*, Volume I, Section 6.4, *Standards/Requirements Identification Document Process*
- Environmental Requirements Management Interface database printout linking each S/RID requirement to the current revision of the source documents.
- LMHC-9952778, *River Protection Project Tank Farm's Conduct of Operations Applicability Matrix*
- 99-TOD-025, ORP Non-Approval of the LMHC RPP Conduct of Operations Applicability Matrix

Interviews Conducted

- River Protection Project S/RID Coordinator
- Facility Expert, Occupational Safety and Health
- Facility Experts (2), Operations

Observations

None

Discussion of Results

Procedures and/or mechanisms are in place and utilized to identify adequate hazard control standards to protect the public, worker, and environment. Both the FDH and LMHC Standards/Requirements Identification Document (S/RID) Process procedures are recent releases that serve to better define a workable process than existed in the past. Under the current procedures, the FDH Interpretative Authorities identify new or revised requirements within their respective areas and work with the LMHC Facility Experts to determine applicability to tank farm operations.

The contractors ensure that the identified controls, standards, and requirements are agreed on and approved by the Interpretative Authority, Functional Area Owner, and Facility Expert prior to submission to the DOE Office of River Protection. Because the S/RID has been in existence since 1996, operations have been authorized and conducted under this original S/RID until July 2, 1999, when the DOE Richland Operations Office conditionally approved Revision 2 to the S/RID.

As with the original S/RID, FDH and LMHC utilized accepted and structured methods and processes to identify, select, and gain approval for safety standards and requirements. This proved to be a much more substantial effort on the part of DOE, FDH, and LMHC than it would seem for a "revision." While the original S/RID of 1996 contained accurate

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.3** DATE: 8/16/99

references to the standards and requirements it identified, processes to maintain this document did not survive the changes in contracting structure and DOE Order numbering. Further, Phase I assessments on the S/RID chapters were completed, but none of Phase II (implementation) assessments were documented. Despite the requirement for annual updates, the S/RID was not updated in 1997, and an incomplete series of four update submittals in1998 ultimately led DOE to reject the update packages and define five acceptance criteria for the next submittal of an S/RID.

The contractors developed an S/RID Program Implementation Plan, HNF-3714, and obtained DOE approval of the plan in parallel with their submittal of a complete S/RID revision. Phase I assessments are in progress and must be completed by August 31, 1999. To date, three of the 17 chapters – *Configuration Management*, *Emergency Preparedness*, and *Waste Management* – will require Compliance Schedule Approvals. This is due to external changes in requirements that will delay development of contractor implementing procedures beyond the 120 days following S/RID approval. All other Phase I deficiencies so far have been corrected in under 30 days. Under an agreement with the Office of River Protection, Phase II assessments on the approximately 520 requirements that are unchanged from the original S/RID must be completed by September 30, 1999, and the remainder of the requirements must be verified as implemented by the end of fiscal year 2000.

Amid all the other changes in requirements, LMHC recently submitted for ORP approval a new Conduct of Operations Applicability Matrix. This is significant because Chapter 9 of the S/RID, *Operations*, identifies only one requirement – the applicability matrix. The newly submitted matrix brings up to date the implementing procedure references that had fallen out of date. ORP transmitted comments and specifically did not approve the new matrix until all comments are resolved. As of this writing, nearly all issues have been corrected and it is anticipated that the applicability matrix will be released. Process improvements have been developed between ORP and LMHC here as well to better keep the matrix up to date. For example, revisions to applicability matrix implementing procedures will no longer require DOE review or approval as long as the agreed on requirements drawn from the DOE Order 5480.19 in the matrix are not changed.

Conclusion

This objective has been met.

Procedures have been revised and are in place to maintain the S/RID up to date, but it is too early to evaluate the effectiveness of these processes. Continued aggressive follow-up to achieve full S/RID implementation will be required.

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Hazards Identification and Standard Selection**	OBJECTIVE: **HAZ.3** DATE: 8/16/99

Issue(s)

None.

Submitted: _____ **Stephen H. Pfaff** ***Team Member***	**Approved:** _____ **Charles A. Hansen** ***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.1** DATE: 8/16/99

OBJECTIVE

MGO.1 An integrated process has been established and is utilized to identify and prioritize specific mission discrete tasks, mission process operations, modifications, and work items. (CE II-1)

Criteria

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 utilized by personnel.

Procedures and/or mechanisms are in place and utilized 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. Personnel assigned to the roles are competent to execute these responsibilities.

Procedures and/or mechanisms are in place and utilized 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 summary schedules, plan 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 utilized by the facility or activity to ensure that identified work is accomplished in accordance with established standards and requirements.

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.1** DATE: 8/16/99

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 plan of the week meetings, long-range scheduling meetings, etc.

Record Review

- HNF-IP-0842, *Standards Requirements Identification Document Process*, Volume X, Section 3.8, *Integrated Planning Process*, May 20, 1999
- HNF-SD-WM-PLN-114, *Description of the TWRS ISM System to Meet Expectations of HNF-MP-003,* Rev. 3
- Baseline Sampling Schedule, Change 99-01, February 25, 1999
- CPO Current Ten Week Schedule, August 8, 1999
- IS Multi-year Work Plan Schedule, June 28, 1999
- Single Shell Tank IS FY 1999 Work Breakdown Structure
- AJHA Printout for facility specific requirements, August 10, 1999
- TWRS Short Range Scheduling Desk Instruction, Rev. 0, February 2, 1998
- TBR Package Number 680.612 (U), *Implement Standards/Requirements Identification Document (S/RID) Program Recovery Plan*
- TBR Package Number 680.635 (U), *Maintain Standards/Requirements Identification Document (S/RID) Program*
- HNF-3714, *Tank Waste Remediation System Standards/Requirements Identification Document Program Implementation Plan,* Rev. 0, July 30, 1999
- WBS/TBR Printout, dated August 11, 1999
- Work Package WS-99-00106/M, *Fabricate & Install LDE Stations in 241-U Farm*

Interviews Conducted

- ISMS Support Contractor
- Management Requirements
- Technical Operations and Engineering
- RPP Work Planner
- CPO Scheduler
- CPO Maintenance Manager
- Manager CPO
- Deputy CPO Manager
- Manager, IS
- Manager, Production Control - IS

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.1** DATE: 8/16/99

- IS Business Lead
- FDH President
- Director, Tank Farm Oversight Division, ORP
- FDH Executive Vice President
- Estimating and Risk Analysis, LMHC

Observations

- Day-to-Day CPO Planning Meeting
- Plan of the Week, Integrated Schedule
- CPO Scheduling Process
- Work Package Preparation
- Multi-Year Work Plan Schedule Process
- Automated Job Hazard Analysis Process
- Budget Process

Discussion of Results

The RPP uses an integrated planning process to develop their Multi-Year Work Plan (MYWP). An integral component of the integrated planning process is the technical basis review (TBR) planning package which establishes the technical basis, inputs, deliverables, reference documents, enabling assumptions, and functional requirements of activities that constitute the MYWP and support the integrated site baseline. The technical basis review planning package delineates the scope, technical basis and justification for work activities, and supports work integration, cost and schedule decisions, and the alignment between TBRs and work packages. The TBR planning package contains the following information: (1) activity definition, (2) scope, (3) performing organizations, (4) predecessor and successor activities, (5) deliverables, (6) schedule duration and resource loading, and (7) assumptions, risks, and other required information. Risk events are recorded as part of the TBRs for projects and integrated with other sources of risk information from RPP programs and projects, such as corrective actions associated with maintenance of the RPP Standards/Requirements Identification Document (S/RID).

LMHC uses the processes described above to develop the MYWP, in which activities are identified, defined, prioritized, scheduled, and resource loaded. The RPP 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. The FDH MYWP directive delineates the responsibilities and process for managing the MYWP. LMHC develops and/or updates the MYWP in accordance with the LMHC contract, RPP Mission Analysis Report, and FDH guidance.

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.1** DATE: 8/16/99

LMHC also develops the technical baseline which includes reviewing, validating, and updating the project technical baseline; identifying technical interfaces and updating and maintaining the Systems Engineering database; resolving technical baseline issues with project direction; and updating the responsibility assignment matrix. LMHC prepares and/or revises estimates; develops and/or revises the project master baseline schedules, identifying technical baseline and inter-project schedule interfaces; develops the cost baseline, including price resources, time-phased budget, and projected cost savings; revises scope, schedule, cost and/or estimates to meet funding targets; and develops the completed MYWP for submittal to the appropriate FDH Project Director for approval.

From the MYWP, LMHC completes a priority listing of work based on mission, compliance, cost, and risk containment objectives. At working levels of RPP, 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 as stated by the Management Requirements manager is to ensure that the most significant hazards are identified and mitigated in the most cost-effective manner. (MGO.1.1)

To validate the above description of the RPP process for identifying and prioritizing tasks, interviews were conducted with several RPP personnel. A TBR printout was reviewed and two activities were identified for further review. These were 680-835, *Maintain Standards/Requirements Identification Document (S/RID) Program*, and 680-812, *Implement Standards/Requirements Identification Document (S/RID) Program Recovery Plan.* Discussions with the ISMS support contractor and the Management Requirement manager revealed that both TBR items were identified and could be mapped back to their respective cost account charge numbers (CACN), P-3 schedule logic, and work breakdown structure (WBS) number(s). Furthermore, Work Package WS-99-00106/M, Fabricate and Install Leak-detection Element (LDE) Stations in 241-U Farm, was reviewed and found to be traceable back through the process up to the MYWP, including the CACN (109089), TBR number (230.741), WBS number (1.01.03.01.01.09.48.50.01), and the MYWP Schedule, dated June 28, 1999. This bottoms up review was discussed with the Manager of Production Control and the Interim Stabilization Business Lead who described details of the planning process for mission related tasks. It should be noted, however, that only the IS Project records actual costs at the TBR level. The remainder of RPP report costs are at a much higher level (not at the work package level) and may not be integrating actual costs into future work planning.

A Characterization Project Operation (CPO) work planner was interviewed relative to work planning and prioritization. The work planner stated that all work that is to be

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.1** DATE: 8/16/99

planned is provided to the planners from the CPO scheduler(s). The planner described the SY Project and how enhanced work planning was used along with the Automated Job Hazard Analysis (AJHA). The planner stated that over the past six months no job has been stopped due to misidentification of hazards, work steps, procedures, and priorities. He attributed the productivity increase to the AJHA.

A meeting was held with the CPO scheduler who provided a prioritized current 10-week CPO schedule for all work activities. The schedule was broken down into individual activities such as grab sample, rotary sample, rotary mode truck, vapor sample, riser preparation, tank Z-361, cone penetrometer, and contingency work. A supporting desk instruction was reviewed that delineated the responsibilities and actions for the proper planning and prioritization of work activities.

A status meeting was observed for the CPO project. The purpose of the meeting was to discuss current daily status of work activities and work activities for the following day. The process used for the meeting included prioritizing work based on factors such as performance agreements, regulatory commitments and requirements. Additionally, resources were prioritized based on workload and scheduled commitments. This practice appears to be noteworthy.

A discussion was held with the CPO/Interim Stabilization (IS) Maintenance Manager who described how work is identified, prioritized, and approved. The manager stated that CPO Operations identifies maintenance work activities, a work package is initiated, and once approved an enhanced work planning session is initiated by appropriate personnel including maintenance personnel.

An interview was held with the CPO Manager who 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.

The Training Manager ensures all personnel have the opportunity for qualification. Interviews with maintenance workers proved this to be correct. These workers felt that training was provided to them when it was needed and a review of their Training Matrix (TMX) proved this to be accurate.

The Manager of CPO reviews the position descriptions (Roles and Responsibilities) with each worker for various jobs. This ensures that the worker is aware of management expectations and of their qualifications. The CPO Manager is involved with the dissemination of ISM by giving the lectures to his employees.

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.1** DATE: 8/16/99

The CPO/IS Maintenance Manager is involved in ensuring workers receive required training. He also gets involved in the critiques his employees training. He reviews the TMX of his employees on a weekly basis.

A review of several AJHA and work packages revealed that standards and requirements are included as an integral part of the planning process. For example, an AJHA for scaffolding for the SY Farm defined requirements contained in HNF-PRO-095, *Scaffolding Procedure*; 29 CFR 1926, Subpart L; *OSHA Construction Standard for Scaffolding*; and 29 CFR 1910.28, *Safety Requirements for Scaffolding*. As discussed with the Management Requirements Manager, LMHC has developed and is maintaining their S/RIDs which contain the Department of Energy 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 September 30, 1999.

Conclusion

Criteria have been met for this CRAD.

Issue(s)

Strengths

The LMHC process for planning work activities from the MYWP to work packages used in the field is excellent. (MGO.1.1)

Concerns

None

Submitted: Mark R Steel	**Approved:** Charles A Hansen
Mark R. Steelman	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.2** DATE: 8/16/99

OBJECTIVE

MGO.2 An integrated process has been established and utilized 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 II-5)

Criteria

Procedures and/or mechanisms are in place and utilized by personnel to collect feedback information such as self assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned those roles are competent to execute those responsibilities.

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 utilized to provide feedback and improvement during future similar or related activities.

Procedures and/or mechanisms are in place and utilized by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational information into improvement processes and appropriate lessons learned.

Procedures and/or mechanisms are in place and utilized by managers to consider and resolve recommendations for improvement, including worker suggestions.

Procedures and/or mechanisms (including QA) are in place and utilized, which include a process for oversight that ensures that regulatory compliance is maintained.

Approach

Record Review: 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. Review 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. Review QA processes and records including issues/deficiencies and corrective action management.

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.2** DATE: 8/16/99

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. Interview personnel to determine their understanding and compliance with QA processes.

Observations: Observe development and utilization of feedback and continuous improvement activities. This should include such things as conducting post-job critiques, monitored evolutions, as low as reasonably achievable (ALARA) post reviews, conducting a self-assessment or independent assessments, etc. If available, observe proper closure of a QA/management issue.

Record Review

- Occurrence Reports
- Shift Orders
- Post Job Reviews
- Radiological Problem Reports (RPRs)
- ALARA Post Job Reviews
- Employee Concerns
- Lessons Learned
- Price-Anderson Amendments Act National Tracking System (NTS) reports
- Price-Anderson Amendments Act Minor log
- Facility Evaluation Board Reports
- Management Self Assessment Reports

Interviews Conducted

- Corrective Action Management Coordinator
- Lessons Learned Coordinator
- Worker Concern Program Coordinator
- Occurrence Reporting Coordinator
- Shift Operations Manager
- Characterization Project Operation (CPO) Self Assessment Program Coordinator
- Quality Assurance Manager
- Quality Assurance Engineer
- Director of Quality Assurance
- Director of Environment, Safety, Health, and Quality (ESH&Q)
- PAAA Coordinator

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.2** DATE: 8/16/99

- Radiological Engineering Manager
- Lead Radiological Work Planner

Observations

- Critique of missed radiological hold point
- Pre-job briefing for standard hydrogen monitoring system cabinet filter change
- Automated Job Hazard Analysis (AJHA) prejob work session

Discussion of Results

The River Protection Project utilizes a series of tools to provide feedback of positive and deficient work activities. These tools include enhanced work planning, automated job hazard analysis, post job reviews, lessons learned, management self-assessment (MSA), and corrective action management. Use of these tools provides for worker involvement with input from various support organizations in the up-front planning and post work reviews.

During the review it was noted that procedures and mechanisms are in place and utilized by personnel to collect feedback. This includes a management self-assessment program that evaluates both compliance with requirements and effectiveness of work activities.

A review of the LMHC, FY-99, third quarter MSA report identified that 16 deficiencies were entered into Deficiency Tracking System. However, the issues identified were minor in comparison to the significant issues identified during field evaluation by external reviews spending much less time in the field (MGO.2.2). Contributing to the issue is the insufficient time in the field by level 1, 2, and 3 managers (MGO.2.3). During discussions, one level 3 manager stated that when he had the opportunity to observe work activities in the field, he found issues similar to those found during external review.

Procedures are in place that develop feedback and improvement information opportunities at the facility and activity level. During an observed AJHA planning meeting, lessons learned from a previous similar type jobs were evaluated for relevance. (MGO.2.1) Overall, ALARA post job reviews were performed in a timely manner and filed such that they were available for all radiological and project work planners. The team determined that maintenance and operations post job reviews were slow to be performed such that the information that could have been used to improve future jobs was not available. In one case, maintenance personnel reported that they did not have time between jobs to perform post job reviews.

Although procedures are in place to identify opportunities for improvement, some information gathered during a critique was not used by LMHC senior management for

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.2** DATE: 8/16/99

subsequent document preparation, discussions, and corrective action plan development (MGO.2.4). The following information is important because it changes the issue from an administrative problem to one of performance. Information not used included the following:

- Required actions to complete the hold point step were not performed.
- The survey technique used to complete an additional hold point was not a technique allowed for documenting radioactive contamination levels in accordance with the work procedure. The Health Physics Technician used a large area wipe instead of a smear over a 100 cm^2 area.
- Facility management directed the Field Work Supervisor to complete several steps in the work procedure after the work site was put in a safe condition. This direction allowed the crew to perform three additional work steps with hold points without any additional action by facility management relative to the missed hold point.
- A level 3 manager was accompanying the ISMS Team member at the work site but did not identify the improper implementation of hold point requirements.

This hold point question is of importance to the continuous improvement section because a similar hold point was missed in a nuclear support procedure on or about July 15, 1999. This hold point issue was also identified during an external review. Additionally, in February 1999, LMHC issued a National Tracking System (NTS) report documenting several additional instances in which review of completed work procedures identified that hold points were not signed indicating completion of the work step. The LMHC investigation leading up to the NTS report was in response to a Health Physics Technician identifying an unsigned hold point in December 1998. The new issues in this area indicate that additional management attention is required to cause more lasting improvement. LMHC and FDH have established a course of action subsequent to identification of this problem.

Procedures are in place and utilized by managers to consider and resolve recommendations for improvement from the work force. These include the AJHA program which has work force involvement at its foundation. It also includes a responsive employee concerns program. Several improvements were noted which were a result of this process.

The Quality Assurance (QA) organization is an active player in the line organization's implementation of continuous improvement. In addition to being a part of implementing quality into the products, QA is responsible for implementing a QA surveillance program to support compliance reviews to ensure regulatory compliance. The QA organization has been tasked with a validation/verification role to ensure that corrective actions are

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.2** DATE: 8/16/99

properly closed out as a result of concerns raised by external reviews regarding closing of issues without completion of the work activities.

Conclusion

Overall the objectives of this section have been met with improvements needed in the areas of management assessments, management involvement in day-to-day field work, and assimilation of issues from the critique process.

Issue(s)

Strengths:

- The AJHA process is a solid tool that is in use by the work force to identify hazards in the work place and to develop mitigation for those hazards. (MGO.2.1)

Concerns:

- Management Self-Assessments do not find the severity level of issues that are identified by external reviews. (MGO.2.2)
- Level I, II, and III Managers are not as active in the field as they could be making sure that the work force understands the message with respect to procedure compliance. (MGO.2.3)
- More emphasis is required to use information identified during the critique process to develop an understanding of the issues surrounding the activity being critiqued. (MGO.2.4)

Submitted:	**Approved:**
William Smoot	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.3** DATE: 08/16/99

OBJECTIVE

MGO.3 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 II-6)

Criteria

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

Facility or activity procedures specify that line management is responsible for safety and are utilized.

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

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

Procedures and/or mechanisms are in place and utilized to incorporate the best practices of the various safety initiatives (e.g., Environmental Management System, Voluntary Protection Program, Enhanced Work Planning, etc.).

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 those 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 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. Interview a selected number of supervisors and workers (see

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.3** DATE: 08/16/99

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

- Training Modules/Tailgate Plans
- ISMS Overview Course Number 172700, Lesson Plan, Revision 0
- RPP ISMS Communications Plan, July 21, 1999
- Training Matrix
- FEB Report
- ACES Records
- HNF-IP-0842, *TWRS Administrative Manual*:
  Volume II, Sections 10.2 - 10.13
  Volume X, Section 4.4, *LMHC Business*, Revision 0A
  Volume IX, Section 2.3, *Safety*, Revision 1a
  Volume V, Section 4.1, *Maintenance/Production Control*, Revision 4a
- CPO Continuing Training Plan
- TWRS 1999 ISMS & VPP Incentive Booklet (Tank Farm Land Activities)
- Declaration of Readiness for Phase II Verification or RRP ISMS
- Position Descriptions
- Subcontractor Flow Down Requirements
- HNF-PRO-111, *Occupational Medical Qualification and Monitoring*
- HNF-MP-011, *Sitewide Qualification and Training Plan*, Revision 1
- HNF-SD-WM-PLN-114, *Description of TWRS ISM*, Revision 3
- HNF-MP-003, *PHMC ISMS Plan*

Interviews Conducted

- ISM Coordinator
- SRID Manager
- Training Manager
- CPO/IS Maintenance MGR
- CPO Manager
- Hourly Workers (4)

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.3** DATE: 08/16/99

- LHMC Human Resources
- Project Managers (2)
- Interim Stabilization and Saltwell Pumping Manager.

Observations

- Plan of the Week
- Plan of the Day
- Safety Training/Meeting
- Tailgate Meeting

Discussion of Results

Communication of the purpose and function of ISM from the management levels is being implemented through the RPP Communication Plan. Because of activities associated with this plan, it has proven to be excellent in mapping out a way in which to disseminate information concerning the purpose and the function of ISM. Managers communicate to their people during the tailgate meetings. During these tailgate sessions the concepts of ISM are communicated to the worker level. ISM is introduced in a manner in which the worker can relate to his or her job. Other mechanisms have been used such as newsletters, posters, and management briefs to disseminate information to the workers. The Maintenance Manager states that Work Packages, Pre-Job briefs, and Tailgates are three additional ways in which safety is being communicated in maintenance. The Pre-Job briefing Procedure incorporates the five Core Functions of the ISM.

The hourly workers (millwright and pipe fitter) acknowledge that the Tailgate Sessions they have received have been very beneficial. The workers are involved with ISM through Enhanced Work Planning (EWP). The workers feel they have ownership and are part of the planning process. The tailgate meetings were established to enhance the workers knowledge of ISM. The workers feel that these types of sessions are valuable and should continue. The presenters of tailgate sessions have encouraged worker participation in safety. One worker commented that he feels that this demonstrates that management recognizes the importance of worker involvement. This worker also feels that these sessions should continue, because it is a new concept and more sessions would enhance the understanding. (MGO.3.1)

There is no planned formal continuing training mechanism of ISM currently in place or any mechanism in place to capture this training for new employees to the extent currently being implemented in the tailgate sessions. Some basic knowledge, although not as extensive, is included in Hanford General-Employee Training and in the Pre-job Briefings.

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.3** DATE: 08/16/99

Managers keep workers well informed with training requirements. Individual maintenance workers interviewed considered training received to be adequate. These workers felt that training was provided to them when it was needed and in reviewing their Training Matrix's (TMX) this was found to be accurate. The Training Manager operates a web page that is accessible to all employees. This web page list procedures, qualification cards, training bulletins and training updates. (MGO.3.2)

The Manager of Characterization Project Operation (CPO) reviews the position descriptions that contain roles and responsibilities of each worker. This ensures that the worker is aware of management expectations. The CPO Manager is involved with the dissemination of ISM by giving lectures to his people. He teaches that ISM is not just a new thing and that it entails EWP and Automated Job Hazard Analysis (AJHA). Both management and the workers believe stop work is an accepted culture.

The CPO/Interim Stabilization (IS) Maintenance Manager is involved in ensuring workers receive required training. He also has the opportunity to critique his employees training. He reviews the TMX of his employees on a weekly basis. The CPO/IS Maintenance Manager also exemplified commitment to safety by sending several of his people to the ISM conference held recently in Pasco, Washington. Furthermore, two of the workers participated in the ISM conference in Cincinnati. These workers were involved in the planning for the conference held in Pasco.

One position description was not available for review (CPO Operations Support Person). This position is responsible for continuing training and crew drills and evaluates training/performance evaluations. It is unclear to the Operations Support Person what is expected without a position description. He had reviewed a preliminary position description some months before and no final product has been produced. This person has many credentials which could be used to the organizations advantage if a position description was in place. This was the only position description found to be incomplete.

Implementation of HNF-IP-0842, Volume III, Section 10.14, *Training*, Revision 0 could not be observed. This procedure is scheduled to be implemented six months from June 30, 1999. This qualification program ensures that the Project Engineers and Project Managers have the requisite knowledge that is necessary to perform assigned duties in a safe, efficient, and cost effective manner. Qualification Cards have been created but not implemented. (MGO.3.4)

The performance appraisal period for June 1999 – June 2000 performance appraisal period will include individual safety and quality performance improvement objectives. The 1999-2000 appraisal process will evaluate individual employee performance against both the improvement objectives, and the guiding ISM principles and quality performance standards.

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.3** DATE: 08/16/99

The LHMC System Description HNF-SD-WM-PLN-114, Revision 3 RPP references HNF-IP-0842, Volume IX, Section 2.3, *Safety*, Revision 1a. This procedure discusses the responsibility's that the Subcontractor Technical Representative should perform before the start of work. It states that the subcontractor is not required to complete the Potential Exposure Hazard Form if that information has already been provided to the Buyer via the Employee Job Task Analysis (EJTA). Although it is understood why this document should connect with the system description that connection is not clearly demonstrated between the EJTA and the Potential Hazard Form. (MGO.3.3)

Conclusion

Criteria has been meet for this CRAD.

Issue(s)

Strengths

- Tailgate sessions are held and in these sessions the concepts of ISM are communicated very well at the worker level. (MGO.3.1)
- The RPP Training Web Page is a good tool for helping the employees access training requirements, lessons learns, training procedures, updates on changes in training in the Training Bulletin. (MGO.3.2)

Concerns

- HNF-IP-0842, Volume IX, Section 2.3, *Safety*, Revision 1a. does not require the Subcontractor Technical Representative to assist the subcontractor employees in completing an EJTA as required in the LHMC ISM System Description. (MGO 3.3)
- Implementation of HNF-IP-0842, Volume III, Section 10.14, *Training*, Revision 0, could not be observed. (MGO.3.4)

Submitted: Carrie Swafford-Chube	**Approved:** Charles A Hansen
Carrie Swafford-Chube	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.4** DATE: 08/16/99

OBJECTIVE

MGO.4 The Contractor implements the ISM System Description consistent with the DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses 970.5204-2 and 970-5204-78, and the direction to the contractor from the Approval Authority. The Contractor implementing mechanisms ensure that the ISM System Description is updated, maintained, and implemented, and is sufficient to result in integrated safety management. (CE II-1, CE II-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Contractor procedures and/or mechanisms are in place and utilized to develop, review, approve, maintain, and update the ISM System Description consistent with DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses, and direction to the contractor from the Approval Authority.

Contractor procedures and practices implement flowdown of DEAR clauses 970.5204-2 and 970-5204-78 requirements into subcontracts involving complex or hazardous work.

The contractor practices are consistent with the ISM System Description, DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses 970.5204-2 and 970-5204-78, and direction to the contractor from the Approval Authority.

The contractor evaluates and improves the effectiveness of the ISM System and the ISM System Description.

The contractor demonstrates that mechanisms are in place to direct, monitor, and verify the integrated implementation of ISMS in accordance with the ISM System Description. Implementation and integration expectations and mechanisms are evident throughout all organizational levels and across all organizations from the facility to the individual activities.

Approach

Records Review: Review procedures and mechanisms for updating and maintenance of the ISMS and ISM System Description. Review the procedures and mechanisms for the evaluation of ISMS effectiveness.

Interviews: Interview personnel responsible for updating the ISM System Description and those personnel that determine ISMS effectiveness. Determine the understanding and compliance to those processes and mechanisms. Receive input

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.4** DATE: 08/16/99

from all Verification Team members regarding implementation and integration of ISMS at all LMHC facilities/operations.

Observations: None

Record Review

- HNF-SD-WM-PLN-114, *Description of TWRS ISM System to Meet Expectations of HNF-MP-003*, Revision 3, July 1999
- HNF-MP-003, PHMC DE-AC06-96RL13200, *Integrated Environment, Safety and Health Management System Plan*, Revision 0, September 5, 1997
- Performance Agreement (PA) TWR 5.1.2, October 8, 1998
- HNF-MD-4821, *Guidance for Flowdown of ISMS Requirements to Lower Tier Subcontracts*, Revision 0, July 30, 1999
- LMHC Subcontract No. 80232764-9-K001, Part III, General Terms, Modification No. 028, June 24, 1999
- HNF-MP-013, *Configuration Management Plan*
- HNF-PRO-244, *Engineering Data Transmittal Requirements*

Interviews Conducted

- LMHC Management Requirements Manager
- LMHC ISMS Support Contractor
- LMHC Contracts Manager
- FDH Project Integration Director
- FDH ISMS Coordinator
- FDH President
- LMHC AJHA Coordinator
- Director, Tank Waste Operations
- Interim Stabilization Manager
- Union Safety Representative
- Voluntary Protection Program Steering Committee Chairman

Observations

None

Discussion of Results

During interviews with the LMHC Management Requirements Manager it was determined that both the FDH and LMHC procedures were found to be in place and utilized to develop, review, approve, maintain, and update the ISM System Description

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.4** DATE: 08/16/99

consistent with DOE Policy 450.4, 450.5, and 450.6, the Department of Energy Acquisition Regulation (DEAR) clauses, and direction to FDH from the DOE-RL Approval Authority. Documents are maintained and controlled in accordance with HNF-MP-013, Configuration Management Plan, HNF-PRO-244, and other governing FDH procedures and policies. Furthermore, HNF-SD-WM-PLN-114 has been revised three times and can be mapped back to the FDH ISMS Plan, FDH-MP-003, Revision 0. The team found that HNF-SD-WM-PLN-114 is comprised of the FDH facility and activity level expectations including those implementing procedures. A crosswalk has also been prepared by LMHC that clearly maps the RPP process back to the DOE policies and FDH expectations. Notwithstanding the above, the FDH ISMS Plan was updated in July 1999 and has been submitted to DOE for approval.

The PHMC DE-AC06-96RL13200 clause H.5 contains specific requirements for the integration of environment, safety, and health (ES&H) into work planning and execution. Paragraph I of H.5 states, "The contractor shall include a clause substantially the same as this clause in subcontracts involving complex or hazardous work on site..." This requirement was derived from the DEAR 970.5204-2. A similar clause has been flowed down to LMHC as demonstrated in subcontract 80232764-9-K001, Section 7, Subparts A through I.

HNF-PRO-186, Preparing a Statement of Work for Services, was found to require that the scope of work identify the hazards and applicable ES&H requirements. In writing subcontracts for lower tier subcontractors, LMHC utilizes standard terms and condition clauses from the PHMC Acquisition System. Special provision-5 for On-Site Services (SP-5), dated May 19, 1999, requires the contractor to demonstrate full implementation of the ISMS requirements in the contractor's work planning and execution processes. These requirements have been imposed without regard to the risk/complexity of the work. Management Directive HNF-MD-4821 contains guidance that enables appropriate personnel to evaluate proposed work activities and determine whether the work activity requires full ISMS implementation.

The contractor practices were found to be consistent with the ISM System Description, DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses 970.5204-2 and 970-5204-78, and direction to the contractor from the DOE.

LMHC and the ORP has evaluated and improved the ISM System as evidenced by their numerous revisions (Revision 3 to HNF-SD-WM-PLN-114) and oversight activities such as those by the Facility Evaluation Board. These evaluations as well as the incorporation of lessons learned from the Phase I verification and the DOE Line Management review has substantially improved the effectiveness of the RPP ISM System and the ISM System Description.

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Management Oversight**	OBJECTIVE: **MGO.4** DATE: 08/16/99

LMHC has demonstrated that mechanisms are in place to direct, monitor, and verify the integrated implementation of ISMS in accordance with their ISM System Description. Implementation and integration expectations and mechanisms are evident throughout all organizational levels and across all organizations from the facility to the individual activities. However, several aspects of ISM implementation remain in the planning and early execution stages. There will be a need for continued senior management attention and follow-up to ensure that planned action get completed.

All the level 2-4 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 the responsibility for safety and that the safety specialist provided support in 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.

Conclusion

Criteria have been met for this CRAD.

Issue(s)

None

Submitted: Mark R. Steel	**Approved:** Charles A. Hansen
Mark R. Steelman	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Operations**	OBJECTIVE: **OPN.1** DATE: 8/16/99

OBJECTIVE

OPN.1 An integrated process has been established and is utilized to effectively plan, authorize, and execute the identified work, including subcontractor work, for the facility or activity. (CE II-4)

Criteria

Procedures and/or mechanisms are in place and utilized to ensure that work planning integrated at the individual maintenance or activity level fully analyzes hazards and develops appropriate controls.

Procedures and/or mechanisms are in place and utilized 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.

Procedures and/or mechanisms are in place and utilized which ensure that there is a process used to gain authorization to conduct operations.

Procedures and/or mechanisms are in place and utilized which ensure that safety requirements are integrated into work performance.

Procedures and/or mechanisms are in place and utilized which ensure that adequate performance measures and indicators, including safety performance measures, are established for the work.

Workers actively participate in the work planning process.

Procedures and/or mechanisms demonstrate effective integration of safety management.

Approach

Record Review: Review documents and/or mechanisms that govern the process for planning, authorizing, and conducting work, including subcontractor 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 Authorization Agreements 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.

FUNCTIONAL AREA: **Operations**	OBJECTIVE: **OPN.1** DATE: 8/16/99

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 the appropriate steps of the process. Verify that adequate controls are in place for subcontractor work.

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, and compensatory measures determination.

Record Review

- TWRS Enhanced Work Planning Desk Instruction
- HNF-IP-0842, *TWRS Administrative Manual*
  - Volume I, Section 2.5 – *Performance Indicators Program*
  - Volume V, Section 4.1 – *Pre-Job Briefing*
  - Volume V, Section 7.1 – *RPP Work Control*
  - Volume IX, Section 2.3 – *Subcontractor Safety Oversight*
- HNF-PRO-079, *Job Hazard Analysis*
- AJHA User Help Manual
- AJHA Report for installation of Prefabricated Pump Pit on Tank 241-SY-101
- HNF-SD-WM-HIE-010, *Hazard Identification and Evaluation for Deploying the Light Duty Utility Arm in Flammable Gas Facility Group 3 Tanks*
- LMHC – River Protection Project Employee Roles and Responsibilities
- Job Safety Analyses for Project W-314 work
- Post Job/Post ALARA Review sheets
- Several work packages and operations procedures
- 98-SCD-098, Issuance of the Tank Waste Remediation System (TWRS) Project Authorization Agreement (AA), July 24, 1998.
- DOE/ORP 450.4-1.1, *Authorization Agreement Development and Verification*
- HNF-PRO-2701, *Authorization Envelope and Authorization Agreement*, Revision 0
- TWRS-01, *TWRS Authorization Agreement*, administrative procedure effective April 19, 1999.

FUNCTIONAL AREA: **Operations**	OBJECTIVE: **OPN.1** DATE: 8/16/99

Interviews Conducted

- LMHC Facility Operations Manager
- LMHC Shift Operations Manager
- LMHC Facility Managers (2)
- LMHC Shift Manager
- LMHC Operations Engineers (2)
- LMHC Field Work Supervisors (2)
- LMHC Operations Planner
- LMHC Project Manager
- NHC Project Manager
- FDNW Construction Superintendent
- FDH Nuclear Chemical Operators (2)
- FDH Health Physics Technicians (2)
- FDH Industrial Hygiene Technician

Observations

- Walkdown of a diesel generator preventive maintenance package with craft personnel to improve the procedure
- Plan of the Day meetings (2)
- Preparation of a Lockout/Tagout for upcoming maintenance work
- Pre-job brief and conduct of W-314 project work
- Multi-discipline design safety review for new valve test platform
- Pre-job brief and performance of the Tank 241-AP-103 waste grab sample

Discussion of Results

For high-risk jobs, procedures and/or mechanisms are in place and utilized to ensure that work planning integrated at the individual maintenance or activity level fully analyzes hazards and develops appropriate controls.

The LMHC gap analysis, with respect to the HNF-MP-003, *Integrated ES&H Management System Plan*, pointed out that the Automated Job Hazard Analysis (AJHA) was not yet implemented in tank farms, and that the older Job Hazard Analysis (JHA) process did not address six of the 15 features of the AJHA. As of August 1, 1999, LMHC implemented the AJHA for high-risk jobs and plans to implement it for medium risk and selected low risk jobs by September 30, 1999. Further discussion of the AJHA can be found in Objective HAZ.1.

LMHC has not attempted to document and conveniently locate with the JHA form the compensatory actions to fulfill the six features of the AJHA that are not included under

the older JHA process. Some of these features are completed through other tank farm processes. For example, the Unreviewed Safety Question screening process on work packages meets the feature "ensuring that work activity can be completed within the controls specified by the FSAR." Other important features such as "provides support for co-located workers," or "supports a comprehensive system for medical monitoring of significantly exposed personnel," do not appear to be covered under the older JHA process or any other tank farm processes. Further information on incorporating environmental and chemical safety requirements into the work control process can be found in Objective WP.1.

A review of selected Job Safety Analysis checklists–the written product of the older JHA process–for medium risk work, such as Project W-314 modifications to valve pits in 241-AN farm and the tank waste grab sample of Tank 241-AP-103, combined with field observation of the applicable tasks demonstrated that LMHC performed adequate hazard identification and analysis for the workers at the job site.

Procedures and/or mechanisms are in place and utilized 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.

Several verification team members observing a total of at least eight prejob briefs mentioned that these briefs were well conducted. For the observed jobs listed in this Objective OPN.1, work assignments were clear, procedure steps were understood, and the workers freely participated with questions to clear up uncertainties. Daily meetings between the field work supervisors and the shift personnel ensured that the planned work could be performed safely under current plant conditions. In the case of FDNW project work, an operations representative with knowledge of plant conditions attended the prejob brief and participated in the field work to ensure that conditions supported project work and that construction boundaries remained in place to limit impacts to the rest of the tank farm. (OPN.1.1)

LMHC identified one Technical Safety Requirements violation, which occurred during the verification, and this violation constituted a failure to confirm facility readiness prior to authorizing work. A shift manager assumed that a running transfer pump recirculating waste in Tank 241-AW-102 through transfer piping did not constitute a transfer operation. He did not fully understand the transfer lineup and did not consult with other shift management personnel. He then failed to secure the transfer as required by the Limiting Condition of Operation when he authorized a maintenance outage on another piece of 241-AW tank farm safety class equipment. A LMHC Senior Shift Technical Advisor discovered the violation during a routine log review that same day. This incident was reported as an Unusual Occurrence and root cause analysis and corrective actions will be tracked in the Occurrence Reporting System.

FUNCTIONAL AREA: **Operations**	OBJECTIVE: **OPN.1** DATE: 8/16/99

Procedures and/or mechanisms are in place and utilized which ensure that there is a process used to gain authorization to conduct operations.

Authorization to perform work is carefully controlled through the two shift offices in tank farms. In accordance with HNF-IP-0842, Volume V, Section 7.1, *RPP Work Control*, Operations Engineers perform thorough reviews of maintenance and construction work packages prior to the initial release for work. They continue to perform daily reviews of work packages that require more than one day to complete to ensure work records are properly kept and to maintain shift knowledge of work status. Operations procedures that do not require a full work package are also included on Daily Release Sheets or are authorized through Shift Instructions which are approved by the Manager of Shift Operations in coordination with the Manager of Facility Operations. Work is prioritized daily in Plan of the Day meetings, taking into account tank farm conditions. If conditions change, the shift manager may withdraw approval at any time prior to the start of a given job or may direct that a job site be placed in a safe condition and work stopped.

The Authorization Agreement for the River Protection Project is in place and does concisely describe the authorization envelope. This agreement was created prior to the Phase I Verification conducted in August 1998 and covers all tank farm activities. It predates any procedures at the DOE or contractor levels that now describe how an authorization agreement is to be developed and maintained. Although the authorization envelope is still applicable, the agreement must be updated as part of the prescribed annual review process to reflect at a minimum the changes in DOE structure and project title since the Office of River Protection now directs the River Protection Project.

Procedures and/or mechanisms are in place and utilized which ensure that safety requirements are integrated into work performance.

Verification team reviews of at least 10 work packages found that safety requirements were effectively incorporated into work instructions. Some of the more significant safety requirements were noted as "hold points," indicating steps that needed to be performed and signed off before proceeding to the next step. The work package for the waste grab samples of Tank 241-AP-103 included three hold points and these were performed properly. Elsewhere, implementation of good conduct of operations and procedure compliance was inconsistent. Despite substantial attention recently to the proper development and performance of hold points, one verification team member observed substandard performance of two hold points, and in one case, work proceeded beyond the hold point before it was signed as complete in the work package – in violation of work control procedures. This hold point issue is discussed further in the Objective RC.1.

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On "routine," "low hazard," or "low risk" work, personnel were less sensitive to controls that have been proceduralized. Several examples were found such as follows:

- Safety signs faded and hard to read
- Access to electrical panels blocked
- Damaged electrical cords not removed from service
- Tape over tape on inspected electrical cords
- Not inspecting electrical cords prior to use
- Portable eye-wash stations with inadequate pressure
- Climbing up on scaffolding to look at something without first inspecting or being trained

Procedures and/or mechanisms are in place and utilized which provide many performance measures and indicators, but they appear to be of limited usefulness to supervisors and workers in the field.

Eighty-eight separate graphs are available on a LMHC web site, but only a handful of indicators are posted near the workplaces. A quick tour of 272-AW and 272-WA--buildings frequented by operators, Health Physics Technicians, and craft personnel--turned up five graphs showing compliance rates with work package documentation requirements and six to eight old graphs showing performance of Radiological Controls Improvement Plan objectives. Two interviews with operators showed that emphasis and indicators on reducing roundsheet errors had produced positive benefits--especially when one shift manager tangibly rewarded workers with pizza for improved performance. Most interviewees from the shift manager level on down could not identify performance indicators they used personally but rather relied on a subjective feel for trends in safe operations based on the number of critiques and occurrence reports of which they were aware. (OPN.1.3)

The LMHC gap analysis identified that "TWRS procedures do not currently provide guidance for the use of performance measures to evaluate the effectiveness of the team approach to work planning." The RPP Performance Indicator Program procedure, HNF-IP-0842, Volume I, Section 2.5, now describes a Work Planning Team whose assignment is to fill this gap. Indicators of this type would be useful, but the most recent revision of this procedure was issued on May 25, 1999, and the reviewer could find no evidence yet of a team performing this function.

Workers actively participate in the work planning process. The Verification Team observed examples of enhanced work planning sessions that were well conducted. The best sessions were helped by advance preparation on the part of the planners so the participants had a starting point to work from. One example of an enhanced work

planning session without this advance work was noted as lacking organization and focus. This was discussed in more detail in Objective WP.1.

Workers appreciated the opportunity to participate in the planning of work. Two mentioned that the Enhanced Work Planning increased worker understanding of the flow of work in a given package when the work was planned 1 to 2 months in advance. Urgent repairs to equipment failures seemed to preclude the same kind of thorough preparation. These two workers felt in those cases that even though they could safely perform the work, their knowledge of the work package was substandard-placing a disproportionate responsibility on the field work supervisor to safely direct the performance of work.

Procedures and/or mechanisms demonstrate effective integration of safety management. Significant room for improvement still exists, however, in the formality of work in the tank farms. Execution of established hazard controls at the activity level requires improvement by increased line management presence and accountability. (OPN.1.2)

In one example, a medium risk tank intrusive job was performed well in terms of procedure compliance, but the excessive joking and horseplay detracted from what otherwise appeared to be a smooth, efficient operation. Radio chatter by parties unrelated to this job caused those with radios to turn down the volume to reduce the distraction. In this case, an operations technical support staff member conducted a management assessment. His debrief to the verification team member following the job identified several good issues to follow up on but did not touch on the informality. When questioned specifically on this issue, he was unsure of what standards of professional conduct to expect and enforce. DOE Order 5480.19, *Conduct of Operations*, and the contractor implementing procedures provide the expectations. This example points to the lack of senior management presence actually in the tank farms during work to establish and enforce consistently formal, professional work standards.

Conclusion

This objective has been met.

LMHC demonstrated effective integration of safety management throughout tank farm operations. Enhanced work planning is viewed by management and workers as a valuable tool both to analyze and mitigate hazards. Shift management carefully controls release of tank farm work to ensure facility conditions support planned activities. When problems occur, management is also thorough in their critique and corrective action processes. Prejob briefs were a strong point during the verification. Improvement is required in senior management presence in the tank farms during work. Expectations for professional conduct are stated in procedures, but have not been effectively communicated and enforced at the activity level. Finally, workers need meaningful

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performance indicators that allow them to see the results of their efforts to do work safely.

Issue(s)

Strengths:

- Prejob briefs provided clear task descriptions, emergency actions, safety requirements, and allowed workers to clarify safety and work performance issues prior to starting work. (OPN.1.1)

Concerns:

- Execution of established hazard controls at the activity level requires improvement by increased line management presence and accountability. (OPN.1.2)

- Lack of accessible indicators showing safety performance and benefits from teamwork planning does not allow workers to connect their individual efforts with the successful accomplishment of the LMHC mission. (OPN.1.3)

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RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Subject Matter Experts - Fire Protection**	OBJECTIVE: **SME FP.1** DATE: 8/16/99

OBJECTIVE

SME FP.1 Within the Fire 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 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-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Procedures and/or mechanisms for Fire Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

Procedures and/or mechanisms for Fire Protection contain clear roles and responsibilities. Fire Protection is effectively integrated with line support managers to ensure that line managers are responsible for safety.

Procedures and/or mechanisms for 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 for Fire Protection require that personnel who are assigned to Fire Protection have a satisfactory level of competence.

Procedures and/or mechanisms for Fire Protection require that feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for Fire Protection at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that 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 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 Fire Protection. Review training records of personnel in Fire Protection to determine that they meet competency standards.

FUNCTIONAL AREA: **Subject Matter Experts - Fire Protection**	OBJECTIVE: **SME FP.1** DATE: 8/16/99

Interviews: Interview personnel and responsible managers assigned to the 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 Fire Protection to assess the level of competence.

Observations: Observe events such as the execution of a surveillance procedure, Job Hazard Analysis (JHA), or the approval process for an individual work item, which includes interactions with personnel in the 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.

Record Review

- Facility Operations Interface Agreement Covering the Lockheed Martin Hanford Co. (LMHC) Tank Waste Remediation Systems (TWRS) and DynCorp Tri-Cities Services, Inc., Hanford Fire Department (HFD)
- Fire Protection Assessments for 242-S of July 2, 1999; 241-A Tank Farm, 241-A-401, and 241-A-702 of March 1999; 241-S Tank Farm of March 1999; 241-SX Tank Farm of March 1999; and 241-A-271 of March 1999.
- HNF-IP-0842, *TWRS Administrative Manual*
  Volume II, Section 4.8.3, *Operational Configuration Control*, Rev 1a
  Volume III, Section 10.3, *Technical Staff Qualification Program Description*, Rev 5
  Volume V, Section 4.1, *Pre-Job Briefing*, Rev 4a
  Volume IX, Section 1.1, *RPP Safety Services Program Plan*, Rev 2A
  Volume IX, Section 5.1, *Fire Protection Program*
  Volume IX, Section 5.2, *Fire Protection Design Criteria*
- HNF-PRO-340 through 342, HNF-PRO-344 through 356, HNF-PRO-358 through 363, HNF-PRO-365, HNF-PRO-368, and HNF-PRO-370 through 373.
- Field Crew Staff Ticklers, Friday – Day Shift Monthly, *Inspect Fire Extinguishers, First Aid Kits, Emergency SCBA, Spill Kits, Flammable Cabinets, Mask Boxes Hazardous Cabinet Building,* for the months March–August 1999
- 3-EMER-316, *Inspection of Emergency Lights for Tank Farms*, Rev B-0
- 5-EMER-194, *Fire Barriers, Inspection*, Rev 1-D
- 6-TF-197, 2704 HV, *Emergency Lights Inspection*, Rev 0-A,
- 2W-99-01011/P, WT-05955, *Gen 200 West Emergency Lighting Monthly*, for period March–August 1999
- 2E-99-01210/P, ET-07034, *General, Monthly Testing of ETF Emergency Lights*, for period March – August 1999
- ET-05419, PM, *Monthly Inspection of Emergency Light*

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- EE-02454, PM, *Annual Emergency Light Inspection/Test*
- WT-03245, PM, *Fire Door Inspection/Op Check WTF*
- WT-05955, PM, *Monthly Inspection of Emergency Light*
- WT-03260, PM, *Annual Inspection of Emergency Light*
- 2E-97-01046/W, *241-A Repair Emergency Lights*
- 2E-99-00999/W, *241-AY Replace Faulty Emergency Lights*
- 2E-97-00628/W, *241-A Replace Cords on Emergency Lights*
- 2E-98-01726/W, *241-AZ-702 Emergency Lighting*

Interviews Conducted

- Industrial Safety Engineer (Stabilization)
- Industrial Hygienist (Stabilization and CPO)
- Manager, Field Services for Stabilization and CPO
- Manager, Field Services for Tank Operations
- Manager, Safety Services
- Fire Protection Engineers (2)
- North Area Fire Testing Captain (HFD)
- Firefighter, EMT (2) (HFD)
- Planners (1 West and 2 East)
- Shift Manager (East)
- NCO (East)
- Radiological Control Technician (1)
- LHMC AJHA Administrator

Observations

- Fire Protection Assessment of Building 209E
- ET-99-13555/J, 271-CR, Functional Test, *2-Month Unsupervised Bell Test*
- Facility conditions relating to housekeeping, access to emergency equipment, fire egress, and fire safety.

Discussion of Results

Fire Protection Assessments are comprehensive and performed by competent and qualified individuals following established procedures and guidance. The assessment observed was conducted in a professional and efficient manner. Deficiencies are tracked until resolved or equivalencies are approved. Review of procedures and selected records of work performance in support of maintaining fire protection systems showed that facility work performed meets requirements and that Fire Protection activities are effectively integrated and do not conflict with other activities. Work scope for preventive

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maintenance is addressed by specific procedures, work packages and "PMs." The LMHC Fire Protection Engineers noted a potential deficiency in the lack of sufficient triggers in the Automated Job Task Analysis (AJHA) tool used for work planning concerning identification of fire protection work scope, hazards, and hazard control. This shortfall is being addressed by developing a series of "pull down" menus that cue personnel to issues that would require involvement of fire protection professionals. The fire system testing observed was well planned, coordinated, and performed. The interface effectively defined the work scope, identified the hazards and controls, maintained configuration control, and showed facility involvement and ownership. Observed facility conditions revealed only a few areas where minor housekeeping/fire loading could be improved.

Roles and responsibilities are outlined in a number of procedures. The LMHC Fire Protection Program implements those sections of PHMC policies and procedures for Fire Protection that apply to RPP facilities. Responsibilities for Facility Management include the following: maintain the necessary staff and resources to develop, implement, and maintain the RPP Fire Protection Program; implement and adhere to the requirements of the fire protection program; implement compensatory measures whenever the requirements of the fire protection program cannot be met until compliance is achieved; and to develop corrective action plans, provide timely resolution, and necessary support for resolving fire protection deficiencies. The LMHC Fire Protection Design Criteria procedure establishes the criteria necessary for the design, upgrade, and modification of fire protection systems at RPP facilities. Managers of projects and/or documents that design, upgrade, or modify fire protection systems are responsible for ensuring that applicable requirements are incorporated into their project/documentation. The procedure also requires that all modifications to fire protection systems be reviewed and approved by a qualified fire protection engineer. Personnel interviewed displayed knowledge of fire protection requirements, implementation procedures, and appropriate controls as well as their roles and responsibilities.

The interface agreement between LMHC and the HFD clearly spells out roles and responsibilities. The agreement delineates expectations such as scope of work, identification of hazards, hazard control, work release, performance of work, configuration control, feedback, and notifications. The HFD Fire Protection Systems Testing and Maintenance personnel are expected to perform procedures as written or stop when the procedures cannot be followed. If the expected outcome is unknown or does not happen, no action should be taken without guidance from the LMHC point of contact or cognizant engineer. All work is included in an approved work package. Work is released prior to the system deactivation and the Shift Manager is notified prior to making any change to a system's configuration. Prior to leaving the work site HFD personnel inform LMHC Operations of the current status of the facility fire protection system. (SME FP.1.1)

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FUNCTIONAL AREA: **Subject Matter Experts - Fire Protection**	OBJECTIVE: **SME FP.1** DATE: 8/16/99

As a subcontractor, HFD employees fall under the same site requirements as the RPP. In addition to a training program that involves a 3-year apprenticeship, HFD personnel performing work in the facilities receive facility specific training, which includes facility orientation, 8 hours of supervised tank farm work, and facility specific updates from shift managers. If hazards exist, facility personnel accompany HFD personnel performing work in the facilities. Operator aids are used to supplement information provided in the work packages. A potential weakness in this area was highlighted by a recent inadvertent activation of a fire alarm causing the occupied office building to be evacuated. The testers believed that they had operated all the bypass switches when in reality they had missed the bell switches. Steps have been taken to ensure that procedures are properly executed, operator aids are clear, and in this case, the panel has been relabeled and switches made more visible. As part of their apprenticeship, fire fighters are expected to be familiar with all facilities. The shift manager provides updates to facility conditions and potential hazards prior to work execution via the pre-job process. Facility personnel performing fire protection related activities, such as fire watch, receive specific training.

Conclusion

All criteria for this objective have been met.

Issue(s)

Strengths

The interface agreement between LMHC and HFD is an excellent document that clarifies and defines the parties respective areas of responsibility for the inspecting, testing, temporary deactivation, modifying, and maintaining of the fire protection systems. It also provides expectations for conducting work within LMHC managed facilities. (SME FP.1.1)

Concerns

None

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John M. Held	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Subject Matter Experts – Radiological Controls**	OBJECTIVE: **RC.1** DATE: 8/16/99

OBJECTIVE

SME RC.1 Within the Radiological Controls area the planning of work includes 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 Radiological Controls, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Procedures and/or mechanisms for Radiological Controls are utilized and require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

Procedures and/or mechanisms for Radiological Controls are utilized and contain clear roles and responsibilities. The Radiological Controls are effectively integrated with line support managers to ensure that line managers are responsible for safety.

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

Procedures and/or mechanisms for Radiological Controls are utilized and require that personnel who are assigned to Radiological Controls area have a satisfactory level of competence.

Procedures and/or mechanisms for Radiological Controls are utilized and require that feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for Radiological Controls at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the Radiological Controls 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 area. Review training records of personnel in Radiological Controls to determine that they meet competency standards.

FUNCTIONAL AREA: **Subject Matter Experts – Radiological Controls**	OBJECTIVE: **RC.1** DATE: 8/16/99

Interviews: Interview personnel and responsible managers assigned to Radiological Controls. 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 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 Permit (RWP) or JHA, or the approval process for an individual work item, which includes interactions with personnel in Radiological controls.

Record Review

- TFHP-001, Tennelec LB-5500 Series Low Background Alpha/Beta Counting System Operation Procedure
- TFHP-002, Waste Retrieval Sluicing System Leak Detection Response
- HNF-IP-0842, *TWRS Administrative Manual*
  Volume I, *Management Assessment Program*, Section 2.10
  Volume V, *RPP Work Control*, Section 7.1
  Volume VII, *Eberline RO-20 Ion Chamber Operability Checks and Operation*, Section 5.1
  Volume VII, *Drinking in a Contamination Area*, Section 4.1
  Volume VII, *Radioactive Source Inventory and Integrity Test*, Section 3.3
  Volume VII, *Temporary Shielding*. Section 3.2
  Volume VII, *Radiological Containment*, Section 3.1
  Volume VII, *Establishment and Management of Radioactive Material Storage Areas*, Section 2.10
  Volume VII, *Radiological Control Instrument Administration*, Section 2.9
  Volume VII, *Radiological Control Document Review*, Section 2.7
  Volume VII, *Radiological Control Logbooks*, Section 2.5
  Volume VII, *Access Control Entry System Roles Guidance*, Section 2.4
  Volume VII, *Radiological Posting*, Section 2.3
  Volume VII, *High Radiation Area Physical Access Controls*, Section 2.2
  Volume VII, *Facility ALARA Committee*, Section 1.2
  Volume VII, *ALARA Work Planning*, Section 1.1
- TWRS-RC-50-008, *Use of Date Stamped Disposable Bricks*
- Training Matrix Reports for LMHC Radiological Control Exempt Staff
- Radiological Control Organization Education and Experience Summary
- River Protection Project Qualification Card 350190, Low Risk Radiological Planner
- River Protection Project Qualification Card 350191, Medium/High Risk Radiological Planner
- 180-Day Class Schedule for Radiological Control Technicians

FUNCTIONAL AREA: **Subject Matter Experts – Radiological Controls**	OBJECTIVE: **RC.1** DATE: 8/16/99

- Composite Performance Report, June 30, 1999
- River Protection Project data supplied for the Hanford Site Radiological Control Performance Indicator, June 1999
- River Protection Project Contamination Statistics
- Radiological Problem Reports and Closure Documentation from the last 4 months (83)
- Radiological Survey Reports (36)
- CDMP-9902-TRN-0336, *Functional Analysis for Site Technical Authorities and Facility Technical Authorities*
- CDMP-9704-PST-0186, *Policy for Radiological Posting*
- Completed Work Packages:
  2E-99-00571/O, AW-02E Pit Jumper
  2E-99-01155/S, Surveillance of Rotometers in CAR and MIX Room of 209-E
  2E-99-01599/W, 241-AW-02E, Repair Airline to DOV
  2E-99-01197/P, 204AR, Annual Exhauster Fan Electric Motor Inspection
  2E-99-01202/P, 241-AN, Annual Air Compressor Electric Motor Inspection
  WS-99-00172/M, 241-S-B Valve Pit OGT Modification
  WS-99-00153/O, 241-S-A Valve Pit OGT Work
- In Process Work Packages:
  WS-99-00179/W, Install Prefabricated Pit Pump on 241-SY-101, Riser 007
  2W-98-01873/M, Replace Manual Tape with RNRAF at 241-SX-115
- HNF-3337, *Authorization Basis for 209-E Building*
- Course Number 356030, Participant Text, Eberline AMS-4 Beta Continuous Air Monitor
- 79750-99-007, Monthly Summary of Management Assessment Observations – June 1999
- WO# 80922-010-00, TWRS Compliance with RadCon Results of Value Engineering Study
- Organizational Charts for
  RPP Facility ALARA Committee
  ALARA Joint Review Group
  ALARA Awareness Committee
  TWRS RadCon Improvement Team
- Extent of Condition Phase 2 Review, Issue Number ECR-2-7
- Extent of Condition Phase 2 Review, Issue Number ECR-2-8
- Critique Agenda, HPT Hold Point Associated With Work Package 2W-98-01873/M, Replace Manual Tape with ENRAF at 241-SX-115
- HSRCM-1, *Hanford Site Radiological Control Manual*
- HNF-PRO-1621, *ALARA Decision Making Methods*
- HNF-PRO-1619, *ALARA Organization and Responsibilities*
- HNF-PRO-1620, *ALARA Program Scope*

FUNCTIONAL AREA: **Subject Matter Experts – Radiological Controls**	OBJECTIVE: **RC.1** DATE: 8/16/99

- HNF-PRO-1892, *Documentation of Radiological Surveys*
- HNF-PRO-1526, *Implementing Radiation Protection Technical Procedures*
- HNF-PRO-378, *Radiation Protection First Line Supervisor Qualifications*
- HNF-PRO-318, *Radiation Protection Lessons Learn Program*
- HNF-PRO-319, *Radiation Protection Self Assessments*
- HNF-PRO-686, *Radiological Hold Points*
- HNF-PRO-386, *Radiological Control Technician Qualification and Training*
- HNF-PRO-1630, *Radiological Performance and ALARA Goals*
- HNF-PRO-388, *Radiological Problem Reports*
- HNF-PRO-329, *Radiological Training*
- HNF-PRO-423, *Radiological Work Permits*
- HNF-PRO-1623, *Radiological Work Planning Process*
- HNF-PRO-435, *Required Radiological Surveillances*
- HNF-PRO-343, *Selection of Radiological Control Technicians*
- HNF-PRO-364, *Selection of Senior Radiological Control Technicians*

Interviews Conducted

- Radiological Control Lead Work Planner, LMHC
- Radiological Control ALARA Coordinator, LMHC
- Radiological Control Automated Job Hazard Analysis Coordinator, LMHC
- Radiological Work Planner, LMHC
- Radiological Work Permit Writer, LMHC
- Radiological Control Manager, LMHC

Observations

- Automated Job Hazard Analysis Session for 101 AZ Manual Tape Replacement
- ALARA Joint Review Group Meeting, Install Prefabricated Pit Pump in SY-101
- Routine Radiological Work
- 2W-98-01873/M, Replace Manual Tape with ENRAF at 241-SX-115, Medium Risk Radiological Work
- Radiological Control Tool Box Briefing
- Fluor Daniel Northwest, Excavation in AN Farm using guzzler truck
- Radiological Control Continuing Training on Eberline AMS-4 Beta Continuous Air Monitor

FUNCTIONAL AREA: **Subject Matter Experts – Radiological Controls**	OBJECTIVE: **RC.1** DATE: 8/16/99

Discussion of Results

Fluor Daniel Hanford (FDH) and LMHC Radiological Control Procedures are utilized and require adequate planning of work items to identify hazards and implement controls. This planning starts at the earliest stages of defining the scope of work and continues through the performance of the work activity. This is demonstrated by the use of a guzzler truck to perform excavations in the tank farms. The guzzler truck vacuums dirt, soil, and gravel and allows the location of suspected electrical, air and process lines without damage.

The use of the as low as reasonably achievable (ALARA) Joint Review Group and the Automated Job Hazard Analysis by personnel from the Radiological Controls Organization and the Operations and Maintenance Organizations clearly benefited high risk work such as the SY-101 tank. Three medium risk work packages were reviewed without noting any deficiencies and this class of work is expected to continue to improve when the Automated Job Hazard Analysis is implemented for these tasks. Procedures supporting this are HSRCM-1, HNF-IP-0842; Volume V, Section 7.1; HNF-IP-0842, Volume VII, Section 3.2; HNF-IP-0842, Volume VII, Section 3.1; HNF-IP-0842, Volume VII, Section 2.7; HNF-PRO-1621; HNF-PRO-1526; and HNF-PRO-686. (RC.1.1)

The FDH and LMHC Radiological Control Procedures contain clear roles and responsibilities. These procedures assign specific job classifications to perform each specific task. Line management is demonstrating ownership of radiological safety by running the Radiological Improvement Team and the Facility ALARA Committee. Additionally, Union members participate in the ALARA Awareness Committee and Enhanced Work Planning. While line management has a strong commitment to performing work in accordance with procedures, procedural compliance has not been completely accepted by the work force. This observation results from actions involving a missed radiological hold point. The hold point action, verification of adequacy for a radiological containment (glovebag), was inadequately performed and the step was not signed. When the hold point violation was pointed out, work was not immediately stopped. When it was pointed out that work should be stopped, the Field Work Supervisor and the workers did not believe that a hold point violation had occurred. This observation was provided to LMHC, FDH, and DOE for investigation and corrective action. Procedures supporting this are HSRCM-1, HNF-IP-0842, Volume V, Section 7.1; HNF-IP-0842, Volume VII, Section 2.4; HNF-IP-0842, Volume VII, Section 1.2; HNF-IP-0842, Volume VII, Section 1.1; HNF-PRO-686; HNF-PRO-1619; and HNF-PRO-1623. (RC.1.2)

FUNCTIONAL AREA: **Subject Matter Experts – Radiological Controls**	OBJECTIVE: **RC.1** DATE: 8/16/99

The FDH and LMHC Radiological Control Procedures require that controls are implemented and are effectively integrated and that readiness is confirmed prior to performing the work activity. Seven work packages were reviewed, and all requirements identified in the Enhanced Work Planning and ALARA Management Worksheet were performed. The ALARA Management Worksheets, pre-job briefing, Radiological Work Permits, radiological hold points, and job hazard analysis all contribute to ensuring that controls are implemented and integrated prior to the work activity. A weakness was identified during this assessment with the use of the Access Control Entry System an ISMS team member was entered into the system in a manner that would have allowed unescorted access to the tank farms without having the required training. Supporting procedures are HSRCM-1; HNF-IP-0842, Volume VII, Section 1.1; TWRS-RC-50-008; HNF-PRO-423; HNF-PRO-686; and HNF-PRO-1623.

The FDH and LMHC Radiological Control Procedures require that personnel assigned to Radiological Controls have a satisfactory level of competence. Radiological Control Technicians complete a biannual training program that includes both the DOE Core requirements and Hanford Site Specific training, satisfactory completion of this training is mandatory. The exempt staff includes two Certified Health Physicists, one Masters degree, 16 Bachelor degrees, 10 Associate degrees and 10 people certified by the National Registry of Radiation Protection Technologists. The interviews conducted support the satisfactory level of knowledge. Supporting procedures are HSRCM-1, HNF-PRO-378, HNF-PRO-386, HNF-PRO-329, HNF-PRO-343, and HNF-PRO-364.

The FDH and LMHC Radiological Control Procedures require that feedback and continuous improvement occur. Management assessments, consisting of Management Observation Program tours, Radiological Control Improvement Plan assessments and Triennial Self-Assessments, and Radiological Problem Reports are used for feedback and improvement. In June 1999 there were 23 management assessments that identified 43 areas requiring improvement. This number has been declining since March 1999. Supporting procedures are HSRCM-1; HNF-IP-0842, Volume I, Section 2.10; HNF-PRO-319; and HNF-PRO-318.

Conclusion

This objective has been met.

In the area of Radiological Controls, LMHC has implemented ISMS. However, weakness was noted in the area of performing work within the established controls. As observed in the Extent of Condition Phase 2 Review, Issue Number ECR-2-7, procedures are not always followed. This was demonstrated during this ISMS Phase II Verification Assessment when a radiological hold point was not performed as required and the corrective actions for the missed hold point were not followed immediately.

FUNCTIONAL AREA: **Subject Matter Experts – Radiological Controls**	OBJECTIVE: **RC.1** DATE: 8/16/99

Additionally, an ISMS team member was entered into the Access Entry Control System in a manner that would have allowed unescorted access to the tank farms without the required training.

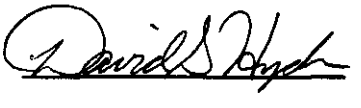
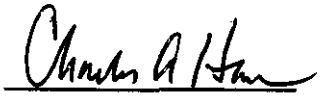
Issue(s)

Strengths:

ALARA planning and the use of the Joint Review Group has provided clear identification of hazards and assisted in the development of controls for high-risk work. (RC.1.1)

Concerns:

Radiological Control mechanisms were not always followed. (RC.1.2)

Submitted: 	**Approved:** 
David S. Hyder	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Subject Matter Experts - Work Planning**	OBJECTIVE: **WP.1** DATE: 08/16/99

OBJECTIVE

SME WP.1 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-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Procedures and/or mechanisms for Maintenance and Work Control require adequate planning of individual work items to ensure that hazards (including chemical, electrical, and waste stream) are analyzed and controls are identified.

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

Procedures and/or mechanisms for Maintenance and Work Control require controls to be implemented (including configuration management controls), that these controls are effectively integrated, and readiness is confirmed prior to performing work. Workers are involved in the planning of the safety controls.

Procedures and/or mechanisms for Maintenance and Work Control require that personnel who are assigned to the maintenance and work control subject area have a satisfactory level of competence.

Procedures and/or mechanisms for the maintenance and work control subject area require that continuous improvement results.

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 integration of the hazard identification development of hazard controls for chemical safety, electrical safety, and waste stream hazards. Also note the methods of maintaining configuration management of the facilities and the documentation during the execution of the facility work. Be alert to worker involvement in the processes reviewed. Review

FUNCTIONAL AREA: **Subject Matter Experts - Work Planning**	OBJECTIVE: **WP.1** DATE: 08/16/99

selected lessons learned 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 that they meet competency standards.

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 or JHA, or the approval process for an individual work item, which includes interactions with personnel. Observe field conditions and work performed to validate that work as planned is executable and meets established requirements.

Record Review

- 2E-98-01367/W and 10 changes, *Repair Sump Pump P-136 Power Cable*
- 2E-99-00136/W, *241-AY/AZ-402 Recirc Trace TER Replacement*
- 2E-99-00152/W, *Replace Failed Pumps at AY102-EW-T-1*
- 2E-99-00288/W, *Replace HV-AZRW-2 Raw Water Valve*
- 2E-99-00475, *241-C-103 Breather Filter Aersol Leak Test*
- 2E-99-01173/M, *244 AR CAM Cabinet Removal for 241 AN Upgrade*
- 2E-99-01208/P, *General Monthly Exhaust Fan Insp*
- 2E-99-01499/P, 204-AR/241-AZ, *Monthly Diesel Generator Inspections*
- 2E-99-01548/W, *Replace Drive Motor, 241-AN Annulus Fan K2-5-2*
- 2E-99-01611/W, *C106 Camera Flush*
- 2W-96-01299/M, *Modification 241-BY-103 Install Electrical to Support New ENRAF*
- 3-EDS-180, *Inspection and Test of Ground Fault Circuit Interrupter Receptacles and Circuit Breakers*, Revision C-1
- 5-EDS-050, *Electric Motor Inspection*, Revision D-2
- 5-EDS-146, *Low Voltage Electrical Distribution Systems "Switchgear, Motor Control Centers, Load Centers, Distribution Panels, and Disconnect Switches" Inspection and Testing*, Revision A-2
- 5-EDS-278, *Inspect and Test Switchboard SB-1 480-Volt Power Circuit Breakers*, Revision A-1
- 5-EDS-341, *International Power Machines, Model IBP + 10 Uninterrruptable* (sic) *Power Supply Cooling Fan Maintenance*, Revision B-0
- 5-EDS-342, *Auto Transfer Switch, Zenith Controls, ZTSH Series Inspection and Test*, Revision B-0

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- 6-TF-216, *ILI-Case Diesel Generator 110KW Inspection and Operation*, Revision 0-G
- 6-TF-332, *AY/AZ Ventilation and Cooling Standby Generator Monthly Preventive Maintenance*, Revision 0-D
- Draft HNF-IP-0842, *Receiving, Storing and Handling Chemicals*
- *Electrical Safety Assessment of the River Protection Project*, June 14, 1999
- *Energized Electrical Work Permit* for general troubleshooting, May 6, 1999
- HNF-1773, *Tank Waste Remediation System Environmental Program Plan*, Revision 1
- HNF-IP-0842, *TWRS Administrative Manual*:
  - Volume I, Section 3.32, *Environmental, Safety, Health and Quality Charter*, Revision 1
  - Volume II, Section 4.1.1, *Operations Organization and Administration*, Revision 5
  - Volume II, Section 4.8.3, *Operational Configuration Control*, Revision 1a
  - Volume II, Section 4.9.1, *Lock and Tag Program*, Revision 5C
  - Volume III, Section 10.12, *Maintenance Planner Qualification Program Description*, Revision 0a
  - Volume III, Section 10.7, *Supervisor/Person-In-Charge Qualification Program Description*, Revision 4
  - Volume IV, Section 3.5, *Engineering Documents*, Revision 1b
  - Volume V, Section 2.7, *Condition Assessment Survey*, Revision 0a
  - Volume V, Section 3.1, *Notification and Evaluation of Out-of-Calibration Measuring and Test Equipment*, Revision 0b
  - Volume V, Section 3.1, *Material Control*, Revision 3
  - Volume V, Section 3.2, *Maintenance Tools and Equipment Control*, Revision 0b
  - Volume V, Section 3.3, *Control of Tool Cribs*, Revision 0b
  - Volume V, Section 3.4, Tool Control and Usage, Revision 0c
  - Volume V, Section 3.8, *Control and Calibration of Measuring and Test Equipment*, Revision 1a
  - Volume V, Section 3.9, *Defective Tools and Equipment*, Revision 0b
  - Volume V, Section 4.1, *Pre-Job Briefing*, Revision 4a
  - Volume V, Section 4.4, *Portable Tool and Extension Cord Inspection*, Revision 0a
  - Volume V, Section 6.2, *Calibration Status Labeling of Plant Instruments*, Revision 1a
  - Volume V, Section 7.1, *RPP Work Control*, Revision 4a
  - Volume V, Section 7.2, *Post Maintenance Testing*, Revision 4a
  - Volume V, Section 7.3, *Preventive Maintenance Program*, Revision 3a
  - Volume VI, Section 1.5, *ALARACT Implementation*, Revision 0
  - Volume VI, Section 1.2, *Field Implementation of Environmental Notices of Construction for Air Emission Units Operated by RPP*, Revision 0c

Volume VI, Section 2.1, *Scheduling, Planning, and Conducting Surveillance/Compliance Inspections*, Revision 1
Volume VI, Section 2.2, *Environmental Requirements Management*, Revision 1
Volume VI, Section 4.1, *Waste Generating Plan*, Revision 3b
Volume IX, Section 4.1, *Hazard Communication Program*, Revision 0a

- HNF-IP-1266, Chapter 5.20, *Administrative Lock Program*, Revision 1
- HNF-IP-MIP, *Tank Waste Remediation System, Tank Farm Maintenance Implementation Plan*, Revision 2b, January 11, 1999
- HNF-PRO-079, *Job Hazard Analysis*, Revision 3
- HNF-PRO-081, *Hazardous Energy Control Program*, Revision 3
- HNF-PRO-088, *Electrical Work Safety*, Revision 2
- HNF-PRO-089, *Electrical Installation Safety*, Revision 2
- HNF-PRO-233, *Review and Approval of Documents*, Revision 0
- Qualification Card and Guide for Maintenance Planner, 350019 Revision 2
- Subject Matter Experts for Maintenance Planner Qualifications
- TMX for two planner and a field operations specialist
- TWRS Environmental Surveillance Checklist for TX Tank Farm inspection
- WS-99-00179/W, *SY101 Prefabricated Pump Installation*

Interviews Conducted

- Electricians (4-East Area)
- Diesel Mechanic (Subcontractor)
- Lead Operations Engineer
- Safety Services Manager
- Safety Engineer
- Planners (2 East, 1 West)
- Field Work Supervisors (2)
- Engineer (Designer Services, Fluor Daniel North West)
- Millwrights (5)
- East Electrical Supervisor
- West Instrumentation, Control and Electrical Supervisor
- Manager Special Projects
- Tech Writer (Procedures)
- Radiological Control Technician (4)
- West Area Facility Excellence Program Coordinator
- LMHC Lock and Tag Administrator
- CPO Maintenance Manager
- West Area Planner
- Electrical Supervisor
- Maintenance Operations Manager

FUNCTIONAL AREA: **Subject Matter Experts - Work Planning**	OBJECTIVE: **WP.1** DATE: 08/16/99

- Production Control Manager
- East Maintenance Manager
- Paint Work/Insulation/Support Supervisor
- Painter(1)
- Carpenter(1)
- Environmental, Safety, and Health and Quality Assurance, Director
- Environmental Manager
- Environmental Compliance Officer
- Environmental Field Representatives(3)
- Hazardous Material Specialist(2)
- Facility Operations Operation Engineer(1)
- Shift Manager Operations Engineer(1)
- Nuclear Chemical Operators(3)
- Facility Manager(1)
- Operators(4)
- Environmental Staff personnel(3)
- Environmental Permits/Policy Manager
- Instrument Technician(1)

Observations

- 2E-98-02601/W, *Replace Inlet Station "D" Heater Flow Switch*
- Facility Excellence Program walkdown of Building 213-W, 244-TX Evaporator, and 244-T Farm
- Preparation for field walkdown to evaluate deficiencies identified in NEC Inspection Reports 5471, 5227 and 4434.
- 2E-99-01548/W, *Replace Drive Motor, 241-AN Annulus Fan K-2-5-2*
- Walkdown of 2E-99-01499/P, Preventative Maintenance 204-AR/241-AZ, *Monthly Diesel Generator Inspections*
- Development of work package 2W-96-01299/M, *Modification 241-BY-103, Install Electrical to Support New ENRAF*
- Development of work package 2E-99-00152/W, *Replace Failed Pumps at AY-102-EW-T-1*
- Routine Work Request # WS-99-382/2, *Concrete Slab for Backflow Preventor*
- Work Document #2E-99-01444/P Preventive Maintenance, *241-C Breather Filter DP Calibration*
- Work Document #2E-98-02601/W Generic Work Item, *Replace Inlet Station D Heater Flow Switch*
- Routine Work Request, Troubleshoot, test, repair and replace breaker in 241-A-701 Building.
- CPO Daily Status Meeting

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- CPO Morning Conference Call
- AJHA/EWP (5)
- ALARA/JRG Meeting for the SY101 Fabricated Pump Installation
- Plan of the Day for West Tank Farms (2)
- EWP Meeting for 244 DCRT Tank by pass of transfer lines
- Surveillance of TX Tank Farm by Environmental Field Representative
- Post Job Review for the Eighth Sluicing Operation of C106
- Presentation on the Critique Package for the first Sluicing Operation of C106

Discussion of Results

In general, it appears that newer procedures and work packages written in the last six months are much more thorough and effective than those written previously. This is a direct result of the increase in employee awareness and efforts to have greater employee involvement in the identification of the work scope and work planning. As new procedures, preventative maintenance, and work packages are developed, electrical, environmental, and other workers have increasingly been involved in the participation of enhanced work planning (EWP) meetings and performing field walk-downs, suggesting alternate means of preparing and conducting work. (WP.1.1) This has helped to reduce the numbers of procedures, work packages, and preventive maintenance that cannot be performed. (WP.1.7) In some cases documents referred to and that are necessary for conducting the work are missing.

A review of the process and procedures revealed that the latest revision, dated July 21, 1999 of HNF-IP-0842, *RPP Work Control*, clearly identifies requirements and directions for safety (worker and electrical) and radiological concerns, however, the environmental area was not called out or identified in the same detail. (WP.1.8, WP.1.9) In addition, the criteria to determine low, medium and high-risk activities in the EWP process are not quantified for industrial safety risks. (WP.1.6) The criteria to determine activity risks and chemical and waste stream analysis should be strengthened to match the methodology used for radiological hazards.

A review of a completed job packages and a sampling of active work packages indicate that environmental reviews are not accomplished for all routine, low risk, and some moderate risk work packages. The system in place focuses on high risk and modification work packages. Eight of eight work packages reviewed for environmental impacts had no environmental approval. Based on package content and interviews with the Facility Environmental Compliance Officer and field representatives concerning these packages it was stated that some work packages do not receive the necessary environmental reviews and approvals. The Environmental, Safety, and Health and Quality Assurance Director is considering reorganization of responsibilities to address this issue as the facility moves to transition under the Office of River Protection and the new contract.

FUNCTIONAL AREA: **Subject Matter Experts - Work Planning**	OBJECTIVE: **WP.1** DATE: 08/16/99

A concerted effort has taken place to identify safety responsibilities in procedures, and to reinforce this information through pre-job briefs, tailgate sessions, and performance appraisals. All personnel interviewed understood their own roles and responsibilities, and have an understanding of their role in enhanced work planning. Interviews also revealed an understanding of the ISMS as it applies to individual's roles and responsibilities to ensure work is performed in a safe manner. Some managers when asked about the ISMS definition and how it was implemented made no statements about the principles, core functions, or the three-tier implementation approach (i.e., PHMC, Facility or Activity).

There are some implementation weaknesses. For two of eight work packages reviewed as part of the environmental review, waste planing checklists were not approved by the Environmental Compliance Officer or designee, but were signed by the planner. Lockheed Martin procedures require that the Environmental Compliance Office representative sign the waste planning checklist.

Interviews and in-field observations showed adequate procedures and/or mechanisms for Maintenance and Work Control to ensure required controls are implemented, integrated effectively, and readiness is confirmed prior to performing work. Individuals interviewed at all levels understand the integrated work control process, and further identified that EWPs, Automated Job Hazard Analysis (AJHA), job safety analysis (JSA) and pre-job briefings were the mechanisms used to implement controls. Several craft personnel indicated that they have worked with planners during the development of a work document and occasionally provided verbal and written feedback.

All interviewees indicated that feedback was primarily verbal and non-formal. In general, the in-field observations confirmed that controls are implemented through the level of detail in work documents, pre-job briefing, EWPs, JSAs, etc. However, observations indicate improvements in feedback controls (use of the J5 documents) are necessary. During the performance of Work Document number 2E-99-01444/P Preventive Maintenance, "241-C Breather Filter DP Calibration," craft personnel found no isolation valves on the components, DPI-106-2 or DPI-106-1. The craft and HPT discussed the hazards of continuing with the job without the isolation valves. The conclusion, without supervisory assistance or notification, was to continue the job because the components were on the air inlet and there was no history of airflow reversals or contamination inside the duct. Subsequent review of the completed work document did not find any information on the Job Control System (JCS) Work Record form (J5) concerning this isolation valve concern.

Integration problems dealing with environmental hazards included two environmental procedures that addressed work *planning As Low As Reasonably Achievable Control Technology (ALARACT) Implementation* and *Field Implementation of Environmental Notices of Construction for Air Emission Units Operated by RPP.* The ALARACT

FUNCTIONAL AREA: **Subject Matter Experts - Work Planning**	OBJECTIVE: **WP.1** DATE: 08/16/99

procedure should be completely integrated into the RPP Work Control procedure. An earlier version of the RPP Work Control procedure did address integration, however, during the latest revision, some of the integration steps were either deleted or changed without Environmental review and approval. The Notice of Construction procedure does an excellent job in ensuring requirements are understood at the operational level. However, a weakness associated with this procedure is that it is not integrated into the EWP process. The EWP meeting for 244-U clearly demonstrated that some of the Operations personnel understood the requirements, however, several of the supporting organization personnel did not and clarification was not provided during the meeting. (WP.1.11) The draft chemical management procedure under development needs to integrate with the work control process to ensure that hazardous material/chemical hazards are controlled and the appropriate reviews and approvals are conducted as part of work planning prior to the purchasing of the material.

A formalized work control process (that includes subcontractors) controls maintenance, repair, and similar tasks. Personnel have been trained on this system and competence levels are established using a number of formal qualification programs that include qualification cards and training matrices. LMHC technical staff demonstrated a level of competence commensurate with their responsibilities. (WP.1.3) Personnel interviewed were all knowledgeable.

As documented in previous Integrated Safety Management System assessments weakness still exists in the process for providing feedback, to include electrical safety and corrective action management programs. The building of a database of lessons learned on the Internet is viewed as a positive step in developing stronger programs in both areas. Although HNF-IP-0842, *RPP Work Control*, directs post job briefings this is not fully implemented. Employees were observed presenting information not contained in the work package at pre-job briefings, based on knowledge from previous involvement. This information is not always captured for future similar work. Interviews indicate post-job reviews involving workers are not performed on a routine basis or in a timely manner. The work control procedure does allow a graded approach, however, interviews indicate that critiques are the primary mechanism, for feedback, therefore continuous improvement is based on negative feedback only. (WP.1.5)

Feedback and corrective action tracking is weak and some improvement is needed as it relates to post-job reviews and self-assessments conducted. The self-assessment form used by the environmental organization does not provide direction or a space on the form to document and submit observations dealing with safety and other related activities (maintenance, Facility Excellence Program assessments) at facilities. (WP.1.10)

FUNCTIONAL AREA: **Subject Matter Experts - Work Planning**	OBJECTIVE: **WP.1** DATE: 08/16/99

There is a need to improve the form to include agreements and other requirements that may impact the environment indirectly, such as repair of the foam sealant to prevent water intrusion into tanks.

The post-job review meeting for the eighth sluicing operation of C106 was conducted in accordance with HNF-IP-0842, *RPP Work Control*. The person conducting the meeting was organized and helped solicit comments from the workers participating in the meeting. The meeting was well attended and the attendees participated freely and willingly. (WP.1.2, WP.1.4)

Conclusion

The objective of this CRAD has been met, however, weaknesses were identified for many of the criteria. The facility has made progress to fully implement ISMS; however, until all of the weaknesses have been addressed and corrected full implementation can not be achieved. In the area of environmental integration the facility still relies on informal and independent programs to achieve many of the functions of work planning and controls. The same formality, rigor and concerns demonstrated for safety, and radiological hazards need to be incorporated into the work planning for environmental (chemical and waste stream) hazards/impacts. A key to this is the definition of high, moderate and low risk as it applies to the classification of work. The facility has identified this requirement and currently is working on an across the board definition of risk for facility work. Improvement in the corrective action for reporting and tracking low risk concerns will aid in improvement to the facility and help in realizing full ISMS implementation.

Issue(s)

Strengths:

- Field walk-downs composed of engineers, planners, craft and support services were viewed as an extremely effective means of defining the work scope, identifying hazards, prescribing controls, and developing the means to safely perform the work. (WP.1.1)
- Members of the Facility Excellence Program (FEP) team identified a number of deficiencies in the areas of electrical hazards or code non-compliance, egress issues, signage, scaffolding, and housekeeping. (WP.1.2)
- Personnel in the environmental organization responsible for chemical management and waste stream identification for work package reviews are knowledgeable. (WP1.3)
- When used as a feedback tool post-job reviews are effective. This was demonstrated by the post job review meeting conducted for the eighth sluicing operation of C106. (WP.1.4)

RPP ISMS PHASE II VERIFICATION ASSESSMENT FORM

FUNCTIONAL AREA: **Subject Matter Experts - Work Planning**	OBJECTIVE: **WP.1** DATE: 08/16/99

Concerns:

- A weakness exists in the process for providing feedback. Post-job reviews are not normally performed and information is passed on informally. Post-jobs are not completed on a routine basis or in a timely manner. (WP.1.5)
- Clear definitions of high, medium and low hazard are not available except when concerning radiological conditions. (WP.1.6)
- Procedures that have been in use, when validated or observed closely, are found to contain errors and could not be performed as written. (WP.1.7)
- Work planning and controls for environmental hazards/impacts are not presented at the same consistency or intensity as safety, and radiological in facility procedures and are not fully integrated in the work planning process. (WP.1.8)
- The Chemical Management System is not formalized and there is no integration into the work planning process. (WP.1.9)
- The environmental self-assessment does not allow for reporting associated observations in areas such as safety and housekeeping. (WP.1.10)
- Three EWP meetings were observed for routine, moderate and low risk activities. These meetings lacked the necessary preparation, focus and facilitation to ensure that the goals and objectives of enhanced work planning were achieved. (WP.1.11)

Submitted:	**Approved:**
Michael J. Silvia	**Charles A. Hansen**
Team Member	***Team Leader***

RPP ISMS PHASE II VERIFICATION REVIEW PLAN

DOE/RL-99-54
U.S. DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
River Protection Project

Integrated Safety Management System Phase II Verification

Review Plan

Richland, Washington
August 9–August 20, 1999

Charles A Hansen 7/29/99

Charles A. Hansen
Integrated Safety Management System Verification Team Leader

Integrated Safety Management System
Phase II Verification

Review Plan

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LIST OF ACRONYMS AND INITIALISMS

AA	Authorization Agreement
ALARA	as low as reasonably achievable
CRAD	Criteria and Review Approach Document
DEAR	Department of Energy Acquisition Regulations
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
FDH	Fluor Daniel Hanford, Inc.
FEB	Facility Evaluation Board
FRA	Functions, Responsibilities, and Authorities
FRAM	Functions, Responsibilities, and Authorities Manual
FSAR	Final Safety Analysis Report
HAB	Hanford Advisory Board
HASP	Health and Safety Plan
HAZ	Hazard Identification and Standard Selection (subteam)
HGET	Hanford General Employee Training
HLW	high-level waste
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISMSV	Integrated Safety Management Systems Verification
JHA	Job Hazard Analysis
LLW	low-level waste
LMHC	Lockheed Martin Hanford Company
MGO	Management Oversight (subteam)
OPN	Operations (subteam)
ORP	Office of River Protection
PA	Performance Agreement
PHA	Process Hazards Analysis
PHMC	Project Hanford Management Contract

LIST OF ACRONYMS AND INITIALISMS (Continued)

PHR	Preliminary Hazards Review
POD	Plan of the Day
QA	quality assurance
RL	Richland Operations Office
SAR	Safety Analysis Report
SME	subject matter expert
SST	single-shell tank
RPP	River Protection Project
RWP	Radiological Work Permit
TSR	Technical Safety Requirement
TWRS	Tank Waste Remediation System
UCNI	Unclassified Controlled Nuclear Information
USQ	Unreviewed Safety Question
USQD	Unreviewed Safety Question Determination
WCP	Work Control Permit

1. INTRODUCTION/BACKGROUND

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

The RPP mission is to store, retrieve, treat, immobilize, and dispose of the high-level tank waste in a safe, environmentally sound, and cost-effective manner. Waste will be separated into high-level waste (HLW) and low-level waste (LLW) fractions. The LLW will be immobilized and disposed of onsite. The HLW will be immobilized for disposal in an offsite federal repository. The RPP operates the Department's largest tank farm, which includes 55 million gallons of HLW in 177 underground storage tanks. This equates to about 200 million curies of radioactivity. Sixty-eight of the single-shell tanks (SSTs) are suspected to have leaked into the soil. The removal of the remaining wastes is hindered by the persistence of flammable gas, organic solvents, hazardous chemicals, and in-tank quantities of fissile material sufficient for criticality. To meet Richland Operations Office (RL) Radioactive Tank Waste Goal of the Department's 10-Year Plan, all tank safety issues must be resolved by 2001. By 2006, waste removal will be initiated on 10 SSTs and all tanks will have to be characterized to allow 6-13% of tank waste to be treated by a private contractor in 2006. The implementation of the RPP facility ISMS for the storage and retrieval mission is a crucial step in achieving these milestones at Hanford.

The RPP facilities represent one of two Defense Nuclear Facilities Safety Board (DNFSB) 95-2 priority facilities at Hanford. Both facilities are under the scope of the Project Hanford Management Contract (PHMC) managed by Fluor Daniel Hanford, Inc. The Project Hanford Management Contract Integrated Environment, Safety, and Health Management System Plan (HNF-MP-003) represents the safety management system documentation required by DOE Acquisition Regulations (DEAR) clause 970.5204-2 for the PHMC and 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. These contractual requirements, including FY-1999 Performance Agreement (PA) 5.1.2, represented the Contracting Officer's guidance as required by 970.5204-2. The PHMC was recently modified to incorporate the 970.5204-2 DEAR

* Formerly the Tank Waste Remediation System (TWRS).

clause and HNF-MP-003 is being revised accordingly. Additionally, an Integrated Safety Management System Description (ISM System Description) document was required to address documentation and implementation of the FDH ISMS plan at the facility level. The TWRS/RPP facility level system description document augments the HNF-MP-003 with facility specific polices, procedures, etc.

The RL conducted an ISMS Phase I Verification of the TWRS from September 28-October 9, 1998. The resulting verification report recommended that TWRS-RL and the contractor proceed with Phase II of ISMS verification given that the concerns identified from the Phase I verification review are incorporated into the Phase II implementation plan.

2. PURPOSE

The purpose of this review is to verify the implementation status of the ISMS for the RPP facilities managed by FDH and operated by Lockheed Martin Hanford Company (LMHC). This review will also ascertain whether within RPP facilities and 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 RPP life cycle. The RPP ISMS should support the Hanford Strategic Plan (DOE/RL-96-92) to safely clean up and manage the site's legacy waste and 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 Verification (ISMSV) DOE Team Leader's Handbook.

3. SCOPE

The scope of this review is associated with the RPP and operations conducted by LMHC (and its lower tiered subcontractors) and managed by FDH. This review does not address the RPP privatization contractor (e.g., British Nuclear Fuel Limited, Inc.) activities but covers the interfaces between that contractor and the RPP. In response to the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (PL-105-261), the DOE Office of River Protection (ORP), which is responsible for the RPP workscope, is currently transitioning many of the DOE business processes that were reviewed in the Phase I Verification. Despite this transition the ORP Assistant Manager for Storage and Retrieval (AMSR) and Management System Office organizations will participate in the Phase II Verification in support of the contractor's implementation of ISMS.

As directed in the Verification Team leader letter of appointment, the results of the Line Management Readiness Review, as well as a number of ORP AMSR Management Assessments that were recently conducted, will be considered to avoid unnecessary duplication by reducing the scope of the ISMS review.

The primary objectives of this Phase II verification will be to

a. Assess whether ISMS is adequately "institutionalized" in contractor organizations at the facility and activity level.

b. Assess ISMS implementation progress of the DOE ORP.

c. Determine whether the contractor is meeting the requirements of DEAR clauses 970.5204-2, "Integration of environment, safety, and health into work planning and execution," and 970.5204-78, "Laws, regulations, and DOE directives," as established in the acceptance criteria for this ISMS Phase II verification.

The secondary objectives of the review are to

a. Determine whether the schedule for completion of the remaining identified gaps given in the Contractor Corrective Action Plan is acceptable.

b. Determine whether any of the remaining gaps require closure as a prerequisite to completing the implementation of ISMS in the RPP facilities. In making this determination, the team should consider which remaining gaps represent deficiencies and which represent improvements. The team should make any recommendations deemed appropriate with respect to follow-up review actions and confirm closure of deficiencies post the Phase II verification.

c. Develop lessons learned from this verification effort to improve the effectiveness of future ISMS reviews at Hanford.

d. 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 PHMC facilities. The FEB performs an independent assessment function for FDH.

This review is intended to be an evaluation of the adequacy of implementation of the ISM System Description at the facility and activity level and will include a general evaluation of the training and knowledge of management and staff with respect to the ISMS principles, functions, mechanisms, and responsibilities.

4. PREREQUISITES

The DOE's overall judgement of acceptability to proceed with the RPP Phase II Verification will be based on the following:

a. Compliance with the requirements of the PHMC DEAR clause H.5.E (DEAR 970.5202-2) is substantially demonstrated.

b. 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 a sizeable portion of the ISM System Description would be required.

5. OVERALL APPROACH

The ISMS Phase II Verification Team will evaluate the implementation of the ISM System Description, supporting procedures and processes, corrective actions from the gap analysis, 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 as to whether the implemented ISM System Description will achieve the overall objective of Integrated Safety Management (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 areas of Management, Hazard Identification, and Standard Selection and Operations, and the subject areas of Radiological Controls, Fire Protection, and Maintenance and Work Control. The major focus of this review will be the integration of hazard work controls at the activity level. Within the subject area of Maintenance and Work Control the management of configuration management and chemical, electrical, and waste stream hazards will be assessed. Additionally, ORP will be assessed to determine the extent to which DOE meets its ISMS responsibilities.

As allowed by the Verification Team Leader letter of appointment provided in Appendix A, the subject area of training relative to personnel competence will not be assessed as part of this review due to the minimum number of issues identified within the results of the ORP Line Management Readiness Review. However, training relative to the ISMS will be reviewed as part of management review and competence will be reviewed within each focus area.

The RPP review will be conducted using subteams as defined in Section 7. The Verification Team membership and team member biographies are provided in Appendix B. The Verification Team will conduct the review using the Criteria and Review Approach Documents (CRADs) provided in Appendix C.

Sequence of Activities

The first step in the ISMS Phase II verification 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/LMHC, 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 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 Hanford 2 weeks prior to the start of the Phase II review. At this time, the Verification Team will also receive ISMS presentations and briefings by DOE-ORP and FDH/LMHC.

The actual Phase II review will be concluded during a 2-week period following the orientation and training week. The first week 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 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, LMHC, and DOE 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 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 DOE-RL and/or the DOE-ORP Manager or senior FDH and/or LHMC management, will be clearly identified within the Assessment Form. In addition, good practices and strengths of the ISMS will be identified as Noteworthy Practices.

A final report to be issued at the end of the second 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 ORP 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 of this review plan. The format and contents of the report are described in Section 9.

6. PREPARATIONS

Preparations for the Phase II review will focus on two areas. The first 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, LMHC, and ORP in gaining an understanding of the review process to most effectively present their ISM System Description implementation to the Verification Team.

6.1 Phase II Team Preparations

Efforts to prepare the Verification Team to conduct the Phase II review will include training led by the Team Leader on the relevant DEAR clauses as discussed in Section 5.2. 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. Also, the discussion will include thoughts on tailoring methods for the review to increase confidence that the review results will reflect the implementation of ISMS across the RPP. Verification Team members will be provided with relevant documents (e.g., Phase I Verification Report, ISM System Description, Line Management Readiness Review, etc.) to be read before the review is conducted. Finally, the Verification Team will receive presentations and briefings to ensure an understanding of the FDH/LMHC ISM System Description and the mechanisms used in the execution of that system. In addition, the Verification Team will receive presentations and briefings from ORP relative to the DOE directives and guidance and the safety management Functions, Responsibilities, and Authorities Manual (FRAM). The review will verify that the responsibilities, activities, and processes of the ORP staff are adequately described and the results are integrated into the contractor's ISMS.

6.2 FDH/LMHC and ORP Preparations

The responsible FDH/LMHC and ORP Managers will present their procedures and processes used in the execution of ISMS. It is important, therefore, that the individual managers have an understanding of the Verification Team and DOE-RL and DOE-ORP expectations for ISMS and the commitments and processes that are provided in the contractor's ISMS.

The briefings will consist of FDH/LMHC and ORP 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 contractor and DOE. At the conclusion of the presentations, the Phase II Verification 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.

FDH/LMHC and ORP should use these lists to schedule activities and interviews during the first week of the review.

7. PROCESS FOR ISMS REVIEW

As described in Section 5, the review will be conducted using the CRADs. The CRADs for the review are included as Appendix C of this review plan. The CRADs are identified by functional area. The four functional areas correspond to the four Verification Team subteams:

a. DOE-ORP (DOE)

b. Hazards Identification and Standard Selection (HAZ)

c. Management Oversight (MGO)

d. Operations (OPN)

Radiological Controls (SME RC)
Fire Protection (SME FP)
Maintenance and Work Control (SME WP)

The DOE-ORP functional area subteam is tasked to review the DOE management of mission programs and certain key ISMS functions. The specific areas to be evaluated by the DOE subteam include operations authorization and oversight.

The Hazards Identification and Standard Selection functional area subteam will address the ORP and FDH/LMHC processes for ISMS relating to hazard analysis and the processes related to the identification of safety standards and requirements and the tailoring of controls to the work being performed. This subteam, in cooperation with the Operations Team, will review the processes and procedures for operations and maintenance work. In addition, this subteam will review line management responsibilities and feedback as they relate to hazard identification and standard selection.

The Hazards Identification and Standard Selection functional area subteam will also evaluate the Maintenance and Work Control subject area CRAD with a focus on configuration management, and electrical, chemical, and waste stream hazards.

The Management Oversight functional area subteam will address the definition and prioritization of work and that the contractor roles and responsibilities (specifically, line management responsibilities) are documented and are included within the five core functions. In addition, the Management Oversight functional area will review the feedback and improvement functions including the contractor's quality assurance program.

The Operations functional area subteam will 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. The Operations functional area subteam will also evaluate the Radiological Controls and Fire Protection subject areas. The specific disciplines of Radiological Controls and Fire Protection will be evaluated using the subject matter expert (SME) CRADs. The Operations Team in conjunction with the Hazards Team will review the processes and procedures for operation and maintenance work.

An important part of the evaluation of the implementation of the ISMS 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. ADMINISTRATION

8.1 Meetings and Presentations

The first phase of the review will include presentations by FDH/LMHC and DOE 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 FDH/LMHC and DOE 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 RPP Phase II Verification will be an open process with the goal of maximizing the opportunity to achieve a full understanding of the implementation of ISMS. To achieve the level of openness and coordination that is desired, the Verification Team will meet daily to discuss observations and issues. FDH, LMHC, and ORP personnel are invited, in limited numbers, to attend these team meetings as observers. The Team Leader and Advisor will meet as necessary with senior FDH, LMHC, and DOE management to ensure that they are fully informed of the progress and issues during the verification review.

Following the review portion of the ISMS Phase II Verification, the Team Leader will conduct a briefing with senior FDH, LMHC, 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 practices that are observed during the review.

8.2 Documentation of the ISMS Phase II Verification

The ISMS Phase II Verification will be guided by the criteria in the CRADs. The documentation will be structured in a manner to show that 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 schedule for the verification 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. In the event that issues of noteworthy or questionable practices are identified, they will be documented within the Assessment Form. If the final report to the Approval Authority recommends actions for FDH, LMHC, or DOE, 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 (UCNI).

The lessons learned from this ISMS verification are particularly important for future reviews at Hanford and across the complex. Verification Team members will draft lessons-learned inputs and provide those inputs to the Team Leader such that the lessons learned will be included in the final report.

8.3 Team Composition and Organization

The ISMS Phase II Verification 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 RPP Phase II Verification. Specifically the FEB will provide a subteam leader, four team members, and administrative support. The FEB previously participated in other ISMS verifications as observers to gain ISMS verification experience such that they could support future Hanford verifications. The FEB will participate in the RPP Phase II verification as Verification Team Members in a capacity that does not conflict with their normal functions under the PHMC. The PHMC ISMS Guiding Principle 9 emphasizes the importance of effective internal and external communication on ES&H matters. Therefore, the DOE ORP invited the Hanford Advisory Board (HAB)to provide an observer for this Phase II ISMS Verification. Joe Richards is the HAB 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 ISMS Phase II review, including the Verification Team training.

9. FINAL REPORT FORMAT

At the completion of the review, the Verification Team will prepare a report. The report will include a status of implementation of the 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 requirements of the Approval Authority as specified in the guidance to the contractor. The report will also address all of the objectives identified in Section 3 and include any recommended actions that the Verification Team considers necessary or desirable to ensure work is performed safely.

The report of the verification 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 UCNI in the report. The Team Leader will ensure that the final report is appropriately controlled and reviewed for classified information or UCNI 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 appendixes.

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 practices (strengths) identified during the review.

5. **Introduction**- Includes the overall objectives of the evaluation, the review process and methodologies used in the review, and the team composition.

6. **Purpose** - Includes the purpose of the verification review.

7. **Background** - A general discussion of the facility and the state of maturity of the safety management programs.

8. **Scope** - Includes 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 Implementation of RPP 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. In addition, the section will 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 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** - Will address the status of implementation of RPP ISMS at Hanford. It will further provide information about the adequacy of supporting program and process documents and the planned ISMS improvement plans. Additionally, the conclusion will include the ORP role in the ISM process and the effectiveness of ORP input.

12. **Lessons Learned** - Will discuss lessons learned associated with the ISMS Phase II Verification process as well as with the development and implementation of an ISMS.

b. VOLUME II - Will contain the Assessment Forms (Form 1), Review Plan, and CRADs.

10. SCHEDULE

For planning purposes, the projected schedule for the RPP ISMS Phase II Verification is as follows:

a. Orientation

Date	Topic
July 26, 1999	Introduction/team logistics DOE-ORP Manager presentation Team orientation ISMS training/executive course ORP ISMS presentations Required reading
July 27, 1999	FDH/LMHC ISMS presentations Required reading

Date	Topic
July 28, 1999	Team members meet counterparts Discuss CRAD approaches Plan logistics Make final changes to CRAD approaches Finalize Review Plan Complete HGET training
July 29, 1999	Sign Review Plan Complete and sign qualification forms Provide FDH/LMHC final list of documents/records to be reviewed Prospective interview list Meetings to attend Operations/activities to observe Finalize verification logistics

b. Verification

Date	Topic
August 9, 1999	Office setup Verification Team meeting Documentation Review Observe operations
August 10-12, 1999	Documentation review Observe operations Team meeting
August 13, 1999	Complete documentation review Conduct interviews Observe operations Team meeting
August 14-15, 1999	Individual team member work as required
August 16-19, 1999	Report preparation
August 20, 1999	Managers ISMS Verification presentation

Appendix A

Team Leader Letter of Appointment

TWRS

RL-675 (03/99)

United States Government **Department of Energy**

memorandum

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99 JUN 28 PM 12:07
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Office of River Protection

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DATE: JUN 2 4 1999

REPLY TO ATTN OF: TSD:DLC/99-TSD-067

SUBJECT: MEMORANDUM OF APPOINTMENT AS INTEGRATED SAFETY MANAGEMENT SYSTEM PHASE II VERIFICATION (ISMSV-II) TEAM LEADER FOR THE RIVER PROTECTION PROJECT (RPP) FACILITIES

TO: Charles A. Hansen, Assistant Manager
for Material and Facility Stabilization
Savannah River Operations Office

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 ISMSV-II for the RPP facilities as discussed herein.

1.0 Description of Facility/Activity: This review will verify the status of the ISMS for the RPP facilities managed by Fluor Daniel Hanford, Inc. (FDH) and operated by Lockheed Martin Hanford Company at Hanford.

2.0 Background and History: The RPP facilities, previously referred to as the Tank Waste Remediation System (TWRS) facilities, represent one of two Defense Nuclear Facilities Safety Board 95-2 priority facilities at Hanford, both of which are 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 DOE Acquisition Regulations (DEAR) clause 970.5204-2 for the PHMC, and has been approved by DOE Richland Operations Office (RL) based upon a review against the existing 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 and HNF-MP-003 is being revised accordingly. Additionally, an ISMS Description document was required to address documentation and implementation of the FDH ISMS Plan at the facility level. The TWRS/RPP facility level system description document augments the HNF-MP-003 with facility specific policies, procedures, etc. These contractual requirements, including Fiscal Year (FY) 1999 Performance Agreement 5.1.2, represent the Contracting Officer's guidance, as required by 970.5204-2.

RL conducted an ISMS Phase I Verification of the TWRS facility from September 28 to October 9, 1998. The resulting verification report recommended that RL TWRS and the Contractor proceed with Phase II of Integrated Safety Management (ISM) given that the concerns identified from the verification review are incorporated into the ISMSV-II Implementation Plan.

3.0 Scope and Special Considerations for the ISMSV-II: The purpose of this review is to verify that RPP facility-specific ISMS description and associated plans, manuals, and procedures verified in ISMS Phase I Verification are adequately implemented at the facility and activity level.

3.1 The primary objectives of this ISMSV-II will be to:

a. Assess whether ISMS is adequately "institutionalized" in contractor organizations at the facility and activity level.

b. Assess ISMS implementation progress of the DOE Office of River Protection (ORP).

c. Determine whether the contractor is meeting the Acceptance Criteria established for the ISMSV-II (Section 5).

ORP is currently transitioning many of the business processes that were reviewed in the ISMS Phase I Verification in response to the Strom Thurmond National Defense Authorization Act for FY 1999 (PL-105-261). However, the ORP Assistant Manager for Tank Waste Storage and Retrieval (AMSR) and Management Systems Office organizations will participate in the ISMSV-II in support of the Contractor's implementation of ISMS. ORP is committed to having ISMS fully implemented by the end of FY 2000.

3.2 Secondary objectives of the review are to:

a. Determine whether the schedule for completion of the remaining identified gaps given in the Contractor Corrective Action Plan is acceptable.

b. Determine whether any of the remaining gaps require closure as a prerequisite to completing the ISMSV-II for the RPP facilities. In making this determination, the team should consider which remaining gaps represent deficiencies and which represent improvements. The team should make any recommendations deemed appropriate with respect to follow-up review actions and confirm closure of deficiencies post the ISMSV-II.

c. Develop lessons learned from this verification effort, to improve the effectiveness of future ISMS reviews at Hanford.

d. As possible, utilize members of the FDH Facility Evaluation Board (FEB) to allow FDH to develop a capability to evaluate implementation of ISMS at other PHMC facilities. The FEB performs an independent assessment function for FDH. The FEB participated in the ISMS Phase I Verification as observers in order to gain ISMS verification experience to support future PHMC verifications. The FEB will participate on the ISMSV-II as team members in a capacity that won't conflict with their normal functions under the PHMC. The FEB will provide a sub-team lead and team members.

This review is intended to be an evaluation of adequacy of implementation at the facility and activity level and should provide an evaluation of the training and knowledge of management and staff with respect to the principles and requirements of ISM.

4.0 Desired Deliverables from the Review: The ISMSV-II Team should document the review with a report written in accordance with the guidance given in the "Integrated Safety Management System Verification Team Leader's Handbook," dated March 1999. The report should address all of the objectives identified above, and include any recommended actions, which the ISMSV-II Team considers necessary or desirable to ensure work is done safely.

5.0 ORP Acceptance Criteria

While the ISMS verification process will undoubtedly identify some deficiencies or "opportunities for improvement," as well as some noteworthy practices, ORP's overall judgement of acceptability to proceed with the PHMC Phase II Verification will be based on the following:

DEAR Clause Compliance

- Compliance with the requirements of the PHMC DEAR clause H.5.E (DEAR 970.5202-2) has been substantially demonstrated.

Impact of Deficiencies/Corrective Actions on the ISMS

- Corrective actions with known deficiencies will not require or result in changes to the ISMS System Description and related policies, plans, procedures, and products to the extent that significant re-review of a sizeable portion of the ISM System Description would be required.

6.0 Stakeholder Observation of the ISMSV-II: ORP has invited the Hanford Advisory Board (HAB) to observe in the ISMSV-II as observers to the verification review. Joe Richards of the Confederated Tribes of the Umatilla Indian Reservation will be representing the HAB. Mr. Richards is the ISMS Issues Manager for the Health, Safety, and Waste Management Committee of the HAB.

7.0 Reviews which Reduce the Scope of the ISMSV-II: A Line Management Readiness Review, as well as a member of ORP AMSR Management Assessments, were recently conducted by ORP and should be considered for the potential to reduce the scope of ISMS reviews, and avoid unnecessary duplication.

8.0 ISMSV-II Point-of-Contact (POC): The ORP POC for the ISMSV-II is Diane Clark. She can be reached on (509) 376-7557.

9.0 Information for the Cognizant Secretarial Officer (CSO): A copy of this Memorandum of Appointment is forwarded to the responsible CSO, James M. Owendoff, EM-1, DOE Headquarters for information. Please provide him copies of both the Review Plan and the final report for the ISMSV-II at RPP.

Thank you for your willingness to assist in the conduct of this review.

Keith A. Klein, Manager
Richland Operations Office

for Jackson Kinzer

Richard T. French, Manager
Office of River Protection

cc: R. C. Crowe, DP-20
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Appendix B

Team Membership and Team Member Biographies

TEAM ASSIGNMENTS

Team Leader	Charles A. Hansen
Senior Advisor	Wayne Rickman
Report Coordinator	Margaret Droddy
Technical Editor	Margo Barron
DOE-ORP	Michael Mikolanis Lina Pacheco
Hazards	Doug Shoop Michael Gaden Steve Pfaff
Management	Mark Steelman Bill Smoot Carrie Swafford-Chube
Operations	Phillip Giles, Jr. Steve Pfaff
SME Fire Protection	John Held
SME Maintenance and Work Control	Mike Silvia John Held
SME Radiological Controls	David Hyder

Team Member Biographies

Charles A. Hansen, Team Leader, is the Assistant Manager for Nuclear Materials and Facilities Stabilization, at the Savannah River Operations Office, with responsibility for managing a $400 million per year program for stabilization and storage of nuclear materials including spent nuclear fuel from foreign countries. Previously Mr. Hansen was Assistant Manager for Waste Management reporting to the Manager, Richland Operations Office, with line responsibility for $300 million per year in projects involving the safe storage, treatment, and disposal of large amounts of spent nuclear fuel, hazardous waste, mixed waste, and transuranic waste and for safe and effective operation of 15 active nuclear facilities.

Mr. Hansen has 32 years of experience in commercial nuclear service business, naval nuclear public and commercial shipyards, and DOE defense nuclear facilities. He has directed research and development, equipment and process design, software development, and major nuclear project construction. As a successful business product line manager and federal program and project manager, Mr. Hansen has direct experience in managing cost plus and fixed-price contracts in both roles. Mr. Hansen is a licensed Professional Engineer with a B.S. degree in Chemical Engineering. He has worked extensively with regulators, customers, and citizen advisory boards and has represented DOE frequently in professional and public meetings and with local and national news media.

At the Richland Operations Office, Mr. Hansen directed technology development, design, and construction of a $1.5 billion project for the dry storage of 2100 metric tons of highly corroded metallic uranium spent nuclear fuel. He also managed a $150 million per year waste management operation, including a high-level waste evaporator, startup of two low-level radioactive liquid waste facilities, high-level waste analytical services, low-level radioactive and cold chemical analysis services, storage of mixed and transuranic waste, and operation of low-level burial grounds.

From 1987 to 1995 Mr. Hansen served as Manager, Special Programs, for B&W Nuclear Technologies, responsible for two product lines involving chemical cleaning for commercial nuclear utility reactor plant components, and fiberoptic and ultrasonic inspection of Navy nuclear reactor plant components. He created a new service product line for chemistry and chemical engineering, including major chemical process and waste disposal systems, corrosion product samplers and chemistry analyzers, and on-line chemistry monitoring software and data acquisition hardware. He directed design, construction, and commissioning of a commercial radioactive repair facility in Lynchburg, Virginia.

From 1977 to 1987, as a Senior Naval Reactors Representative for the DOE, Mr. Hansen directed operations of DOE field offices reporting directly to Admiral H. G. Rickover and later to Admiral K. R. McKee, Director Naval Nuclear Propulsion Program. Responsibilities included directing and coordinating the efforts of Navy operations personnel, shipyard engineers and craft labor, reactor plant prime contractor personnel, and Navy contracts and quality assurance personnel.

For several years, Mr. Hansen completed multiple assignments with DOE Naval Reactors Headquarters. Trained as DOE field office head at Mare Island Naval Shipyard in Vallejo, California, Mr. Hansen approved test and refueling procedures and control documents for test and refueling operations. He completed a master's degree level training program in nuclear engineering at Westinghouse Bettis Atomic Power Laboratory. Other assignments included serving as headquarters project engineer for chemistry control programs, project engineer for three land-based prototype propulsion plants involved in training Navy operators. These assignments involved planning maintenance and training schedules, performing root-cause analysis for incidents, identifying trends, and following corrective actions to completion.

Margo Barron is the Technical Editor for the Technical Support Division in the Office of River Protection. Ms. Barron has over 25 years of experience in the nuclear industry as a technical editor and licensing analyst. She has provided project management and support for updated Final Safety Analysis Reports (FSARs) for commercial nuclear power plants. Ms. Barron was a principal participant on a project team that prepared original FSAR sections for the High Flux Isotope Reactor (HFIR) for Oak Ridge National Laboratory to comply with DOE Order 5480.23. For several years, Ms. Barron supported Sandia National Laboratories and the Office of Regulatory Development at DOE Headquarters on nuclear regulatory matters for the advanced light water reactor program. Ms. Barron provided technical editing in preparation of nuclear power plant submittals to the Nuclear Regulatory Commission (NRC) for license amendments, license renewal topical reports, and decommissioning plans.

Margaret Droddy is Associate with EnergX contracted as a Technical Editor and Specialist for the Fluor Daniel Hanford, Inc., Facility Evaluation Board. Ms. Droddy 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. Droddy 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.

Michael D. Gaden has 8 years experience in the DOE weapons complex in developing innovative solutions to deep-rooted problems. He has an additional 15 years experience in commercial nuclear power as a management consultant, licensing engineer, and nuclear engineer. Mr. Gaden began his career with 10 years in the U.S. Navy, first as an enlisted electronics technician, then as a nuclear-trained officer in the surface fleet. As a Senior Consultant at the DOE Hanford weapons facility, he is participating in the development of the Requirements Management program for Fluor-Daniel Hanford, Inc., at the DOE Hanford site. This includes developing the Requirements Management Process and interfaces with the ISMS, the existing Hanford procedures, and the DOE processes.

He served as an important team member in the development of the DOE-mandated ISMS for Rocky Flats. This included developing the requirements manual, developing training and materials, training personnel, and interacting with the DOE Verification Team during the verification process. The team accomplished ISMS Phase I verification in a little over 1 year.

He taught and facilitated the Activity Control Envelope (ACE) Development process for remediation of the source term in trench T-1 and for high-level plutonium solution transfer at Rocky Flats. The ACE is a team-based approach to developing a necessary and sufficient set of standards for an activity.

Mr. Gaden conducted the engineering portion of the Facilities Evaluation Board for the Tank Waste Remediation Systems at Hanford, a performance-based independent assessment of the facility. In addition, Mr. Gaden evaluated and developed infrastructure for ISM, maintenance programs, criticality safety programs, management systems, and various other infrastructure systems at Rocky Flats.

As a Professional Engineer, Nuclear Engineering since 1979 (Texas and Ohio), Mr. Gaden has engineering experience in nuclear licensing, nuclear/mechanical systems, nuclear safety analysis, radiological controls, and control systems.

He has performed diagnostics and implemented corrective actions for management systems at RFETS, Hanford, and in various troubled nuclear power plants.

Mr. Gaden reengineered systems and processes at TU Electric's Comanche Peak Nuclear Generating Station. He also served in a licensing engineer capacity at various commercial nuclear power plants.

Mr. Gaden has a B.S. in Nuclear Engineering from the University of Oklahoma and an M.B.A. in Management from the University of Houston. He is a qualified Myers-Briggs Type Indicator practitioner and is a member of the Association for Psychological Type (APT).

Phillip Giles, Jr., holds a B.S. degree in Nuclear Engineering from the Mississippi State University and an M.S. in Hazardous and Waste Material Management from Southern Methodist University. He has 20 years of experience in the nuclear industry. The first 10 years were spent in the commercial nuclear industry working with boiling water reactors at Browns Ferry and Grand Gulf Nuclear Stations. At Browns Ferry, he served both as reactor engineer and refueling engineer. At Grand Gulf, Mr. Giles served as startup engineer, plant performance engineer, and certified as Shift Technical Advisor. Also, he served as a member of the Independent Safety Engineering Group (ISEG) that performed NRC style safety system functional assessment. The remaining 10 years have been with the Department of Energy at the Savannah River Site (SR). Mr. Giles has worked as a Facility Representative (FR) and Senior Facility Representative in various facilities at SR. During the first 7 years at SR, Mr. Giles served as FR in the Separations Division for the following facilities: HB Line, RBOF, H-Canyon, F-Canyon, and 235F. For the last 4 years, Mr. Giles has served as Senior Facility Representative in the Spent Fuel

Management Division (SFMD). In SFMD, he has served the team lead for four FRs with oversight responsibility for K-Area Basin, L-Area Basin, Receiving Basin for Offsite Fuel (RBOF), Low Level Waste Vitrification Facility, Decontamination Facility, and decommissioning activities for the Fuel Fabrication Facility, R-Area Reactor, and P-Area Reactor.

As both a DOE and commercial nuclear industry employee, he has participated in team inspections and has direct responsibility in several different areas of nuclear plant operations. These areas included: Technical Specifications, safety evaluations, configuration management, safety analysis, project management and systems engineering, design engineering, conduct of operations, and conduct of maintenance. Additionally, Mr. Giles lead the EM-25 operation team for the DOE readiness assessment on Solid Waste Division and FB Line. The ISEG assessments represented a vertical review from design to operation of a particular safety system.

John 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 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 Hanford in 1992 where he was responsible for setting up the first 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 Hanford, 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 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 and participated in one Assist/Mentor visit to Hanford's Plutonium Finishing Plant.

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.

Michael Mikolanis is a Headquarters Issue Lead in the Office of the Departmental Representative to the DNFSB (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 14 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. He spent the last 4 years working in the DOE managing safety issues of interest to the DNFSB. 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.

Lina Pacheco is an Operations Project Manager in the DOE Office for River Protection managing interim stabilization and isolation of single-shell tanks, $177M in total project cost, for the 149 single-shell tank farm facility on the Hanford Reservation. Her responsibilities include (1) Technical Team Lead for path forward negotiations with the State of Washington in an effort to avoid a pending lawsuit for noncompliance with an established set of regulatory milestones, (2) manage and oversee contractor efforts to projectize a normal operating activity through the establishment of a bounding life-cycle technical scope, cost, and schedule project baseline; (3) establish a set of life cycle milestones and contractor performance measures; and (4) ensure sufficient management controls are in place to effectively manage, progress, and execute the project baseline.

Prior to her present assignment Ms. Pacheco was Construction Project Manager for Richland Operations responsible for managing a major ventilation upgrade, $47.9 million in total project cost, for numerous high-level radioactive liquid waste tanks on the Hanford Reservation She served as Project Manager through the design, construction, and startup of the associated structures, systems, and components. Responsibilities included management and contractor oversight of the project cost, schedule, and technical baseline execution, resource and requirements integration with other ongoing tank farm subprojects and key focal point for State and external regulatory interface.

Previously Ms. Pacheco was Lead Project Engineer for all general plant projects within the Tank Waste Remediation System. This included near-term projects that were conceptualized and completed within a short time frame.

As an intern to the Richland Operations Office, Ms. Pacheco's first assignment included rotation through a number of positions with the onsite architect engineer (Kaiser Engineers Hanford) and the maintenance and operations contractor (Westinghouse Hanford Company). These positions included the design, estimating, scheduling, and field engineering areas.

Ms. Pacheco has a B.S. degree in Electrical Engineering from New Mexico State University. She is currently pursuing an M.S. in Electrical Engineering specializing in power distribution and distributive control systems at Washington State University

Steve Pfaff is a Senior Facility Representative for the Tank Farm Oversight Division in the Office of River Protection. Mr. Pfaff has 16 years of experience in the nuclear industry including 9 years as a nuclear trained naval officer and 7 years as a DOE Facility Representative. Mr. Pfaff holds a B.S. degree in Business Administration and Naval Science from Oregon State University with a minor in Science. During his tenure in the Navy, he qualified on and operated the D2G and A4W nuclear propulsion plants. He further qualified as a prospective chief engineer on the D2G plant. Mr. Pfaff spent his final 2 years of active duty instructing new naval officers in combat systems and shiphandling, while serving as the project manager for computerized ship simulators. In 1993, Mr. Pfaff qualified as a DOE Facility Representative at the Rocky Flats Site Plutonium Analytical Laboratory, Building 559, and later served as the senior facility

representative in the Plutonium Recovery Facility, Building 771. Mr. Pfaff transferred to the Hanford Site in 1994, requalified as a facility representative, qualified as a NQA-1 Lead Auditor, and has performed many routine and special assessments of tank farm operations.

Wayne Rickman is presently employed as a Principal Analyst and Senior Vice President of Nuclear Operations for Sonalysts Inc. He has more than 30 years of operational experience in the Naval Nuclear Propulsion (submarine) Program, achieving the rank of Rear Admiral (RADM).

In his current assignment Mr. Rickman, supports the DOE in the verification of the Integrated Safety Management System in the complex. He participated in the reviews at Savannah River Site (SRS), including FB Line, and DWPF facilities at Rocky Flats twice, Waste Isolation Pilot Plant (WIPP), Oak Ridge Y-12, Tank Farms at Hanford, and a Site review at INEEL, Idaho. Mr. Rickman served as a senior nuclear advisor for the Operational Readiness Reviews (ORRs) for Building 707 and Tank Draining in Building 771 at Rocky Flats. Additionally he served as a senior nuclear advisor for eight ORRs at Savannah River Site including F-Canyon (2), FB Line, H Canyon, HB Line, Replacement Tritium Facility, In-Tank Processing Facility, and the Defense Waste Processing Facility. During the ORR for Building 559 at Rocky Flats, Mr. Rickman participated as the training and management systems group leader. He was involved in the internal briefings within DOE and to the DNFSB and participated in the any public hearings concerning ORRs for those facilities.

Mr. Rickman served as a mentor for Los Alamos National Laboratory for more than 2 years. In particular, he helped the head of facilities in the implementation of a facility management system. He also served as a member of the Operations Improvement Panel at Pacific Northwest National Laboratory. This operations panel monitored and made recommendations for improvements in environment, safety, and health (ES&H) and conduct of operations areas of the laboratory.

Mr. Rickman provided management and training support to the Consolidated Incinerator Facility at SRS as a senior industrial consultant. He helped in the preparation of the operators' qualification standard. He also prepared a readiness verification procedure and helped in the execution of that procedure to ensure facility operational readiness. This procedure allowed the contractor and DOE ORR to be conducted in parallel. Mr. Rickman was the technical director for the DOE operator's certification program for K reactor operators as part of the K reactor restart program at SRS.

While in the Navy, RADM Rickman was involved in the training and qualification of personnel in the Naval Nuclear Propulsion and the Naval Nuclear Weapons Programs. He served as commanding officer of two submarines, including a Trident submarine with the Navy's largest and newest submerged power reactor and the Trident C-4 weapons' system. In addition, Mr. Rickman served as a Deputy Commander for training for a submarine squadron where he directed, monitored, and evaluated the training and qualification of submarine crews in operations of nuclear reactors and nuclear weapons. He also served as special assistant to the

Director, Naval Nuclear Propulsion Program, where he was responsible for the selection, qualification, training, and assignment of personnel who supervise, operate, and maintain naval nuclear propulsion plants. Mr. Rickman's last assignment as a Rear Admiral was the Flag Officer responsible for training in the Atlantic fleet. He was responsible for 14 diverse training organizations with 2000 instructors in more than 650 courses and a throughput of 175,000 students per year.

Doug Shoop is employed by the DOE Richland Operations Office (DOE-RL) as a Senior Technical Advisor for Integrated Safety Management and Occupational Safety and Health. Mr. Shoop holds a B.S. degree in Medical Microbiology and an M.S. degree in Industrial Hygiene. He is a Certified Industrial Hygienist and has worked in the nuclear industry for over 10 years. Prior to his employment with DOE, Mr. Shoop was employed by Fluor Daniel Hanford, Inc., and Westinghouse Hanford Company as an Occupational Health manager. In addition to his normal responsibilities as the Occupational Health Manager, Mr. Shoop also served as a team lead for the development of the Project Hanford Management Contract (PHMC) Integrated Environment, Safety and Health Management System Plan, initiated and lead the Hanford Enhanced Work Planning effort, managed the development of the Automated Job Hazard Analysis and served as the Interpretative Authority for all PHMC Occupational Safety and Health Standards/Requirements Identification Documents (S/RIDs). Mr. Shoop also led the development and implementation of the Hanford Occupational Health Process for FDH, coordinated the Hanford Chemical Safety Vulnerability Study, in collaboration with personnel from DOE-RL led the investigation of the Emergency Response to the May 14, 1997 explosion at the Plutonium Reclamation Facility (PRF) and served as the PRF Incident Response Occupational Health/Medicine Team Leader. Prior to his employment at Hanford, Mr. Shoop was employed at the Idaho National Environmental Engineering Laboratory (INEEL) where he provided technical management of the Industrial Hygiene staff and programs associated with the characterization and remediation of hazardous waste sites, facility decontamination and decommissioning, and RCRA TSD operations. Prior to his employment at the INEEL, Mr. Shoop spent approximately 8 years conducting clinical research in collaboration with various universities and hospitals throughout the United States. He has authored 21 professional publications in internationally recognized scientific journals and had numerous abstracts accepted for presentation at national scientific meetings.

Mike 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 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.

Bill Smoot is the Senior Technical Advisor for Operations Startup reporting to the Assistant Manager for Waste Management, Richland Operations Office. He has over 30 years of 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 OSHA compliance program at Hanford. He has participated on two DOE-HQ site radiological control evaluations, one of which included decommissioning and decontamination activities, two 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 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 the coursework necessary for 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, 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

review at Rocky Flats. 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 and Spent Nuclear Fuel Project Engineering/Nuclear Safety Facility evaluation. 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.

Carrie Swafford-Chube is employed by the DOE Richland Operations Office as an Independent Oversight Specialist for the Performance Assessment Division. She oversees Contractor Independent and Self Assessment Programs. Ms. Swafford-Chube received a B.S. in Civil Engineering from Southern University Baton Rouge, Louisiana, in 1992 and is currently taking graduate courses at Washington State University Tri-Cities. She began her career at Hanford in 1994 as a Project Engineer in the Tank Waste Remediation Systems. Prior to Hanford Ms. Swafford-Chube was employed by the Illinois Department of Transportation as a Civil Engineer where she worked in both design and construction.

Ms. Swafford-Chube is a member of the DOE's Richland Operations Office ISM Development Team. She participated in the ISMSV at the Princeton Plasma Physics Lab as the Team Lead's Assistant. Ms. Swafford-Chube also participated in three audits and numerous assessments. She completed the Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements and Description Lead Auditor Training, DOE/RW-0333P, Revision 7, and the Carlsbad Area Office (CAO) Auditor and Lead Auditor Training.

Observer Biographies

Joseph Henry 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 DOE R/L and contractor ISMS activities, including participation as a member of DOE R/L'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."

Appendix C

ISMS Phase II Criteria and Review Approach Documents

Appendix C

ISMS Phase II Criteria and Review Approach Documents

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DOE ISMS IMPLEMENTATION (DOE)

OBJECTIVE

DOE.1 DOE ISMS procedures and mechanisms are utilized and should ensure that work is formally and appropriately authorized and performed safely. DOE line managers should be involved in the review of safety issues and concerns and should have an active role in authorizing and approving work and operations. (CE II-7)

Criteria

DOE procedures and/or mechanisms are in place and utilized that establish a process for confirming readiness and authorizing operations. (FRAM 9.5.1 and 9.5.2)

DOE procedures and/or mechanisms are utilized to ensure that the safety management system is properly implemented and line management oversight of the contractor's worker, public, environment, and facility protection programs is performed. (FRAM 9.5.2)

DOE procedures and/or mechanisms are utilized to require day-to-day operational oversight of contractor activities through Facility Representatives. (FRAM 9.5.2)

DOE procedures and/or mechanisms are utilized to ensure the implementation of quality assurance (QA) programs and ensure that contractors implement QA programs. (FRAM 9.5.3)

ORP interfaces with contractors and RL representatives are clearly identified, integrated, and utilized when defining work scope and performing work.

Approach

Record Review: Review the FRAM/FRA and DOE implementing guidance to determine that the process for the authorization and oversight of work is adequate. Verify that those DOE personnel assigned to perform these functions have clear roles and responsibilities. Determine if the oversight policy is balanced with risk and priority of mission. Review the QA program established by DOE and the interactions of that program with the contractors QA program. Verify DOE programs hold line management responsible for safety and contain clear roles and responsibilities.

Interviews: Discuss work authorization and performance activities with DOE and contractor personnel to determine if there are adequate mechanisms to ensure that work is properly authorized at all levels. Determine if worker safety is perceived as an integral part of the work authorization process and that workers are involved in issue resolution if appropriate. Discuss the oversight programs with DOE and contractor personnel. Discuss the Facility Representative (FR) programs with facility representatives and contractor personnel to determine if the FR program is effective. Discuss oversight programs with DOE staff who perform ES&H management and supervision assignments. During interviews, verify

understanding of line management responsibility for safety and understanding of clear roles and responsibilities.

Observations: Observe selected facility representative and DOE staff oversight activities.

OBJECTIVE

DOE.2 DOE ISMS procedures and mechanisms ensure that hazards are analyzed, controls are developed. DOE line managers are using these processes effectively, consistent with FRAM and FRA requirements. DOE personnel shall possess the experience, knowledge, skills and abilities that are necessary to discharge their responsibilities. (CE II-8)

Criteria

DOE processes and/or mechanisms are in place and utilized to ensure that the contractor's hazard analysis covers the hazards associated with the work and are sufficient for selecting standards. (FRAM 9.3.1)

DOE procedures and/or mechanisms are in place and utilized in which DOE directs the contractor to propose facility or activity-specific standards tailored to the work and the hazards. DOE procedures are in place and utilized that require that appropriate safety requirements in necessary functional areas are included in contracts. (FRAM 9.4.1)

DOE procedures and/or mechanisms are in place and utilized that direct DOE line manager oversight to ensure that implementation of hazards mitigation programs and controls are established. (FRAM 9.4.2)

DOE procedures and/or mechanisms are in place and utilized that direct the preparation of the authorization basis documentation and oversee the implementation by the contractor. Procedures for development, review, approval, maintenance, and utilization of Authorization Agreements are implemented. (FRAM 9.4.3)

DOE personnel who analyze hazards and identify adequate controls demonstrate and maintain competence that is commensurate with their responsibility.

ORP interfaces with contractors and RL representatives are clearly identified, integrated, and utilized when analyzing hazards and developing controls.

Approach

Record Review: Review the FRAM/FRA and DOE implementing guidance to determine that a process for ensuring that effective interfaces with the contractor's ISMS has been established. Review DOE procedures for ensuring that adequate provisions are included for verification that hazards are properly identified, analyzed, and categorized. Review the approved and in-process hazards analysis documentation to verify that contractor procedures and mechanisms have been properly reviewed and approved. Review DOE procedures that specify the process to be followed for the review and approval of standards and hazard controls. Ascertain that DOE has approved the process used by the contractor to tailor the selection of standards and requirements.

OBJECTIVE

DOE.4 DOE implements the ISMS Description/FRAM equivalent, DOE Policy 450.4, and the DEAR. The RL implementing mechanisms ensure that the ISM System Description is updated, maintained, and implemented and are sufficient to result in integrated safety management. (CE I-7, CE II-8)

Criteria

DOE practices and processes are consistent with procedures and policies.

DOE practices are consistent with the ISM System Description, DOE Policy, and the DEAR Requirements for Integrated Safety Management.

DOE evaluates and improves the effectiveness of the ISMS and the ISM System Description.

DOE demonstrates the ISMS is in place to direct, monitor, and verify the integrated implementation of ISMS in accordance with the ISM System Description. Implementation and integration expectations and mechanisms are evident throughout all organizational levels and across all organizations from the facility to the individual activities.

DOE ensures that the ORP ISM System Description/FRAM is maintained current.

Approach

Records Review: Review procedures and mechanisms for updating and maintenance of the ISM System Description. Review the procedures and mechanisms for the evaluation of system effectiveness.

Interviews: Interview personnel for updating the ISM System Description and those personnel that determine ISMS effectiveness. Determine the understanding and compliance to those processes and mechanisms.

Observations: None

Review the process used for the review, approval, and implementation of authorization basis documentation including authorization protocols and agreements.

Interviews: Interview selected DOE personnel responsible for the review and approval of the results of the contractor's identification, analysis, and categorization of hazards to assess their understanding of the procedures and the underlying principles and requirements. Interview DOE personnel responsible for the review and approval of the standard selection process including the approval of the authorization protocols and agreements

Observations: Observe the programs, processes, and mechanisms identified in practice.

DOE.3 DOE processes have been established and utilized that ensure that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process. DOE procedures and mechanisms ensure that feedback and improvement programs are in place and effective. DOE line managers are using these processes effectively, consistent with FRAM and FRA requirements. (CE II-8)

Criteria

DOE procedures and/or mechanisms require that contractors develop and utilize a lessons-learned program and monitor its implementation. A process is established and utilized for reviewing occurrence reports and approving proposed corrective action reports. A DOE process is established and effectively implemented to continuously improve efficiency and quality of operations. Corrective actions are developed, implemented, and tracked to profit from prior experience and the lessons learned.

DOE provides effective line oversight of the contractor's self-assessment programs. (FRAM 9.6.2)

DOE ensures that applicable opportunities for improvement and lessons learned are appropriately communicated to the work force.

DOE ensures that competence at the facility level and activity level is commensurate with the responsibilities to provide oversight, feedback, and continuous improvement.

DOE processes for priorities are balanced to ensure issues are managed for continuous improvement.

ORP interfaces with contractors and RL representatives are clearly identified, integrated, and utilized when analyzing hazards and developing controls.

Approach

Records Review: Review the DOE process established to provide line oversight of the contractor's self-assessment programs. Review DOE guidance to the contractor concerning the establishment of a lessons-learned program. Determine if the lessons learned between federal safety offices and offices of similar functions are appropriately integrated and shared. Evaluate the DOE issues management and tracking system to ensure that there is an adequate system in place.

Interviews: Interview DOE personnel responsible for administering the issues management program and those DOE line managers who provide oversight of the contractor's self-assessment programs.

Observations: Observe the programs, processes, and mechanisms identified in practice.

HAZARDS IDENTIFICATION AND STANDARD SELECTION (HAZ)

OBJECTIVE

HAZ.1 The full spectrum of hazards associated with the Scope of Work is identified, analyzed, and categorized including subcontract work. Hazards that are considered include nuclear, chemical, process, industrial, or others applicable to the work being considered. Those individuals responsible for the analysis of the environment, health, and safety hazards work closely with those personnel assigned to analyze the processes. (CE II-2)

Criteria

Procedures and/or mechanisms are in place and utilized by personnel to ensure hazards associated with the work, including subcontract work, throughout the facility have been identified and analyzed. The resulting documentation is defined, complete, and meets DOE expectations. The execution of these mechanisms ensure personnel responsible for the analysis of environment, health, and safety concerns work closely 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.

Procedures and/or mechanisms are in place and utilized by personnel that describe the 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. Workers are involved in the identification and determination of hazards.

Approach

Record Review: Review the documents that govern the conduct, review, and approval of facility or activity hazard analysis, including subcontract work, and documentation such as Process Hazards Analysis (PHA), Preliminary Hazards Review (PHR), Final Safety Analysis Report (FSAR), USQ Determinations, 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 Job Hazard Analysis (JHAs), and WCPs with the Operations and SME functional area reviewers. Determine worker involvement in job related hazard identification.

Interviews: Interview personnel responsible for the identification and analysis of work hazards. In nuclear facilities, for example, this should include personnel responsible for USQ determination, lock and tag preparation, procedure technical reviews, etc. Include personnel responsible for hazard analysis of subcontract work.

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 (USQD), preparation of a JHA, SAR/TSR, or Criticality Safety Evaluation, etc.

OBJECTIVE

HAZ.2 An integrated process has been established and is utilized 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 is established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace. (CE II-3)

Criteria

Procedures and/or mechanisms are in place and utilized to develop, review, approve and maintain current all elements of the facility authorization basis documentation.

Procedures and/or mechanisms that require line managers to identify and implement appropriate controls for mitigation of the hazards present within the facility or activity are in place and utilized by personnel. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE. These procedures or similar procedures exist and are utilized for subcontractor work.

Standards and requirements are appropriately tailored to the hazards.

Procedures and/or mechanisms are in place and implemented to develop, maintain, and utilize Authorization Agreements.

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, *including subcontractor work,* 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 Authorization Agreements (AAs), Safety Analysis Reports (SARs), Technical Safety Requirements (TSRs), Health and Safety Plans (HASPs), Radiological Work Permits (RWPs), 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 Operations 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.

OBJECTIVE

HAZ.3 Applicable standards and requirements are identified, approved, and implemented. Contractor implementing mechanisms ensure that before operations are commenced or work is performed, safety standards and requirements are identified, approved and implemented such that there is adequate assurance the public, workers, and the environment are protected from adverse impacts from the hazards. (CE II-2, CE II-3)

Criteria

Procedures and/or mechanisms are in place and utilized to identify adequate hazard control standards to protect the public, worker, and environment.

The contractor ensures that the identified controls, standards, and requirements are agreed upon and approved prior to the commencement of the operations or work being authorized.

The contractor utilizes accepted and structured methods and processes to identify, select, and gain approval for safety standards and requirements.

Approach

Records Review: Review contractor procedures for identification and designation of standards that are to be incorporated into facility authorization basis documentation and assess their adequacy. Review mechanisms that implement those standards into the operations or work being performed.

Interviews: Interview contractor personnel for selection and approval of standards. Interview personnel responsible for the implementation of standards into the processes for doing work. Determine the understanding and compliance with procedures for identification submittal and approval of standards.

Observations: None

MANAGEMENT OVERSIGHT (MGO)

OBJECTIVE

MGO.1 An integrated process has been established and is utilized to identify and prioritize specific mission discrete tasks, mission process operations, modifications, and work items. (CE II-1)

Criteria

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 utilized by personnel.

Procedures and/or mechanisms are in place and utilized 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. Personnel assigned to the roles are competent to execute these responsibilities.

Procedures and/or mechanisms are in place and utilized 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 summary schedules, plan 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 utilized 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 plan of the week meetings, long-range scheduling meetings, etc.

OBJECTIVE

MGO.2 An integrated process has been established and utilized 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 II-5)

Criteria

Procedures and/or mechanisms are in place and utilized by personnel to collect feedback information such as self assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned those roles are competent to execute those responsibilities.

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 utilized to provide feedback and improvement during future similar or related activities.

Procedures and/or mechanisms are in place and utilized by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational information into improvement processes and appropriate lessons learned.

Procedures and/or mechanisms are in place and utilized by managers to consider and resolve recommendations for improvement, including worker suggestions.

Procedures and/or mechanisms (including QA) are in place and utilized, which include a process for oversight that ensures that regulatory compliance is maintained.

Approach

Record Review: 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. Review 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. Review QA processes and records including issues/deficiencies and corrective action management.

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. Interview personnel to determine their understanding and compliance with QA processes.

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. If available, observe proper closure of a QA/management issue.

OBJECTIVE

MGO.3 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 II-6)

Criteria

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

Facility or activity procedures specify that line management is responsible for safety and are utilized.

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

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

Procedures and/or mechanisms are in place and utilized to incorporate the best practices of the various safety initiatives (e.g., Environmental Management System, Voluntary Protection Program, Enhanced Work Planning, etc.).

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 those 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 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. 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

MGO.4 The Contractor implements the ISM System Description consistent with the DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses 970.5204-2 and 970-5204-78, and the direction to the contractor from the Approval Authority. The Contractor implementing mechanisms ensure that the ISM System Description is updated, maintained, and implemented, and is sufficient to result in integrated safety management. (CE II-1, CE II-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Contractor procedures and/or mechanisms are in place and utilized to develop, review, approve, maintain, and update the ISM System Description consistent with DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses, and direction to the contractor from the Approval Authority.

Contractor procedures and practices implement flowdown of DEAR clauses 970.5204-2 and 970-5204-78 requirements into subcontracts involving complex or hazardous work.

The contractor practices are consistent with the ISM System Description, DOE Policy 450.4, 450.5, and 450.6, the DEAR clauses 970.5204-2 and 970-5204-78, and direction to the contractor from the Approval Authority.

The contractor evaluates and improves the effectiveness of the ISM System and the ISM System Description.

The contractor demonstrates that mechanisms are in place to direct, monitor, and verify the integrated implementation of ISMS in accordance with the ISM System Description. Implementation and integration expectations and mechanisms are evident throughout all organizational levels and across all organizations from the facility to the individual activities.

Approach

Records Review: Review procedures and mechanisms for updating and maintenance of the ISMS and ISM System Description. Review the procedures and mechanisms for the evaluation of ISMS effectiveness.

Interviews: Interview personnel responsible for updating the ISM System Description and those personnel that determine ISMS effectiveness. Determine the understanding and compliance to those processes and mechanisms. Receive input from all Verification Team members regarding implementation and integration of ISMS at all LMHC facilities/operations.

Observations: None

OPERATIONS

OBJECTIVE

OPN.1 An integrated process has been established and is utilized to effectively plan, authorize, and execute the identified work, including subcontractor work, for the facility or activity. (CE II-4)

Criteria

Procedures and/or mechanisms are in place and utilized to ensure that work planning integrated at the individual maintenance or activity level fully analyzes hazards and develops appropriate controls.

Procedures and/or mechanisms are in place and utilized 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.

Procedures and/or mechanisms are in place and utilized which ensure that there is a process used to gain authorization to conduct operations.

Procedures and/or mechanisms are in place and utilized which ensure that safety requirements are integrated into work performance.

Procedures and/or mechanisms are in place and utilized which ensure that adequate performance measures and indicators, including safety performance measures, are established for the work.

Workers actively participate in the work planning process.

Procedures and/or mechanisms demonstrate effective integration of safety management.

Approach

Record Review: Review documents and/or mechanisms that govern the process for planning, authorizing, and conducting work, including subcontractor 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 Authorization Agreements 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 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 the appropriate steps of the process. Verify that adequate controls are in place for subcontractor work.

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.

SUBJECT MATTER EXPERTS

OBJECTIVE

SME FP.1 Within the Fire 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 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-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Procedures and/or mechanisms for Fire Protection require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

Procedures and/or mechanisms for Fire Protection contain clear roles and responsibilities. Fire Protection is effectively integrated with line support managers to ensure that line managers are responsible for safety.

Procedures and/or mechanisms for 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 for Fire Protection require that personnel who are assigned to Fire Protection have a satisfactory level of competence.

Procedures and/or mechanisms for Fire Protection require that feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for Fire Protection at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that 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 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 Fire Protection . Review training records of personnel in Fire Protection to determine that they meet competency standards.

Interviews: Interview personnel and responsible managers assigned to the 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 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 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.

OBJECTIVE

SME RC.1 Within the Radiological Controls area the planning of work includes 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 Radiological Controls, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Procedures and/or mechanisms for Radiological Controls are utilized and require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

Procedures and/or mechanisms for Radiological Controls are utilized and contain clear roles and responsibilities. The Radiological Controls are effectively integrated with line support managers to ensure that line managers are responsible for safety.

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

Procedures and/or mechanisms for Radiological Controls are utilized and require that personnel who are assigned to Radiological Controls area have a satisfactory level of competence.

Procedures and/or mechanisms for Radiological Controls are utilized and require that feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for Radiological Controls at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the Radiological Controls 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 area. Review training records of personnel in Radiological Controls to determine that they meet competency standards.

Interviews: Interview personnel and responsible managers assigned to Radiological Controls. 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 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 Permit (RWP) or JHA, or the approval process for an individual work item, which includes interactions with personnel in Radiological controls.

OBJECTIVE

SME WP.1 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-2, CE II-3, CE II-4, CE II-5, CE II-6)

Criteria

Procedures and/or mechanisms for Maintenance and Work Control require adequate planning of individual work items to ensure that hazards (including chemical, electrical, and waste stream) are analyzed and controls are identified.

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

Procedures and/or mechanisms for Maintenance and Work Control require controls to be implemented (including configuration management controls), that these controls are effectively integrated, and readiness is confirmed prior to performing work. Workers are involved in the planning of the safety controls.

Procedures and/or mechanisms for Maintenance and Work Control require that personnel who are assigned to the maintenance and work control subject area have a satisfactory level of competence.

Procedures and/or mechanisms for the maintenance and work control subject area require that continuous improvement results.

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 integration of the hazard identification development of hazard controls for chemical safety, electrical safety, and waste stream hazards. Also note the methods of maintaining configuration management of the facilities and the documentation during the execution of the facility work. Be alert to worker involvement in the processes reviewed. Review selected lessons learned 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 that they meet competency standards.

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 or JHA, or the approval process for an individual work item, which includes interactions with personnel. Observe field conditions and work performed to validate that work as planned is executable and meets established requirements.