# MOUND ENVIRONMENTAL MANAGEMENT PROJECT
# INTEGRATED SAFETY MANAGEMENT SYSTEM
# PHASE II VERIFICATION REPORT

**Department of Energy**
**Ohio Field Office**

**May 2000**

## Executive Summary

Department of Energy (DOE) Policy (P) 450.4, Safety Management System Policy commits to institutionalizing an Integrated Safety Management System (ISMS) throughout the DOE complex. The DOE Acquisition Regulations (DEAR, 48 CFR 970) require contractors to manage and perform work in accordance with a documented ISMS.

The Manager, Ohio Field Office (OH), initiated this Phase II ISMS Verification Review to verify that the Mound Environmental Management Project (MEMP) has adequately implemented its ISMS description. This verification review was requested in a memorandum by DOE/MEMP in which DOE/MEMP recommended approval of the MEMP ISMS. The general conduct of the review was consistent with the direction provided by the Under Secretary's Safety Management System (SMS) Review and Approval Protocol, the DOE Integrated Safety Management System Verification ( ISMSV) Process Team Leader's Handbook (DOE-HDBK-3027-99, June 1999), and a April 25, 2000 memorandum from the Manager of the Ohio Field Office (OH) entitled "Appointment as Team Leader for the Phase II Verification Review of the MEMP." (Attachment A)

The purpose of this ISMSV was to provide the Manager, OH, with a recommendation on the adequacy of the implementation of the ISMS description at MEMP, based upon compliance with the requirements of 48 CFR 970.5204 (-.2 and -.78) and DOE P 450.4. Further, the ISMSV Team was to verify that the ISMS responsibilities of the OH Field Office and OH/MEMP are implemented. This verification was conducted from May 15 through 22, 2000.

The Team performed a detailed and thorough review of the implementation of the MEMP ISMS Description, PP-1049A, approved January 24, 2000 and associated documents. The Team found that the implementation of the MEMP ISMS Description and enabling documents conform to the required DOE guidance. The Team also found that the ISMS responsibilities of the OH Field Office and OH/MEMP are clearly and properly implemented. Based on this ISMSV, the Team recommends to the OH Manager that the implementation of the MEMP ISMS Description, PP-1049A, approved January 24, 2000 be approved.

No Deficiencies were discovered during this review. Fourteen (14) Areas for Improvement and eleven (11) Noteworthy Practices were identified. Further detail on these Areas for Improvement and Noteworthy Practices are described in the text of the Criteria Review and Approach Documents (CRAD), Attachment B to this report.

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## 1.0 INTRODUCTION

The Department of Energy (DOE) committed to institutionalizing an Integrated Safety Management System (ISMS) throughout the DOE complex in the DOE Safety Management System Policy (P 450.4). This commitment is incorporated into DOE Acquisition Regulations (DEAR, 48 CFR 970.5204-2 and -78) and DOE site operations contracts requiring contractors to manage and perform work in accordance with documented ISMS processes.

At the Mound Environmental Management Project (MEMP) site, guidance and expectations for ISMS implementation were provided to BWXT of Ohio (BWXTO) by the DOE-Ohio Field Office, Mound Environmental Management Project Office (DOE-MEMP) operating contract DE-AC24-97OH20044. This resulted in the BWXTO Safety Management System Description (PP-1049A).

The DOE-MEMP requested an ISMS verification review and recommended the contractor's SMS Description, PP-1049A, dated August 25, 1999 (appended to Reference 6) for approval (also appended to Reference 6). The MEMP plan stated that the Safety Management System Description encompasses all work performed by BWXTO and all work subcontracted by BWXTO in support of the mission of the MEMP.

In response to this request, the OH Manager directed that an ISMS Phase I verification review be performed. This verification review was conducted on September 20-24, 1999 and resulted in a recommendation to the Ohio Field Office Manager for approval of the MEMP Integrated Safety Management Description. The MEMP ISMS Phase I Verification Report, dated September 1999, is presented in Reference 6. The MEMP Integrated Safety Management Description was approved by the OH Manager by letter OH-0059-00, Brechbill to Provencher, dated October 26, 1999.

Based on successful completion of the ISMS Phase I verification review, the OH Manager directed that an ISMS Phase II verification review be performed. This review was conducted in accordance with the Integrated Safety Management System Verification (ISMSV) Process, Team Leaders' Handbook, DOE-HDBK-3027-99, June 1999. The OH Manager designated Mr. William F Hamel Team Leader in accordance with the Handbook, by Letter of Appointment OH-0751-00, dated April 25, 2000 (Attachment A).

## 2.0 PURPOSE

The purpose of this Phase II ISMS Verification was to review the adequacy and implementation of the MEMP ISMS Description. The completed review was intended to provide the Manager, OH, with a recommendation of approval and/or identification of deficiencies that must be corrected before approval of ISMS

implementation. The recommendation would be based on the MEMP's implementation of its ISMS Description, and the ability of the MEMP to implement the requirements of 49 CFR 970.5204 (-.2 and -.78) and DOE P 450.4.

The review was also intended to verify that the OH and DOE-MEMP responsibilities for ISMS are properly and clearly implemented. This review provided the OH the opportunity to continue to improve future ISMS Verifications by formally capturing the lessons learned from the review.

## 3.0 SCOPE

Department of Energy Policy (P) 450.4 states that:

> *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, budgeting, execution, and evaluation. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment.*

The Phase I ISMS Verification review confirmed that MEMP had partially met the intent of this policy by developing an Integrated Safety Management Plan. This review was a Phase I Verification conducted in accordance with Integrated Safety Management System Verification (ISMSV) Process, Team Leaders' Handbook, DOE-HDBK-3027-99, June 1999.

The Phase II verification was primarily a performance-based review of the functioning ISMS. Work planning, work control, and feedback and improvement processes were evaluated to assess the effectiveness of ISMS implementation. The site, facility, or activity procedures and policies that implement the Phase I requirements were reviewed to validate the flowdown of requirements throughout the MEMP activities. Personnel in the operations and support organizations were evaluated to determine their understanding of these requirements in all appropriate aspects of operations. Most importantly, the review included the observation of program mission operations as a demonstration of the integration of all aspects of the MEMP ISMS.

In addition to reviewing the contractor's implementation of the ISMS Description, the review verified that the OH and DOE-MEMP responsibilities for ISMS are clearly and properly implemented. These responsibilities are defined in the OH Functions, Responsibilities, and Authorities Manual, OH-0412-99, March 2, 1999, and the OH/MEMP Technical Management Plan.

The Phase II verification evaluated technical qualifications and experience of key members of the OH and DOE-MEMP staffs who oversee the continuous application of ISMS and monitor its trends. This staff review did not duplicate prior reviews or assessments, but verified the adequacy of the resultant actions to resolve issues, implement recommendations, and maintain continuous improvement programs.

## 4.0 SCOPE CONSIDERATIONS

The following assessments and corrective actions were taken into account when performing the ISMS Phase II verification review:

1. An ISMS Phase I Verification was conducted in September 1999. The OH issued report, ”Mound Environmental Management Project Integrated Safety Management System Verification Report ,“ (Rerference 6), documents a review of the SMS Description of the ISMS principles and functions at MEMP and ultimately resulted in the approval of the MEMP Safety Management Description.

2. An ISMS self-assessment was conducted jointly by BWXTO and DOE-MEMP in March 2000. The report, “Joint DOE-MEMP/BWXT of Ohio Mound Integrated Safety Management System Verification, Phase II DOE-BWXT Self Assessment, Final Report,” dated March 2000, documents a review of site documents, policies, and procedures. This self-assessment was conducted to determine implementation of ISMS at the MEMP and to verify the completion of corrective actions taken in response to the September 1999 ISMSV Phase I Report issued by the OH.

The scope of the ISMS Phase II verification review should take into account these ISMS assessments, self-assessments, and the associated corrective actions taken to implement the Phase I recommendations and resolve the issues noted therein.

## 5.0 VERIFICATION APPROACH

The Phase II verification was performed using the guidance provided in section 5 of DOE G 450.4, “ISMS Guide,” November 1997, as amplified by DOE letter OH-0751-00, Brechbill to Hamel, dated April 25, 2000. A set of Criteria Review and Approach Documents (CRADs) (Attachment B) were constructed based on the Verification Team Leader’s Handbook, DOE-HDBK-3027-99, June 1999. The CRADs were designed to ensure that all core expectations set forth in the Appendix 1 of the handbook are reviewed in detail. The CRADs were structured along the following functional areas:

- Department of Energy (CRADs: DOE.1, DOE.2)

- Hazards Identification and Standards Selection (CRADs: HAZ.1, HAZ.2)
- Management (CRADs: MG.1, MG.2, MG.3)
- Operations (CRAD: OP.1)
- Subject Matter Experts:
    - Maintenance and Work Control (SME.1)
    - Criticality Safety (SME.2)
    - Radiological Safety (SME.3)
    - Training (SME.4)
    - Fire Protection (SME.5)
    - Industrial Hygiene and Safety (SME. 6)
    - Emergency Management (SME.7)
    - Quality Assurance (SME.8)
    - Environmental Compliance (SME.9)

Each set of CRADs were then assigned to a verification sub-team of the same name, resulting in five sub-teams:

- Sub-team 1: Department of Energy
- Sub-team 2: Hazards Identification and Standards Selection
- Sub team 3: Management
- Sub-team 4: Operations
- Sub-team 5: Subject Matter Experts

This sub-team structure was designed to accomplish a horizontal and vertical review of the ISMS at MEMP. Horizontally, three organizational levels were identified for review: Department of Energy, Hazards Identification and Standards Selection, and Management.

The vertical review, designed to trace specific health and safety requirements from higher level documents down to actual field implementation, was conducted by the Operations and Subject Matter Expert sub-teams.

The intent of this approach was to certify the integration of all core functions and guiding principles throughout the site including both the DOE and BWXTO organizations.

### 5.1 Department of Energy Subteam

The DOE Subteam Phase II Verification review focused on the integration of ISMS into DOE-MEMP policies, plans and procedures, and the implementation of same. It also looked at the flow down of ISMS from the DOE OH Functions, Responsibilities and Authorities Manual (FRAM) to the DOE-MEMP through its Technical Management Plan (TMP) and implementing policies, plans and procedures. The integration and flow down were evaluated in accordance with DOE 450.4 policy and guidance. The Subteam's review also included an

evaluation of the findings from the DOE Phase I ISMS Verification (September 1999) and the DOE-MEMP/BWXTO Joint Self-Assessment (March 2000), and the applicability of those findings and corrective actions to successful implementation of ISMS in the DOE-MEMP organization. Implementation of DOE-MEMP policies, plans and procedures was primarily verified through the review of work products required under those documents (e.g., surveillance reports, Facility Representative Log Books).

DOE-MEMP personnel who generated the work products were also interviewed, as were DOE-MEMP management personnel who had overall programmatic responsibility. Observations were also conducted of DOE-MEMP oversight activities (e.g., Facility Representative walk-throughs and interaction with BWXTO personnel, Subject Matter Expert and Project Manager participation in BWXTO work planning meetings). To a lesser extent, BWXTO personnel were interviewed, to ascertain the effectiveness of the interface between the DOE-MEMP's ISMS Program and the BWXTO ISMS Program.

## 5.2 Hazards Identification and Standards Selection Subteam

The Hazards Subteam verification focused on the identification, analysis, and characterization of the full spectrum of hazards associated with the defined scope of work for all discrete projects, tasks, and activities.

The Subteam also verified that an integrated process is established and implemented to specify safety standards and hazard controls adequate to mitigate the identified hazards. The set of standards and controls reflect the set of safety requirements agreed to by DOE.

The verification included procedures and mechanisms for defining the roles and responsibilities of personnel who perform hazards identification and analysis, as well as ensuring that these personnel have the competence commensurate with their responsibilities. Procedures and practices ensured that hazard analysis and control personnel are effectively integrated with project line management.

The verification also confirmed that established procedures in place effectively and accurately implement all requirements of the Authorization Basis, where applicable.

The verification examined the implementation of procedures which prescribe hazard identification and analysis. Workplace implementation of these procedures was also reviewed. Also interviewed were personnel holding responsibilities for hazard analysis, prescription and implementation of hazard controls. The Subteam observed workplace activities intended to demonstrate the effective implementation of hazard analysis and controls.

## 5.3 Management Subteam

The Management Subteam verification focused on the management systems developed and used by DOE and BWXTO to define mission-related tasks, prioritize taking these safety hazards into account, and to control work and make formal changes from baseline. Definition of clear roles and responsibilities was examined along with processes for verifying that managers are competent commensurate with their responsibilities. The processes for obtaining feedback for continuous process improvement and for developing and disseminating lessons learned were examined.

MEMP uses a verified Baseline and formal Baseline Change control to establish and prioritize work. Other, lower-level mechanisms include Project Plans, QA Project Plans, work order packages (Project Service Request and Maintenance Service Request). Work permits, Health and Safety Plans, Job Safety and Health Analysis (JSHA), and sampling plans also are part of the control process which ensures that work is planned and carried out in accordance with applicable safety standards and hazard controls. Implementation of the Core Team process facilitates all the other processes mentioned above to define work, analyze hazards and prescribe controls, and work within those controls.

Site wide programs such as Safety Impact, Employee Concerns, Lessons Learned, Occurrence Report and Processing System (ORPS), management walkthroughs, self assessments and independent assessments were evaluated to determine their effectiveness in providing for feedback and continuous improvement.

## 5.4 Operations Subteam

The Operations Subteam analyzed MEMP processes that are used to initiate, plan, approve, execute and modify work. Work authorizing documents were reviewed to ensure that Integrated Safety Management (ISM) concepts are optimized. The team conducted interviews to assess personnel knowledge and perception of the ISM implementation process. Finally, observations of work activities were conducted as further verification that process integration had occurred.

Work documents were selected with a preference toward high risk activities. Individuals selected for interview represented a wide array of disciplines and levels within the BWXTO organization. The team balanced observations between routine and infrequent evolutions to verify that work was being conducted as planned.

## 5.5 Subject Matter Experts Subteam

As noted in Section 5.0 of this report, the Subject Matter Experts (SME) Subteam was divided into nine (9) programmatic areas, including: Maintenance and Work Control, Criticality Safety, Radiological Safety, Training, Fire Protection, Industrial Hygiene and Safety, Emergency Management, Quality Assurance, and Environmental Compliance. The SME CRADs and the Operations CRAD were designed to evaluate the implementation of ISMS across programs. In contrast, the other three subteam CRADs outlined in Sections 5.1 through 5.3 above, were designed to evaluate the implementation of ISMS across individual projects. All nine SME CRADs included the same five (5) Criteria, including: mechanisms to ensure that hazards area analyzed /work controls are identified; clear roles and responsiblities are assigned/line management is responsible for safety; integrated controls are implemented and readiness is confirmed prior to performing work; workers have a satisfactory level of competence; and feedback and continuous improvement mechanisms are in place.

Within each of the nine SME CRADs, subteam members reviewed a variety of programmatic documents, including policies, plans and procedures. Interviews were conducted with a range of personnel, including DOE-MEMP and BWXTO managers and working level personnel. Interviews primarily focused on personnel performing work (e.g., laboratory technician, waste drum handler), as well as the work evolution documentation (e.g., inspection logs, permits, task orders). Observations were also conducted of actual work evolutions, with a focus on the integration of a given subject matter area (e.g., radiological safety) in project work.

## 5.6 Evaluation Criteria

Each CRAD and associated review criteria evaluated the implementation of the ISMS Description at the MEMP. Specifically, the CRADs examined both the DOE-MEMP and BWXTO degree of ISMS implementation, and evaluated whether or not the core functions and guiding principles of DOE P 450.4 presented in the overall conduct of MEMP work activities.

All CRADs contained an objective to fulfill one or more of the Verification Team Leader’s Handbook’s core expectations. Specific guidance on whether or not the MEMP ISMS description meets the objectives was contained in each CRAD. A set of criteria was provided to verify that the objective was met. Team Members used Lines of Inquiry as guidance to perform the Phase II verification.

The following evaluation categories were established to ensure a standardized verification process. The results of each CRAD review were designated as one of the following categories.

Deficiencies: A documented process or procedure described within the ISMS Description was not implemented at the MEMP.

Areas for Improvement: A documented process or procedure described within the ISMS Description was not uniformly implemented throughout the MEMP either vertically or horizontally.

Noteworthy Practices: A good practice (contractor or DOE) was considered to be noteworthy if:

- The practice was reasonably unique
- The practice was well-documented and understandable
- The practice was adaptable/adoptable by other sites; i.e., others may reasonably use it.

## 6.0 ADMINISTRATION

William F. Hamel, High-Level Waste Projects Team Leader, DOE-West Valley Demonstration Project Office, was the MEMP ISMS Phase II Verification Review Team Leader. The OH Manager designated Mr. Hamel by Letter of Appointment OH-0751-00, dated April 25, 2000.

### 6.1 Team Organization and Composition

Five sub-teams conducted the review as shown in Figure 1. Team members were selected based upon the criteria established by the February 21, 1997, Memorandum from the Under Secretary of Energy. These criteria included:

- Established expertise in one or more functional areas
- Appraisal experience
- Familiarity with the site/facility mission and processes
- Knowledge, understanding, and training on Integrated Safety Management

Team roles and responsibilities are presented in Figure 1. Team qualification summaries are found in Attachment C.

### 6.2 Team Preparation

Proper preparation of Team members was critical to perform this verification, prepare a credible report, and provide a recommendation to the OH Manager of the MEMP ISMS Implementation. Therefore, members were required to prepare for their individual assignments by completion of the following required reading

and/or activities. The specific required reading list for each individual team member is listed on individual qualification summaries (Attachment C).

Team reading requirements:

1. DEAR 970.5204
2. DOE P 450.4 Safety Management Policy, Oct 15, 1996.
3. DOE G 450.4 Integrated Safety Management System Guide, Nov 26, 1997
4. DOE-HDBK-3027-99, Integrated Safety Systems Verification (ISMSV) Process Team Leaders Handbook, June 1999.
5. DOE P 450.5, Line Management, Safety, and Health Oversight, June 26, 1997.
6. DOE P 450.6, Secretarial Policy Statement, Environment, Safety, & Health, April 14, 1998
7. Ohio Safety Policy Management Policy (OH-40.S003), Mar 11, 1998
8. Team Leader, Letter of Appointment, August 6, 1999
9. MEMP ISMSV Phase II Verification Plan, May 2000
10. DOE-OH MEMP ISMS Phase I Verification Report, September 1999
11. Assessment Summary: Phase I Verification – Phase I ISMS Verification Results Issues for Resolution by BWO, dated May 8, 2000
12. Joint DOE-MEMP/BWXT of Ohio Mound Integrated Safety Management System Verification, Phase II DOE-BWXT Self Assessment, Final Report, dated March 24, 2000
13. Assessment Summary: Phase II Verification - Phase II ISMS Verification Results Issues for Resolution by BWXTO, dated April 19, 2000
14. BWXTO ISMS Implementing Procedure, PP-1049-A, Integrated Safety Management System Description, approved January 24, 2000

Team members were also expected to be trained and have experience in the principles of Integrated Safety Management Systems. These training and experience requirements were documented on the team members' individual qualification summaries. Team members were also expected to complete the appropriate site-specific training upon arrival at the MEMP.

Team member Qualification Summaries include documented confirmation that all Team Members completed the Required Reading (Attachment C).

### 6.3 Site Coordination and Support

DOE-MEMP and BWXTO staff were available to assist the team and provide support on an as needed basis before and during the visit. The DOE-MEMP Office of Safety and Assessment hosted the team and provided the primary support. The principle point-of-contact was Mr. Jack Zimmerman, Associate Director for the Office of Safety and Assessment.

The Team required the following workspace, equipment, and support services to accommodate a sixteen-person team at the MEMP during the Verification:

- Office space including meeting room to accommodate all team members.

- Clerical support personnel familiar with site personnel and locations, with time allocated to perform team administrative support activities.

- Assigned OH/MEMP and BWXTO ISMS Points of Contact including off working hours contact information.

- Computer and printing capabilities within the team work space to accommodate all team members.

- Documentation library accessible throughout the validation

- Full site access for the verification period

- MEMP provided hosts for each of the sub-teams. These hosts coordinated interviews, gathered requested documentation, and provided transportation and ready access to facilities.

### 6.4 Schedule

The Phase II ISM verification review was conducted between May 15 and 22, 2000 inclusively. Activities for the first day included team introductions, required site training, and MEMP ISMS implementation presentations. Actual assessment activities began on the first day, immediately after the MEMP ISMS implementation presentations. Assessment activities concluded and the close-out meeting was held with MEMP personnel on May 22, 2000.

## 7.0 CONCLUSIONS

The Team performed a detailed and thorough review of the MEMP ISMS Description implementation and associated documents. The team found that the implementation of the MEMP ISMS System Description and enabling documents conform to the required DOE guidance. The team also found that the implementation of ISMS responsibilities of the OH and DOE-MEMP are clearly and properly implemented. Based on the ISMSV, the Team recommends to the OH Field Office Manager that the implementation of the MEMP ISMS Description be approved.

No Deficiencies were discovered during this review, however, a number of Areas for Improvement and Noteworthy Practices were noted. These are listed in

Section 9.0 and 10.0 of this report and in the text of the CRADs (Appendix B of this report).

## 8.0 DEFICIENCIES

None.

## 9.0 AREAS FOR IMPROVEMENT

Each of the following were carefully evaluated and found to meet the criteria for Areas for Improvement as defined in the Team Leader's Handbook.

1. DOE-MEMP should continue to focus management attention on completion of the "Guide on Federal Oversight of MMCIC Activities." Other guidance documents are still in the draft phase as well; for example the (DOE Headquarters) Memorandum of Understanding with the Occupational Safety & Health Administration (OSHA) on "Safety and Health Enforcement at Privatized Facilities and Operations," the DOE-MEMP "Communication Plan for Site Transition Activities, " and the DOE OH "Addendum to Protocol for Economic Development Personal Property." Finalizing these documents, and clarifying existing documents (such as the DOE-MEMP Stop Work Order procedure) should clarify DOE's role and responsibility for oversight of commercial activities on DOE property. (DOE.1)

2. The DOE-MEMP review and approval process for high priority safety documentation, including Authorization Basis (AB) documents, is not being conducted in a timely manner. For example, existing Basis for Interim Operations (BIO) documents do not meet current site needs. Some Limiting Conditions for Operation (LCO) are no longer valid and should be removed. The On-site Transportation BIO is not currently a part of the documented sitewide Authorization Basis (AB). (DOE.2)

3. The knowledge and training of the Contracts Manager and the Finance Manager regarding ISMS and the DEAR Clause 970.5204 is informal and not effective. The interview indicated that the Contracts Manager has received no formal training in ISMS principles and core functions, even though such training is required by the applicable Training Plan. The Training Plan of the Finance Manager contained no requirements for training on ISMS or on the DEAR Clause. Interviews with both managers indicated that their knowledge of ISM is gained by informal discussions and by collateral discussions of ISM requirements in meetings. (MG.1)

4. The Position Description of the Contracts Manager contains no requirement for knowledge of principles of safety management. In particular, there is no requirement for knowledge of DEAR Clause 970.5204, or indeed of the

DEAR regulations at all (only FAR regulations). The Position Description of the Finance Manager requires knowledge of "…. costs associated with E&SH issues….", but nothing specific to knowledge of ISM adequate to integrate the ISM principles and functions into planning, prioritizing, and allocating resources. (MG.1)

5. The procedures and systems for expediting and assuring the timely delivery of feedback information with potential high impact (high risk, immediacy, or urgency) are not effective. (MG.3)

6. The Lessons Learned Program does not include adequate methods to periodically measure program effectiveness. The use of lessons learned information has not been adequately assessed to determine if information is being disseminated and if past lessons learned are being identified and incorporated into project planning and ongoing processes. (MG.3)

7. When a management decision is made that a specific finding in an assessment has been evaluated and does not need a corrective action , this decision needs to be justified and fully documented prior to closure of the finding. (HAZ.1)

8. Hazards were clearly identified on the Job Safety and Health Analysis for the Removal/Dismantlement of Tubing and Piping in the Area F Work Package and the worker failed to follow the instructions. BWXTO needs to ensure that workers understand and follow approved work documents packages and deviations should be documented and incorporated into Lessons Learned. (HAZ.1)

9. BWXTO procedure MD-10499 needs to be changed to comply with the Nuclear Facility Authorization and Start/Restart requirement of DOE Order 425.1 and to conform with BWXTO procedure PP-159-E. (HAZ.2)

10. The voluntary Personal Protective Equipment (PPE) upgrades by workers is authorized without a sound technical basis/justification. In some cases, these PPE upgrades introduce new risks that require reevaluation of the work. As a result of the additional PPE upgrades, further pre job hazard identification and work planning is being performed and communicated to the workers. The additional work planning is applied inconsistently from project to project. The implementation of work controls for PPE upgrades has been addressed by Industrial Safety and Health but not fully communicated to planners, line management and workers. (SME.1)

11. Improvement to worker involvement and teamwork is an ongoing effort. This ISMS Verification review indicates that both Line Management and Workers need to continue to build on communications activities. Recurring issues

with worker trust and confidence, and teamwork have been identified by previous audits. The confirmation of pre-job hazard identification should be formally documented in post job documentation and communicated to employees. The success in the Soils Project Area with the "Radiological Monitoring Guideline for Soils Distribution Activities" should be documented as a Lessons Learned and incorporated with other Projects. (SME.1)

12. In cases where subcontractors were used to conduct criticality safety evaluations, the qualification document for the subcontractors were not available for review. The Radiological Engineering Organization set criteria for the subcontractor, however, there was no documentation to show that a verification of the qualification was conducted or documented. (SME.2)

13. While observing a job to remove overhead piping from Building SW-2, in a posted Contamination Area and Airborne Radioactivity Area numerous contamination control issues were identified. The issues identified demonstrate a lack of attention to detail, procedural non-compliance, and failure to adequately implement sound contamination control specific to this job. (SME.3)

14. During facility walkdowns of the Analytical Laboratory Facility (Bldg. 48) and in observations of seat belt usage, weaknesses were noted in the Conduct of Operations areas of procedural compliance and attention to detail. (OP-1)

## 9.0 NOTEWORTHY PRACTICES

Noteworthy practices were adequately noted and described the successful application of ISMS principles to acknowledge MEMP's success and transfer positive lessons learned throughout the DOE complex.

1. MEMP Procedure # 440.1, "Sublease/Protectiveness Determination," implements provisions of the General Purpose Base Lease between the DOE and the MMCIC; specifically, provisions for DOE's review and approval of subleases proposed by the MMCIC. The procedure ensures the DOE receives adequate supporting documentation from the MMCIC, such that the DOE can review proposed commercial activities in a timely manner and render a "protectiveness determination" for the commercial employees (i.e, Unrestricted Release, Restricted Release – Member of the Public, Restricted Release – General Employee). Compliance with DOE's procedure provides an opportunity to establish controls, if warranted, to protect the tenant from DOE operations (or DOE from the tenant's operations), and to follow up on commitments the Lease imposes on the MMCIC (e.g., submittal of MSDSs to the site Fire Department). The MEMP "Protectiveness Determination" procedure is considered a Noteworthy Practice because it is reasonably unique, the procedure is well-written and understandable, and it could easily

be adapted to other sites who may be considering leasing excess real property to a local Community Reuse Organization (CRO). (DOE.1)

2. DOE-MEMP has recently developed a Facility-Specific Assessment Guide for its Facility Representative (FR) Program. The guide provides a schedule for ensuring that critical safety systems and other key components of the Mound safety program are checked routinely by the FRs. The guide provides a method for ensuring that these key systems are monitored, as necessary, and supports coverage during periods when FRs are on travel, training or leave. The guide also identifies key systems which each FR can be cross-trained on, enhancing the overall safety and oversight of the Mound facility. The Facility-Specific Assessment Guide is deemed a Noteworthy Practice because it is reasonably unique and could be adapted by other sites throughout the DOE complex. (DOE.1)

3. The Mound Partnership Council and the Mound Partnership Forum are effective mechanisms bringing together the Contractor, DOE, and the Represented Work Force to address a broad range of mutual concerns. Safety and Integrated Safety Management are primary among these concerns. Both the Council and the Forum have formal charters specifying membership, objectives and mutual vision of how to do the work and do it safely. Both address issues which have been contentious, and in some cases intractable in the past. The Partnership Council has safety as a regular agenda item. The Partnership Forum is almost exclusively devoted to safety issues. These processes of resolving safety concerns at a high level by consensus among the contractor, DOE, and the work force complements the Enhanced Work Planning initiative which involves workers in work planning at a lower level, and could be gainfully adopted at other DOE sites. (MG.1)

4. BWXTO utilizes a Core Team process to plan and execute work. The Core Teams are put together by the Project Managers to plan work, analyze hazards, prescribe controls for hazards, and verify that a task or project is ready to proceed. The Teams are multidisciplinary, including project managers, planners, facility managers, safety professionals and skill-of-craft representatives. Once formed, the Team takes the project from planning, to walkdowns to identify potential hazards, through execution and closeout of the work. In particular, this process provides a continuity of knowledge of work concerns or issues, hazards, and controls from work planning to work completion. (MG.1)

5. The establishment of the integrated safety management support functions in the newly organized Quality Assurance & Engineering Group fundamentally focuses quality assurance and quality engineering on the Mound Integrated Safety Management System. (MG.3)

6. The establishment of a Feedback & Continuous Improvement Program Manager in the Quality Assurance & Engineering Group places explicit focus on this critical integrated safety management function. (MG.3)

7. The creation of the Fire Alarm Systems/Biweekly ISM Forum is especially noteworthy. Direct interaction between fire department and maintenance personnel has resulted in a better understanding of the operation of fire detection/alarm systems and the resetting and maintenance of these systems as well as improvement in the working relationships between the departments. In terms of ISM, there is a greater integration of work activities between the departments. (SME.5)

8. The issuance and use of the Red Book as guidance for classification/categorization of events by the Fire Foreman (Incident Commanders) is noteworthy and should enhance the ability of Fire Foreman to classify events accurately and timely. (SME.7)

9. Revising hazards assessments to reflect facility specific real-time conditions is a marked improvement. (SME.7)

10. The establishment of the quality assurance function in the newly organized Quality Assurance & Engineering Group joins together quality assurance and quality engineering to focus efforts on the Mound Integrated Safety Management System. In principle, “do the job right the first time.” (SME.8)

11. BWXTO Quality Assurance and Engineering conducted 2 site-wide ISM surveys during CY2000. These surveys are being used to identify potential areas for improvement in the area of worker involvement in ISM. Most recently, workers sitewide were asked to respond to 23 ISM related questions, answering in a range from strongly agree/agree/neutral/disagree/ strongly disagree. The survey was tailored from a similar effort conducted at the Hanford site, and it was very well designed and administered at Mound. This practice is essential to monitoring and improving worker involvement and is a critical part of “Feedback and Improvement”, Core Function 5. (OP.1)

## 11.0 LESSONS LEARNED

1. The activities scheduled during the assessment were often delayed or cancelled which inhibited field observations.

2. Many of the same team members from Phase I supported Phase II. This proved to be beneficial in that team members were able to hit the ground running, and did not have to spend a lot to time reading ISMS documentation

that was already reviewed during the Phase I.

3. In choosing a date for the verification, consider whether local/regional events are also scheduled that may make lodging difficult for out-of-town team members.

4. In designing work space for team members, consider ergonomic or general comfort factors, such as lighting, temperature control and noise level.

## 12.0 REFERENCES


1. DOE Safety Management System Policy, DOE P 450.4.
2. DOE Safety Management System Guide, Volumes 1 and 2, DOE G 450.4-1
3. DOE Safety Management Systems Verification (ISMSV) Process, Team Leaders Handbook, DOE-HDBK-3027-99, June 1999
3. DOE Line Management Environment, Safety and Health Oversight, DOE P450.5.
4. DOE Secretarial Policy Statement, Environment, Safety and Health Oversight, DOE P450.6.
5. Ohio Field Office Safety Management Policy (OH-40.S003).
6. Ohio Field Office Functions, Responsibilities, and Authorities Manual (FRAM), March 2, 1999.
7. MEMP ISMS Phase I Verification Report, September 1999
8. MEMP ISMS Phase II Verification Plan, May 2000

**FIGURE 1**

MEMP ISMSV Team Roles and Responsibilities

# ATTACHMENT A

Team Leader Letter of Appointment

# ATTACHMENT B

Criteria Review and Approach Documents (CRAD)

# ATTACHMENT C

MEMP ISMSV II Team Qualification Summaries