

**Management Self-assessment
Implementation Plan for the Building
4501 Depressurization of Sodium
Fluoride Traps Containing Uranium from
the Molten Salt Reactor Experiment at
Oak Ridge National Laboratory,
Oak Ridge, Tennessee**

October, 2002

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**MANAGEMENT SELF-ASSESSMENT IMPLEMENTATION PLAN
FOR THE BUILDING 4501 DEPRESSURIZATION OF SODIUM FLUORIDE TRAPS
CONTAINING URANIUM FROM THE MOLTEN SALT REACTOR EXPERIMENT AT
OAK RIDGE NATIONAL LABORATORY,
OAK RIDGE, TENNESSEE**

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**Management Self-Assessment Implementation Plan
for the Building 4501 Depressurization of Sodium Fluoride Traps Containing Uranium
from the Molten Salt Reactor Experiment at Oak Ridge National Laboratory, Oak Ridge,
Tennessee**

APPROVALS

G. A. Harvey
Team Manager

Date

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ACRONYMS

AA	authorization agreement
COG	cell off-gas
COO	conduct of operations
CPS	conversion process system
CR	core requirements
CRAD	criteria and review approach documents
CTD	Chemical Technology Division
DOE	U. S. Department of Energy
ES&H	environment, safety, and health
ISMS	integrated safety management system
JHE	job hazards evaluation
LIDS	Laboratory Issues Database System
LMR	line management review
MSA	management self assessment
MSRE	Molten Salt Reactor Experiment
NCS	nuclear criticality safety
NCSA	Nuclear Criticality Safety Approval
NCSE	Nuclear Criticality Safety Evaluation
NTSD	Nuclear Science and Technology Division
ORNL	Oak Ridge National Laboratory
ORR	operational readiness review
POA	plan of action
SAR	safety analysis report
SER	safety evaluation report
SME	subject matter expert
SSCs	structures, systems, and components
TSR	technical safety requirements
USQ	unreviewed safety question
USQD	unreviewed safety question determination
VOG	vessel off-gas
WSS	Work Smart Standards

1. INTRODUCTION

1.1 GENERAL

This Implementation Plan describes the scope and methodology for the Management Self-Assessment (MSA) of the Conversion of Uranium-Containing Materials Removed from the Molten Salt Reactor Experiment (MSRE) Facility at Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee. This plan is written consistent with Department of Energy (DOE) Order 425.1B, *Startup and Restart of Nuclear Facilities*, and DOE-STD-3006-2000, *Planning and Conduct of Operational Readiness Reviews (ORR)*, and ORNL/TM-2002/163, *Operational Readiness Review Plan of Action for the Building 4501 Depressurization of Sodium Fluoride Traps containing Uranium from the Molten Salt Reactor Experiment at Oak Ridge National Laboratory, Oak Ridge, Tennessee*.

Appendix A contains the Criteria and Review Approach Documents (CRAD) that define the review objectives and criteria as well as the approach for assessing each objective. The purpose of this assessment is to verify that an adequate state of readiness exists to begin depressurization activities. Results of this assessment will be reported in accordance with Section 8 of this document. The Office of Science Secretarial Office will be the startup authority for this activity.

1.2 ORNL BUILDING 4501

Building 4501, a three-story steel, concrete block, and brick structure, is a radiochemical facility containing offices, chemical laboratories, hot cells, and a glove box facility. The facility is primarily occupied by ORNL personnel of the Nuclear Science and Technology Division (NSTD). It supports a variety of ongoing research and development efforts including the Building 4501 Conversion Project.

The basement floor contains laboratories, cell ventilation ducts, utility systems, and storage areas. The first floor houses four hot cells surrounded by support laboratories, offices, and operating areas. Located above the hot cell on the second floor is a high bay (surrounded by offices and laboratories), which provides access to the top of the hot cells. This area is equipped with an overhead crane that is used for movement of shielded carriers that contain radioactive material. Packages are typically introduced into the hot cells by placing a shielded carrier over an access port in the top of the cell. The high bay area continues in the third floor of the building, where it is surrounded by equipment rooms.

Hot Cell D will be used in this depressurization process operation. This cell is located on the first floor level in a central island of Building 4501 that contains a total of four similar cells. The depressurization process equipment associated with the depressurization of 3019 NaF traps will be set up inside Cell D.

2. SCOPE

The MSA will review, in detail, the state of readiness of Building 4501 Conversion Project and assigned support personnel to safely begin Conversion Project depressurization activities.

2.1 BREADTH OF THE MSA

The breadth of the MSA is defined in the approved Plan of Action (POA) and includes the following core requirements (CR). These CRs are grouped as in DOE Order 425.1B according to the seven Integrated Safety Management (ISMS) Guiding Principles. (The 18 CRs are cross-referenced to the original 20 CRs from DOE Order 425.1A by including the original CR number in parentheses after the CR statement.) The POA also includes additional discussion concerning the scope or focus of some of the individual CRs. The individual CRAD, contained in Appendix A have incorporated this additional specificity.

GUIDING PRINCIPLE #1

Line management is responsible for the protection of employees, the public, and the environment. Line management includes those contractor and subcontractor employees managing or supervising employees performing work.

2.1.1 Core Requirement #1

Line management has established programs to ensure safe accomplishment of work (the authorization authority should identify in the plan of action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements. (CR #8) (CR #14)

Scope:

The review of CR #1 will assess the safety culture of the personnel associated with the Depressurization Activities. These personnel are listed in the Conversion Project Training Matrix. The review will confirm that the elements of the Standards Based Management System are implemented for the Conversion Project.

GUIDING PRINCIPLE #2

Clear and unambiguous lines of authority and responsibility for ensuring ES&H are established and maintained at all organizational levels.

2.1.2 Core Requirement #2

Functions, assignments, responsibilities, and reporting relationships (including those between the line operating organization and ES&H support organizations) are clearly defined, understood, and effectively implemented with line management responsibility for control of safety. (CR #11)

Scope:

The review of CR #2 will assess assignments, responsibilities, and reporting relationships of the managers and personnel responsible for depressurization operations and ES&H support related to the Conversion Project, as well as between depressurization operations and other operations in Building 4501.

GUIDING PRINCIPLE #3

Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.

2.1.3 Core Requirement #3

The selection, training, and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers ensure competence commensurate with responsibilities. (The training and qualification program encompasses the range of duties and activities required to be performed.) (CR #2)(CR #19)

Scope:

The review of CR #3 will assess training, qualification, and certification procedures and records, in accordance with CERS/MSRE/013, *Training and Qualification Program Plan*, for personnel directly responsible for the depressurization operations of the Conversion Project:

- Conversion Project Facility Manager
- Conversion Project Operations Manager
- Conversion Project Operations Supervisor
- Operations Personnel

The core requirement will also address the training and qualification programs for personnel providing direct operations support:

- Technical Manager
- Conversion Project Maintenance Coordinator
- Material Balance Area (MBA) Representatives
- Radiological Surveillance Section Complex Leader
- Radiological Control Technicians

This assessment will focus on training associated with the Conversion Project, as shown on the Conversion Project Training Matrix.

2.1.4 Core Requirement #4

Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel. (CR #3) (CR #19)

Scope:

The review of CR #4 will assess the level of knowledge of the following Conversion Project personnel involved in the Depressurization Activities:

- Conversion Project Facility Manager
- Conversion Project Operations Manager
- Conversion Project Operations Supervisor
- Operations Personnel
- Technical Manager
- Conversion Project Maintenance Coordinator
- MBA Representatives
- Radiological Surveillance Section Complex Leader
- Radiological Control Technicians

2.1.5 Core Requirement #5

Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes. (CR #18b)

Scope:

The review of CR #5 will determine that modifications to the facility as a result of Depressurization Activities have been incorporated into training and qualification.

GUIDING PRINCIPLE #4

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

2.1.6 Core Requirement #6

Sufficient numbers of qualified personnel are available to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services are adequate for operations. (Such support services include operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering.) (CR #8) (CR #13)

Scope:

The review of CR #6 will assess the number of individuals qualified to perform Depressurization Activities. The required numbers of personnel to support Depressurization Activities are identified on the Conversion Project Training Matrix maintained by training personnel. The scope will also include a review of DOE and UT-Battelle Division annual assessments to ensure no outstanding issues associated with support organizations (e.g., Laboratory Shift Superintendent's Office, Security, Emergency Response and Fire Department) affect Depressurization Activities.

GUIDING PRINCIPLE #5

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

2.1.7 Core Requirement #7

Facility safety documentation is in place and has been implemented that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design and modification is established. (CR #4)

Scope:

The review of CR #7 will verify the implementation of the DOE-approved Conversion Project Safety Analysis Report (SAR), Technical Safety Requirements (TSR), and *Authorization Agreement for Building 4501 Conversion Project*, through Conversion Project documents and procedures (e.g., MSRE/CP/108-OPS, MSRE/CP/014-OPS, MSRE/CP/030-OPS, MSRE/CP/033-OPS, MSRE/CP/036-OPS and MSRE/CP/037-OPS, MSRE/CP/039-OPS). Additionally, the review will assess the adequacy and implementation of the 4501 Local Emergency Manual, NCSA 85 and Nuclear Criticality Safety Approval

(NCSA) 86, and Job Hazards Evaluations (JHE) for all operating procedures as they apply to the depressurization activities, and confirm that hazard mitigation controls have been incorporated into the affected Conversion Project documents.

The configuration management system to maintain control over design and modification of SSCs is assessed in CR #9.

2.1.8 Core Requirement #8

A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examinations of records of tests and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work. (CR #5)

Scope:

The review of CR#8 will assess the Conversion Project Testing and Surveillance Programs and confirm the condition and operability of safety SSCs as identified in the Conversion Project Technical Safety Requirements.

The configuration management system to maintain control over design and modification of SSCs is assessed in CR #9.

2.1.9 Core Requirement #9

The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis. (CR #15)

Scope:

The review of CR #9 will assess the Configuration Management Program for the control of SSCs and for modifications related to the Depressurization Activities and their impact on the facility authorization basis. The Conversion Project equipment within the Configuration Management Program is identified in MSRE/CP/035-ADM, *Conversion Project Configuration Item List*.

GUIDING PRINCIPLE #6

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

2.1.10 Core Requirement #10

Adequate and correct procedures and safety limits are in place for operating the process systems and utility systems that include revisions for modifications that have been made to the facility. (CR #1) (CR #18a)

Scope:

The review of CR #10 will assess critical operations procedures and utility system procedures that will be used during the Depressurization Activities to control normal and off-normal operations and alarm response procedures. The following procedures and plans govern the Conversion Project:

1. MSRE/CP/108-OPS, *Depressurization of 3019 NaF Traps*
2. MSRE/CP/014-OPS, *Loading/Unloading/Movement of MSRE Remediation UF₆ Conversion Shielded Carrier*
3. MSRE/CP/031-OPS, *Alarm Response*

4. MSRE/CP/033-OPS, *Hot Cell D Building 4501 Procedure for Insertion and Removal of Item(s) and/or Samples*
5. MSRE/CP/036-SUR, *Conversion Project Surveillance Procedure*
6. MSRE/CP/037-OPS, *General Operations for MSRE Conversion Project*
7. MSRE/CP/039-OPS, *Cell D Preparation and Close-Out*
8. MSRE/CP/001-ADM, *Development Review and Control of Procedures and Documents*

2.1.11 Core Requirement #11

A routine drill program and emergency operations drill program, including program records, have been established and implemented. (CR #9)

Scope:

The review of CR#11 will assess the Conversion Project routine and emergency drills as they involve the Conversion Project.

2.1.12 Core Requirement #12

An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators. The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations including any required restrictions and additional oversight. (CR #10)

Scope:

The review of CR #12 will assess the testing and startup associated with Depressurization Activities. It will also assess the startup plan, which addresses initial Depressurization Activities.

2.1.13 Core Requirement #13

The formality and discipline of operations is adequate to conduct work safely, and programs are in place to maintain this formality and discipline (e.g., DOE 5480.19). (CR #12)

Scope:

The review of CR #13 will assess the implementation of Conduct of Operations as it applies to depressurization activities.

GUIDING PRINCIPLE #7

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

2.1.14 Core Requirement #14

Formal agreements between the operating contractor and DOE have been established via the contract or other enforceable mechanism to govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE. (CR #7)

Scope:

The review of CR #14 will verify that the Authorization Agreement and the Work Smart Standards (WSS) for the Conversion Project are approved by DOE. The implementation of these requirements in the Conversion Project will also be reviewed.

Justification:

CR #14 addresses the Authorization Agreement and the WSS. No revision to the WSS is required to perform Depressurization Activities.

2.1.15 Core Requirement #15

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor (e.g., DOE P 450.5). (CR #6)

Scope:

The review of CR #15 will assess the identification, evaluation, and resolution of deficiencies and recommendations related to the Depressurization Activities. Deficiencies and recommendations identified for the depressurization activities are tracked using the ORNL Assessment Tracking System (ATS).

ADDITIONAL DOE OVERSIGHT REQUIREMENTS INCLUDE THE FOLLOWING:**2.1.16 Core Requirement #16**

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

Scope: Not applicable

2.1.17 Core Requirement #17

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

Scope: Not applicable

2.1.18 Core Requirement #18

DOE operations office oversight programs, such as occurrence reporting, Facility Representative, corrective action, and quality assurance programs, are adequate (DOE Readiness Review only). (CR #20)

Scope: Not applicable

2.2 DEPTH OF THE MSA

Depth refers to the level of analysis, documentation, or action by which a particular CR is assessed. Variations in the depth are obtained by the number of criteria that are used to assess a given CR or by the intensity of the review approaches. The review approaches include documentation reviews, interviews,

walk downs, and observation of evolutions. Increased depth is attained by applying more of the review approaches for a given criterion or objective. The graded approach, as described in Appendix A of DOE-STD-3006-2000, is used to assist the team members in determining the appropriate assessment depth.

3. MSA PREREQUISITES

The following prerequisites are established in the POA and specify the items that must be accomplished prior to Building 4501 Conversion Project personnel declaring readiness to operate:

PR-1. The MSA must be performed to assess readiness for the Depressurization Activities ORR. The MSA will verify that prerequisites are completed and that the facility is ready for the Depressurization Activities ORR. With the exception of a manageable list of open items, Pre-Start Findings from the MSA shall be closed prior to starting the Contractor's ORR.

PR-2. The Associate Director, Energy and Engineering Sciences, has certified, in writing, that the Conversion Project Depressurization Activities are ready for the contractor ORR to begin.

3.1 Core Requirement #1

1. Findings from the DOE (EH-2) October 2001 Focused Safety Management Assessment have been addressed for the Conversion Project.
2. Findings from the Focused Evaluation of Work Planning and Control in Research and Development Organizations conducted by the Office of Independent Oversight have been addressed for the Conversion Project.

3.2 Core Requirement #2

1. MSRE/CP/021, *MSRE²³³U Conversion Project Building 4501 Quality Assurance Program Plan*, has been implemented.
2. A current organization chart for the Conversion Project has been promulgated, and personnel have been assigned to all positions.

3.3 Core Requirement #3

1. CERS/MSRE/013-ADM, *Training and Qualification Program Plan*, has been approved.
2. Required training, qualification, and certification of personnel in accordance with the Conversion Project Training Matrix have been completed.

3.4 Core Requirement #4

Assigned personnel are qualified/certified to support Depressurization Activities in accordance with the Conversion Project Training Matrix.

Operations personnel are qualified using the following procedures:

1. MSRE/CP/108-OPS, *Depressurization of 3019 NaF Traps*
2. MSRE/CP/014-OPS, *Loading/Unloading/Movement of MSRE Remediation UF₆ Conversion Shielded Carrier*
3. MSRE/CP/030-OPS, *F₂ and ClF₃ Cylinder Hook-up*
4. MSRE/CP/031-OPS, *Alarm Response*

5. MSRE/CP/033-OPS, *Hot Cell D Building 4501 Procedure for Insertion and Removal of Item(s) and/or Samples*
6. MSRE/CP/036-SUR, *Conversion Project Surveillance Procedure*
7. MSRE/CP/037-OPS, *General Operations for MSRE Conversion Project*
8. MSRE/CP/039-OPS, *Cell D Preparation and Close-Out*
9. *4501 Local Emergency Manual*
10. MSRE/CP/001, *Development Review and Control of Procedures and Documents*

3.5 Core Requirement #5

1. The Conversion Project Training Matrix has been prepared and issued.
2. The Conversion Project Configuration Control Program has been implemented by MSRE/CP/017.

The following procedures have been approved and address the operation of the Depressurization Equipment.

- a) MSRE/CP/108-OPS, *Depressurization of 3019 NaF Traps*
 - b) MSRE/CP/014-OPS, *Loading/Unloading/Movement of MSRE Remediation UF₆ Conversion Shielded Carrier*
 - c) MSRE/CP/030-OPS, *F₂ and ClF₃ Cylinder Hook-up*
 - d) MSRE/CP/031-OPS, *Alarm Response*
 - e) MSRE/CP/033-OPS, *Hot Cell D Building 4501 Procedure for Insertion and Removal of Item(s) and/or Samples*
 - f) *and/or Samples*
 - g) MSRE/CP/036-SUR, *Conversion Project Surveillance Procedure*
 - h) MSRE/CP/037-OPS, *General Operations for MSRE Conversion Project*
 - i) MSRE/CP/039-OPS, *Cell D Preparation and Close-Out*
3. Training required to address Depressurization Activity equipment has been completed as identified in Conversion Project Training Matrix.

3.6 Core Requirement #6

The Project Director has identified, through the Conversion Project Training Matrix, the required functions and numbers of personnel to conduct Depressurization Activities.

3.7 Core Requirement #7

1. The DOE Safety Evaluation Report (SER) approving the SAR and TSR has been issued and implemented, and the SER Conditions of Approval required for startup have been implemented.
2. The Authorization Agreement, 4501CP-AA, has been approved by DOE.
3. The following NCSAs have been approved and address the Depressurization Activity operations:

- a. NCSA 85, *Nuclear Criticality Safety Approval, "4501 CP Operations in Cell D"*.
 - b. NCSA 86, *Nuclear Criticality Safety Approval, "Transport Operations for the 4501 CP."*
4. *4501 Local Emergency Manual* has been verified updated to the Conversion Project Hazards Evaluations Document Requirements.
 5. JHEs for procedures MSRE/CP/108-OPS, *Depressurization of 3019 NaF Traps*, MSRE/CP/014-OPS, *Loading/Unloading/Movement of MSRE Remediation UF₆ Conversion Shielded Carrier*, CERS/MSRE/030-OPS, *F₂ and ClF₃ Cylinder Hook-up/Change-out*, CERS/MSRE/033-OPS, *Hot Cell D Building 4501 Procedure for Insertion and Removal of Item(s) and/or Samples*, MSRE/CP/036-SUR, *Conversion Project Surveillance Procedure*, MSRE/CP/037-OPS, *General Operations for MSRE Conversion*, and MSRE/CP/039-OPS, *Cell D Preparation and Close-Out Project* have been completed.

3.8 Core Requirement #8

1. MSRE/CP/017-ADM, *Conversion Configuration Management*, has been implemented.
2. MSRE/CP/003-ADM, *Conversion Process System Facility Work Authorization*, has been implemented.
3. MSRE/CP/036-SUR, *Conversion Project Surveillance Procedure*, has been implemented.
4. MSRE/CP/037-OPS, *General Operations for MSRE Conversion*, has been implemented.

3.9 Core Requirement #9

1. CERS/MSRE/017, *Conversion Configuration Management*, has been implemented.
2. CERS/MSRE/001, *Development, Review, and Control of Procedures and Documents*, has been implemented.
3. CERS/MSRE/003, *Conversion Process System Facility Work Authorization*, has been implemented.
4. NSTD-ADM-01, Rev.0, *Records Management Plan for Nuclear Science and Technology Division*, has been implemented.
5. Depressurization Activity equipment is designed, constructed, installed, and tested; and engineering drawings, fabrication packages, and test plans required for startup are complete.

3.10 Core Requirement #10

The prerequisites for CR #4, CR #5, CR #7, and CR #9 have been completed.

3.11 Core Requirement #11

1. MSRE/CP/006, *Conversion Process System (CPS) Drills*, MSRE/CP/031-OPS, *Conversion Project Alarm Response*, and *4501 Local Emergency Manual* have been implemented.

2. The 4501 operations drill program has been reviewed for credible scenarios involving depressurization activities, drill/exercises developed for these scenarios, and records showing that a representative sample of drills/exercises has been conducted for operations personnel with satisfactory results. Drill/exercises will be observed to determine readiness.

3.12 Core Requirement #12

1. MSRE/CP/018, *Conversion Project Test Program*, has been implemented.
2. MSRE/CP/032, *Conversion Project Startup Plan*, has been approved.
3. Pre-operation testing of Depressurization Activity equipment has been completed.

3.13 Core Requirement #13

1. MSRE/CP/004, *Building 4501 Conversion Project Conduct of Operations Manual*, has been implemented.

3.14 Core Requirement #14

1. ISMS EH-2 Evaluation has been completed, and all identified observations and recommendations related to the Conversion Project have been addressed.
2. The Focused Evaluation of Work Planning and Control in Research and Development Organization by the Office of Independent Oversight has been completed, and all identified observations and recommendations related to the Conversion Project have been addressed.
3. The requirements of the Authorization Agreement and WSS for the Conversion Project have been implemented, or corrective action plans and/or compensatory measures are in place.

3.15 Core Requirement #15

1. MSRE/CP/021-ADM, *MSRE ²³³U Conversion Project Building 4501 Quality Assurance Plan*, has been implemented.
2. A review of the Assessment Tracking Systems has been completed to verify that issues related to startup of Depressurization Operations are closed or have appropriate compensatory actions in place.

4. ASSESSMENT APPROACH

This MSA will provide UT-Battelle senior management with an objective measurement of the readiness to begin Conversion Project activities.

4.1 LINE MANAGEMENT READINESS-TO-PROCEED CERTIFICATION

Upon completion of all activities required to begin Conversion Project activities, with the exception of a manageable list of items that have a well defined schedule for closure, the Conversion Project Manager will direct that the MSA begin.

4.2. MSA

The MSA team members will review documentation and procedures, inspect equipment and systems, interview personnel, and observe simulated or actual evolutions as they are performed. The reviews conducted by each MSA team member will be guided by a set of CRADs included as Appendix A. For specific evolutions, the team members will review the records and procedures, observe the evolution, witness the execution of the procedure and the generation of the records, and then follow up on pertinent issues with interviews. For example, if a mistake is noted during an evolution, operators with similar qualifications may be questioned concerning their response to a similar situation.

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

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

The MSA team will prepare a report summarizing the review results that characterize the readiness of Building 4501 Conversion Project and support personnel to begin Conversion Project activities. The team will brief the results of the MSA to ORNL senior management as well as project and building management.

5. MSA TEAM PREPARATIONS

Prior to commencement of on-site MSA activities, necessary training and familiarization for MSA team members will be conducted. It will consist of site and facility familiarization and radiological and safety training for facility access. Each team member has assessment experience or appropriate training. By their selection, the team manager certifies that team members are technically competent, have appropriate assessment experience, and will become familiar with the facility through the familiarization process described above. Team assignments and qualification summaries are contained in Appendix B.

6. MSA PROCESS

The team manager, assisted by team members, has developed the CRADs for this review. These CRADs provide defined bases for conducting the MSA within the scope set forth by the core

requirements of DOE Order 425.1B and the POA. The team manager will review the efforts of the team members to ensure that all objectives are thoroughly assessed. The CRADs are based on the combined expertise of the team members, DOE Orders and other requirements, and the potential hazards of operations.

7. ADMINISTRATION

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

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

8. REPORTING AND RESOLUTIONS

8.1 FORMS

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

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

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

8.2 FINDING CLASSIFICATION

A single issue or a group of related issues that have been documented on Deficiency Forms may constitute a finding. The Conversion Project Manager, in consultation with the MSA team, will

determine whether a finding is pre-start or post-start. Appendix D provides the criteria to be used to aid in this determination. The results of this determination are documented on the Deficiency Form.

8.3 LESSONS LEARNED

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

8.4 FINAL REPORT

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

Team members will be asked to sign the report, showing they concur with the report in the areas of their expertise. Dissenting opinions that have not been resolved will be appropriately addressed in the report. The team manager will transmit the MSA report to the ORNL Associate Director Energy and Engineering Sciences.

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

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

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

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

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

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

APPENDICES – Appropriate data will be provided as appendices to support the conclusions drawn in the report. These will include the following:

- a. Assessment Forms (Form 1)
- b. Deficiency Forms (Form 2)
- c. Dissenting Opinions (if applicable)

APPENDIX A
CRITERIA AND REVIEW APPROACH DOCUMENTS (CRAD)

Objective

CR-1 Line management has established programs to ensure safe accomplishment of work (the authorization authority should identify in the plan of action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements. (CR #8) (CR #14).

Criteria

1. Management programs are in place and up to date.
2. An ISMS Plan has been implemented.

Approach

Record Review:

1. Review the findings from the DOE (EH-2) October 2001 Focused Safety Management Assessment and evidence that these findings have been addressed for the Conversion Project.
2. Findings from the Focused Evaluation of Work Planning and Control in Research and Development Organizations conducted by the Office of Independent Oversight have been addressed for the Conversion Project.
3. Review the Conversion Project Training Matrix to identify the personnel associated with Conversion Project activities.
4. Compare the Conversion Project Training Matrix to the organization chart to determine if the Conversion Project Training Matrix is complete.

Interviews:

1. Interview managers to determine what changes have been made to the management programs to prepare for Conversion Project activities.
2. Interview operations and support personnel to determine if they understand the principles of ISMS.

Shift Performance:

Evolutions will be observed as part of other Core Requirements. The effectiveness of ISMS implementation will be evaluated during these observations.

Objective

CR-2 Functions, assignments, responsibilities, and reporting relationships [including those between the line operating organization and ES&H support organizations] are clearly defined, understood, and effectively implemented with line management responsibility for control of safety. (CR #11)

Criterion

A clear management structure is established, approved, and in place. This structure is implemented and is understood by operations and support personnel.

Approach

Record Review:

1. CERS/MSRE/021, *MSRE²³³U Conversion Project Building 4501 Quality Assurance Program Plan*, has been implemented.
2. Review the organization chart to determine if it reflects the organization described in CERS/MSRE/021, *MSRE²³³U Conversion Project Building 4501 Quality Assurance Program Plan*.

Interviews:

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

Shift Performance:

Observe operations and support personnel to assess the effectiveness of the Organizational Structure.

Objective

CR-3 The selection, training, and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers ensure competence commensurate with responsibilities. (The training and qualification program encompasses the range of duties and activities required to be performed.) (CR #2)

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. Learning objectives are derived from the analysis.
2. The training program is based upon the latest equipment design, including modifications.
3. Requirements for continuing training have been adequately defined and programs have been developed.
4. Training programs for operations and maintenance personnel include training on the requirements contained in the approved operating basis.
5. Training programs for operations and maintenance personnel emphasize the importance of compliance with procedures and safety requirements.
6. Training for technical staff personnel is based on an assessment of position duties and responsibilities.
7. Technical and management qualification of operations, radiological control, and maintenance personnel are adequate.

Approach

Record Review:

1. Review the Conversion Project Training Matrix to determine the personnel who will be directly involved in Conversion Project activities.
2. Review lesson plans for incorporation of safety and procedural requirements.
3. Review trainee feedback forms, training evaluations of lessons learned from operating experiences, and formal training program reviews to verify feedback is addressed in a formal manner.
4. Review the continuing training program plan to verify its adequacy to support safe operations.
5. Review the systematic analysis of job requirements conducted to provide reasonable assurance that all tasks essential to safe and efficient operation are addressed by the training program.
6. Review to ensure that subject matter experts (SME), line management, and training staff develop and maintain a valid facility-specific task list as the basis for the training program. The facility-specific list of tasks selected for training is reviewed periodically and updated as necessary by changes in procedures, facility systems/equipment, job scope, and advances in technology. DOE

and other appropriate training guidelines are used as a guide for selecting, sequencing, and verifying training program structure and content.

7. Verify that the current facility safety documentation, equipment configuration, operating procedures, technical and professional references, and facility/industry operating experience are used to identify facility specific training content and information for use in developing training materials.
8. Review the degree to which on-the-job training and hands-on evaluations for operations and maintenance personnel are used to reinforce classroom activities.
9. Review documentation to ensure technical and management qualifications are defined.
10. Review records that demonstrate that incumbents meet the defined technical and management qualifications.
11. Review documentation to determine if qualifications for on-the-job trainers are defined.
12. Review documentation to determine if personnel who conducted on-the-job training were qualified.

Interviews:

Interview personnel as necessary to ensure that the training programs are established, documented, and implemented.

Shift Performance:

None.

Objective

CR-4 Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel. (CR #3)

Criteria

1. Operations personnel knowledge is adequate to operate safely.
2. Operations personnel retain a practical and adequate understanding of systems and operations. These personnel also give adequate attention to, and retain an adequate knowledge of, health, safety, and environmental protection issues.
3. Operations personnel demonstrate the ability to carry out normal, abnormal, and emergency procedures.
4. Operations personnel demonstrate a working knowledge of facility systems and components related to safety.
5. Operations support personnel demonstrate a working knowledge of facility systems and components as required to carry out normal, abnormal, and emergency procedures under their cognizance.

Approach

Record Review:

1. Review examinations to determine if they adequately test the operators' understanding of technical fundamentals, facility systems, and operating procedures.
2. Review examinations to determine if they adequately test support personnel understanding of technical fundamentals, facility systems, and procedures.
3. Review records to determine who is qualified/certified to perform Conversion Project activities.

Interviews:

1. During evolutions, interview operation personnel, including the operations supervisor and radiological control technicians, to assess their understanding of processes and procedures.
2. Interview support personnel (facility supervisor; facility health, safety, and environmental supervisor; radiological surveillance section complex leader; and the assistant facility manager) to assess their understanding of their actions when responding to normal, abnormal, and emergency conditions and facility hazards, as well as their understanding of how these actions relate to the safety basis for operations. Determine if these personnel have an adequate knowledge of health, safety, and environmental protection issues.

Shift Performance:

Observe routine evolutions to assess technical understanding and ability of the operators, supervisors, and support personnel to conduct their duties and to safely operate systems and components in accordance with approved plant procedures.

Objective

CR-5 Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.
(CR #18)

This Core Requirement has been included in, and will be assessed as part of Core Requirement 3.

Objective

CR-6 Sufficient numbers of qualified personnel are available to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services are adequate for operations. (Such support services include operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering). (CR #8) (CR #13).

Criteria

1. Minimum staffing requirements have been established for operations and support personnel, including supervisors and managers. These staffing levels are met and are consistent with requirements and assumptions from the Safety Analysis Report (SAR) and Technical Safety Requirements (TSR) documents.
2. Sufficient numbers of qualified operations personnel, including supervisors and managers, are available to carry out Conversion Project activities. Staffing levels are consistent with SAR/TSR requirements.

Approach

Record Review:

1. Review the SAR/TSR for staffing requirements. Compare with personnel records to assess the ability of the facility to field the required personnel.
2. Review the operating procedures to determine how many individuals are required for each evolution.

Interviews:

Interview supervisors to ensure they understand the minimum staffing requirements for Conversion Project activities.

Shift Performance:

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

Objective

CR-7 Facility safety documentation is in place and has been implemented that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design is established. (CR #4)

Criteria

1. The safety documentation addresses appropriate hazards/risks associated with Conversion Project activities.
2. A SAR and TSR have been prepared and approved by DOE.
3. NCSAs have been implemented.
4. JHEs have been completed for Conversion Project activities.

Approach

Record Review:

1. Review the SAR, TSR, and other safety basis documentation to assess whether the safety basis includes appropriate hazards/risks.
2. Review JHEs to determine if they identify and control hazards.
3. Review NCSAs to determine the required controls.
4. Review procedures to determine if the hazards identified in the SAR, TSR, NCSAs, and JHEs are addressed.
5. Review NCSAs and Nuclear Criticality Safety Evaluations (NCSEs) to determine their adequacy.

Interviews:

Interview Nuclear Criticality Safety (NCS) and safety basis (SB) personnel as necessary.

Shift Performance:

1. Observe routine operations (these may be simulated) to assess whether any hazards or risks exist that have not been addressed by the facilities safety documentation.

Objective

CR-8 A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examinations of records of tests and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work. (CR #5)

Criteria

1. Approved test procedures are based on SAR and design requirements have been used to establish and verify operability of safety systems.
2. Technical Safety Requirement Surveillance confirms operability of safety systems.
3. Work Control System identified required re-test of safety system following maintenance.

Approach

Record Review:

1. Review completed test instructions to assess that the operability of safety systems was verified based on SAR and design requirements.
2. Review a listing of outstanding safety system deficiencies identified through the corrective maintenance program, preventive maintenance program, surveillance test program, or other reporting process to assess the condition of facility systems to support safe operations.
3. Review Technical Safety Requirement Surveillances to assess whether they are current and satisfactory.

Interviews:

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

Shift Performance:

None

Objective

CR-9 The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis. (CR #15)

Criteria

1. Administrative controls are in place to ensure that repairs (or modifications) are adequately analyzed to identify system degradation and to ensure that design changes are documented and approved prior to implementation.
2. An adequate process has been implemented to ensure that documentation for systems critical to safety exists and is kept current, as appropriate for their safety functions, and that documentation is available to Conversion Project personnel.
3. Drawings and other documentation relied upon for operations and maintenance activities are consistent with the existing equipment configuration.
4. Configuration Control System was used to maintain control over design and modifications of SSC's.

Approach

Record Review:

1. Review recent design changes and modifications to Conversion Project equipment in the configuration management program to ensure they have been reflected in drawings and documents available to operators and maintenance personnel.
2. Review the listing of safety systems and components to ensure it is consistent with the safety basis.
3. Review management systems utilized to control modifications to Conversion Project equipment and to screen for impacts on the safety basis to ensure they maintain adequate control over modifications.
4. Review dispositioned unreviewed safety questions/determinations (USQs/USQDs) for design changes, special procedures and tests, and other proposed changes related to Conversion equipment.
5. Review initial USQ screenings and supporting USQ safety evaluations for Conversion equipment.
6. Determine the status of ongoing USQs and USQDs for Conversion equipment and evaluate their implications on operations.
7. Review work packages associated with the Cell D Structure to assess the mechanisms used for maintaining configuration control of SSCs.

8. Review records for temporary modifications to Conversion equipment and verify required analysis is conducted and any required actions are implemented during the period the temporary modification is in place.

Interviews:

1. Interview personnel associated with the configuration management program to assess their understanding of Conversion Project related modifications.
2. Interview personnel responsible for developing, reviewing, and approving USQ determinations and supporting safety analyses for proposed activities to assess their understanding of the program, individual responsibilities, and safety basis documents.

Shift Performance:

1. Perform a walk down to determine whether there are uncontrolled modifications to Conversion equipment. This walk down should evaluate the accuracy of drawings and other documentation for plant operation and maintenance. At least one recently completed modification should be walked down and changes verified, including changes to operating procedures, if applicable.
2. Walk down a temporary modification, if one is in effect, and evaluate the accuracy of the temporary modification records and drawings.

Objective

CR-10 Adequate and correct procedures and safety limits are in place for operating the process systems and utility systems that include revisions for modifications that have been made to the facility.
(CR #1) (CR #18)

Criteria

1. Procedures implement applicable safety requirements and the associated limiting conditions for operation.
2. Confirmation of continued compliance with safety requirements, including clearly defined surveillance intervals and periodic self-assessments, is required by procedures.
3. Operations, maintenance, and surveillance procedures meet or exceed the requirements of the guidance provided in DOE Order 5480.19, Conduct of Operations.
4. Procedures are available to the operators to enable them to monitor and control operation under normal, abnormal, and emergency conditions.

Approach

Record Review:

1. Review procedures for implementation of safety envelope requirements.
2. Review procedures to assess the adequacy of the procedures.
3. Assess the currency of procedures and verify current configuration of safety systems is reflected in operating procedures.

Interviews:

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

Shift Performance:

1. Observe the performance of operator rounds to determine if safety system parameters used to verify compliance with safety requirements are accurately verified.
2. While observing evolutions and drill response, determine if the facility procedures are adequate in content, level of detail, and acceptance criteria, and properly implement safety requirements.
3. If procedure changes are necessary, assess the steps taken in the review and approval process.
4. Verify procedures used by the technicians are properly controlled to ensure only the latest revision is used.
5. Verify that technicians are following the procedure compliance policy.

Objective

CR-11 A routine drill program and emergency operations drill program, including program records, have been established and implemented. (CR #9)

Criteria

1. An effective emergency preparedness program has been established. Drills and exercises are conducted and an adequate response capability exists.
2. An effective routine operations drill program has been established. Drills and exercises are conducted and an adequate response capability is demonstrated to exist.

Approach

Record Review:

1. Review the records that describe the results of operations drills for the last 3 months to determine if the necessary number of drills were conducted adequate to fully test personnel, procedures, and equipment in a broad range of facility operations.
2. Review the records that describe the results of operations drills for the last 3 months to determine if lessons learned from drills were factored into the following drills.
3. Review the records that describe the results of operations drills for the last 3 months to determine whether any major weaknesses were identified.
4. Review the records that describe the results of operations drills for the last 3 months to determine if the drill scenarios were adequate to fully test personnel, procedures, and equipment in a broad range of facility operations.
5. Review the records that describe the results of operations drills for the last 3 months to determine if all required personnel had participated in all required drills (fire, high airborne activity, and high radiation).

Interviews:

1. Interview personnel responsible for the development and conduct of drills to evaluate their understanding of the purpose of the drill program and their ability to execute it.
2. Interview the facility personnel involved with the operations drill program to determine whether adequate support is being provided for safe operation.

Shift Performance:

Observe an operational drill, including pre-drill briefings and post-drill critiques, to verify they test personnel with realistic and challenging scenarios. Evaluate whether an adequate response capability exists.

Objective

CR-12 An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators. The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations including any required restrictions and additional oversight. (CR #10)

Criteria

1. The plan is adequate and is being implemented. Specific hazards and evaluations that cannot be addressed prior to commencement of operations are included.
2. The preoperational testing program is adequate to ensure that equipment is capable of performing its intended function.

Approach

Record Review:

1. Review the Startup Plan to ensure a phased approach to normal operations and inclusion of procedures, operator qualification, and equipment startup testing as required. Verify the plan includes mechanisms to deal with specific hazards.
2. Review documentation of operational test results and resolution of open items.
3. Review test plans and test records to determine if testing has been adequate to demonstrate operability over the full range of required operations.

Interviews:

As determined necessary after document review.

Shift Performance:

None.

Objective

CR-13 The formality and discipline of operations is adequate to conduct work safely, and programs are in place to maintain this formality and discipline (e.g., DOE 5480.19). (CR #12)

Criteria

1. Programmatic elements of conduct of operations (COO) are in place.
2. Personnel have been trained in key COO principles.
3. Where weaknesses in COO have been identified, corrective or compensatory actions are in place.
4. Operations personnel demonstrate the principles of the conduct of operations requirements during shift performance.

Approach

Record Review:

1. Review recently completed operations logs, standing/daily orders, required reading, and other plant records of note to assess compliance with conduct of operations principles.
2. Review identified weaknesses in COO and compensatory actions.

Interviews:

Interview technicians and supervisors to assess their understanding of the conduct of operations principles in the performance of their duties.

Shift Performance:

1. Observe simulations/evolutions, including pre-job briefings, to determine if conduct of operations requirements are being effectively implemented.
2. Observe technician rounds, procedure use, communications, response to alarms, and control of system status.
3. Observe the implementation of any specified compensatory measures to determine their effectiveness.

Objective

CR-14 Formal agreements between the operating contractor and DOE have been established via the contract or other enforceable mechanism to govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE. (CR #7)

Criteria

1. The Authorization Agreement (AA) has been updated to incorporate any changes required to support operations.
2. Work Smart Standards (WSS) have been updated to incorporate any changes required to support operations.

Approach

Record Review:

1. Review the AA to determine if any required revisions have been incorporated.
2. Review the WSS to determine if any required revisions have been incorporated.
3. Review the documentation of the review of the AA where required changes were to be identified.
4. Review the documentation of the review of the WSS where required changes were to be identified.
5. Review records to determine if any compensatory measures and the implementation period are approved by DOE.
6. Review project procedures for adequate linkage, flow-down, and implementation of AA and WSS.

Interviews:

1. Interview managers to determine if changes to the AA or WSS were required to support Conversion Project activities.
2. Interview managers to determine if AA or WSS requirements are fully implemented. If they are not fully implemented, interview management personnel to ensure they are aware of the non-compliances and action necessary to fully implement them, as well as any interim compensatory measures.

Shift Performance:

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

Objective

CR-15 A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor (e.g., DOE P 450.5). (CR #6)

Criterion

A system for identifying, reviewing, cataloging, and resolving deficiencies and recommendations is adequately implemented.

Approach

Record Review:

1. Verify implementation of the Quality Assurance Plan by QA document review including NCR's and their closure records.
2. Review the Automated Tracking System, selecting representative issues and assessing the adequacy of the program in resolving Conversion Project related issues. Assess the backlog and prioritization system for reducing it. Review open items for adequacy of compensatory measures.

Interviews:

None.

Shift Performance:

Verify adequate closure of selected deficiencies, with emphasis on deficiencies affecting operations.

APPENDIX B
TEAM ASSIGNMENTS AND QUALIFICATION SUMMARIES

TEAM ASSIGNMENTS

<u>NAME</u>	<u>AREA(S)</u>
Linda Bauer	1,2,14,15
Alan White	3,4,5
Julie Ezold	10, 12
Dave Renfro	7,8,9
Paul Clark	6,11,13
Gerald Harvey	Team Leader
Lois Szluha	Administrative Support

<u>FUNCTIONAL AREAS</u>	<u>CORE REQUIREMENTS</u>
1. Management (MG)	1,2,6, 14, 15
2. Safety Documentation (SD)	7,8
3. Training And Qualification (TQ)	3,4,5
4. Operations (OP)	10, 11, 12, 13
5. Testing/Modification/Configuration (ENG)	9, 12

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: G. A. Harvery

AREA ASSIGNED: Team Manager

SUMMARY OF TECHNICAL QUALIFICATIONS

Mr. Harvey has 30 years experience managing nuclear facilities and programs. He has held senior management positions responsible for starting up and operating DOE nuclear work. He established and managed the Facility Evaluation Board used for site-wide assessment at the Hanford site. Mr. Harvey holds a Bachelor of Science degree from the United States Naval Academy and two master's degrees from Massachusetts Institute of Technology in Naval Architecture and Mechanical Engineering.

SUMMARY OF ASSESSMENT/INSPECTION QUALIFICATIONS:

Mr. Harvey has lead and participated in numerous comprehensive facility assessments, Readiness Assessments, and Operational Readiness Reviews.

SUMMARY OF FACILITY FAMILIARIZATION:

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: D. ALLEN WHITE

AREA ASSIGNED: PERSONNEL TRAINING AND QUALIFICATIONS

SUMMARY OF TECHNICAL QUALIFICATIONS:

- Currently, Point-of-Contact for Training and Qualification Management System and Subject Matter Expert for supporting subject area procedures.
- Five years experience facilitating the ORNL Nuclear Facility Training Managers Working Groups
- 11 years experience in management and administration of corporate-level training programs, especially in the area of environment, safety and health protect.
- Three years experience in safety and health protection and jobhazard analysis.
- Five years experience as research associate in health and safety research laboratory.
- Undergraduate education in natural sciences; M.P.H. in environmental and occupational safety and health.

SUMMARY OF ASSESSMENT/INSPECTION QUALIFICATIONS:

- Supported Contractor Readiness Review for restart of the High Flux Isotope Reactor, August 27-September 7, 2001.
- Served on three assessment teams for Integrated ESH&Q Management Assessments, 1998-2000.

SUMMARY OF FACILITY FAMILIARIZATION:

- Limited to facility access orientation and assessment team briefing and tour.

ACCEPTABLE TO TEAM MANAGER:

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: Linda R. Bauer

AREA ASSIGNED: 1, 2, 5, 14, 15

SUMMARY OF TECHNICAL QUALIFICATIONS:

- 15 years of experience in DOE and NRC nuclear facility management and operation.
- Nuclear facility management positions up to and including General Manager.
- M. S. and Ph.D. degrees from the Schools of Nuclear Engineering and Health Physics, Purdue University.

SUMMARY OF ASSESSMENT/INSPECTION QUALIFICATIONS:

- Participant, assessor, and line manager in previous readiness reviews at the Savannah River Site, Mound Plant, Pantex, Y-12, and BWXT-owned commercial sites.
- Corporate mentor for processes associated with achieving and demonstrating readiness.

SUMMARY OF FACILITY FAMILIARIZATION:

- Facility orientation provided October 10, 2002.
- Additional background material provided by UT-Battelle staff.

ACCEPTABLE TO TEAM MANAGER

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: Julie G. Ezold

AREA ASSIGNED: Conduct of Operations and Nuclear Criticality Safety

SUMMARY OF TECHNICAL QUALIFICATIONS:

- Seven years working in a mature conduct of operations environment.
- Qualified as a nuclear criticality safety engineer
- Qualified as a shift technical advisor for an enriched uranium operations facility.
-

SUMMARY OF ASSESSMENT/INSPECTION QUALIFICATIONS:

- Participated in two RAs at Y-12
- Conducted annual assessments of operations as part of being a criticality safety officer.
-

SUMMARY OF FACILITY FAMILIARIZATION:

- Team walk-down of facility.
- Review of facility documentation

ACCEPTABLE TO TEAM MANAGER

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: David G. Renfro

AREA ASSIGNED: Safety Documentation (SD)

SUMMARY OF TECHNICAL QUALIFICATIONS:

- B. S. and M.E. Nuclear Engineering, University of Tennessee.
- Professional engineer.
- Commercial nuclear plant experience
 - Safety Design Engineer
 - Technical Manager
- Lockheed Martin Energy Systems
 - Facility safety engineer
 - Representative to Energy Facility Contractors Group Safety Analysis Working Group.

SUMMARY OF ASSESSMENT/INSPECTION QUALIFICATIONS:

- Led nuclear engineering scope of Engineering Assurance review of Restart Design Baseline program at Sequoyah Nuclear Plant.
- Led independent management and technical investigation of accident at the In Situ Vitrification remediation project at ORNL
- Member of independent management review team to assess ORNL compliance with nuclear operations expectations.
- Led ORNL technical vulnerability assessment of HEPA filters.
- Member of HFIR MSA team.

SUMMARY OF FACILITY FAMILIARIZATION:

ACCEPTABLE TO TEAM MANAGER

TEAM MEMBER ASSIGNMENT AND QUALIFICATION SUMMARY

TEAM MEMBER NAME: Paul B. Clark

AREA ASSIGNED: Conduct of Operations

SUMMARY OF TECHNICAL QUALIFICATIONS:

Mr. Clark has 30 years combined experience in the Navy Nuclear Power Program and the DOE weapons complex. During this time he held positions at supervisory, middle management and senior management levels in the areas of maintenance and maintenance planning, nuclear operations, engineering, special nuclear material (SNM) handling and shipping, and quality assurance. Mr. Clark holds a Bachelor of Science degree in Business Management, an Associate of Science in General Studies with an emphasis in engineering technology, and completed Navy Nuclear Power School and Prototype training. Mr. Clark retired from the Navy after 20 years of service as a Master Chief Machinists Mate. His final assignment was as Force Machinist, Force Auxiliaryman, and Assistant Force Quality Assurance Officer for Commander Submarine Force Atlantic Fleet.

SUMMARY OF ASSESSMENT/INSPECTION QUALIFICATIONS:

- Conducted quality assurance and operational on U.S. Navy submarines.
- Served maintenance/engineering assessor on Operational Readiness Review (ORR) team for assessment of new plutonium processing activity in building 371 at Rocky Flats Environmental Technology Site (RFETS).
- Served maintenance/engineering assessor on Readiness Assessment (RA) team for assessment of new plutonium processing activity in building 771 at Rocky Flats Environmental Technology Site (RFETS).
- Served as work control/conduct of operations assessor for pre-ORR assessment at the Device Assembly at the Nevada Test Site.
- Served as Team Leader for Management Assessment conducted on the RFETS SNM shipping program in preparation for DOE ORR.
- Conducted review/assessment of gap analyses performed by the Los Alamos National Laboratory for implementation of Conduct of Operations requirements of DOE Order 5480.19.

SUMMARY OF FACILITY FAMILIARIZATION:

ACCEPTABLE TO TEAM MANAGER

APPENDIX C
ASSESSMENT AND DEFICIENCY FORMS

MSA ASSESSMENT FORM

Functional Area:	Core Requirement Number:	Date:
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Method of Appraisal (short narrative description):

Reviewed documents, conducted interviews, walked down the facility and equipment, and observed evolutions as indicated below.

Personnel contacted/position:

Records and other documents reviewed:

Evolutions/operations witnessed:

Discussion:

Conclusion:

Inspected by:	Approved by: <p style="text-align: center; margin-left: 100px;">MSA Team Manager</p> Date:
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MSA DEFICIENCY FORM

Functional Area:	Core Requirement Number:	Date: ID #:
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Requirement:

Reference(s) (specific as to section):

Finding: _____ Observation:

Discussion:

Finding Designation: Prestart Poststart	Inspector:
Group Leader: Date:	Approved by: MSA Team Manager Date:

APPENDIX D
FINDING CLASSIFICATION CRITERIA

Finding Classification Criteria

This checklist will be used to determine whether a deficiency must be corrected prior to startup.

A. Initial Screening

1. Does this issue involve a safety system?
2. Does this issue involve processes, functions or components identified in the Technical Safety Requirements or nuclear safety control procedures?
3. Does this issue involve potential adverse environmental impact exceeding regulatory or site specific release limits?
4. Does this issue impact on safety processes, functions or components that could adversely impact safety related processes, functions or components?
5. Does this issue indicate a lack of adequate procedures or administrative systems?
6. Does this issue indicate operational or administrative non-compliance with procedures or policy?
7. Has this issue occurred with a frequency that indicates past corrective actions have been lacking or ineffective?
8. Does this issue require operator training not specified in existing facility training requirements?
9. Does the issue involve a previously unknown risk to worker or public safety and health or a previously unknown threat of environmental insult or release.

If the response to any of the above is yes, further evaluation, in accordance with the issue impact criteria below is required. If the response to all of the above is no, the issue may be resolved after restart.

B. Issue Impact

1. Does the loss of operability of the item prevent safe shutdown, or cause the loss of essential monitoring?
2. Does the loss of operability of the item require operator action in less than ten (10) minutes to prevent or mitigate the consequences of events described in the Safety Analysis?
3. Does the loss of operability of the item cause operation outside the TSR or Safety Analysis?
4. Does the loss of operability of the item result in a reduction of the margin of safety as described in the Safety Analysis?
5. Does the issue indicate a lack of control which can have a near term impact on the operability or functionality of safety related systems?
6. Does the issue involve a violation or potential violation of worker safety or environmental protection regulatory requirements that poses a significant danger to workers, the public, or of environmental insult or release?

If the response to any of the above questions is yes, the item should be considered a prestart item.