DOE F 1325.8
(4/93)

95-0005595

United States Government

Department of Energy

Oak Ridge Operations Office

memorandum

DATE: October 31, 1995

REPLY TO ATTN OF: DP-81:Wall

SUBJECT: **DNFSB RECOMMENDATION 94-4 OCTOBER DELIVERABLES**

TO: Thomas P. Seitz, Acting Deputy Assistant Secretary for Military Application and Stockpile Support, DP-20, FORS

The attached documents are near term deliverables associated with DNFSB Recommendation 94-4. More specifically these documents are related to Task N.4.2, for the Depleted Uranium Operations Readiness Assessment:

Memorandum from F. P. Gustavson to R. J. Spence dated September 29, 1995, Depleted Uranium Operations (DUO) and Support Functions Readiness to Proceed - Nuclear.

Memorandum from R. J. Spence to F. P. Gustavson dated September 29, 1995, Restart of Depleted Uranium Operations.

Memorandum from R. J. Spence to J. C. Hall dated September 25, 1995, Team Leader of Lockheed Martin Energy Systems, Inc. Readiness Assessment For Depleted Uranium Operations.

Memorandum from F. P. Gustavson to R. J. Spence dated August 30, 1995, Team Leader of Readiness Assessment (RA) for the Resumption of Depleted Uranium Operations (DOU) and Support Functions at the Oak Ridge Y-12 Plant - Nuclear.

Memorandum from T. S. Tison to R. J. Spence dated September 29, 1995, Restart of Depleted Uranium Operations with attachment, Y-12 Site Office Restart Team Assessment of the Depleted Uranium Operations and Support Function at the Y-12 Plant, dated September 26, 1995.

Y/AD-631, Lockheed Martin Energy Systems, Inc. Readiness Assessment Report for the Resumption of Depleted Uranium Operations at the Oak Ridge Y-12 Plant, September 11-21, 1995

If you have any questions related to this matter, please contact David Wall of my staff at (615) 576-1989.

Robert J. Spence
Y-12 Site Manager

Attachment

cc w/o attachment:
J. Rothrock, SE-33, ORO
J. Ford, EW-92, ORO
J. Rayside, 9115, MS 8223, Y-12
M. McBride, M-7, ORO

Attachment 1
Memo, Spence to Seitz
Dated:

Memo Title:

DNFSB Recommendation 94-4 October Deliverables

MARTIN MARIETTA

95/5595

RECEIVED

MARTIN MARIETTA ENERGY SYSTEMS, INC. POST OFFICE BOX 2009 OAK RIDGE, TENNESSEE 37831

1995 NOV -6 AM 8:20

DNF SAFETY BOARD

September 29, 1995

Mr. R. J. Spence
Department of Energy, Oak Ridge Operations
Post Office Box 2001
Oak Ridge, Tennessee 37831

Dear Mr. Spence:

Depleted Uranium Operations (DUO) and Support Functions Readiness to Proceed - Nuclear

The DUO and Support Functions have completed the Management Self-Assessment (MSA) and the Lockheed Martin Energy Systems Independent Readiness Assessment (RA). The RA was conducted September 11-21, 1995. The RA was a systematic inquiry into the ability of the Y-12 staff to conduct DUO and Support Functions activities in a safe and disciplined manner. The scope of the RA was determined by the core objectives identified and approved in the Plan of Action (POA), Y/NA-1800C. The DUO and Support Functions within the scope of the RA are not governed by Criticality Safety Approvals, Operational Safety Requirements, or Class I procedures.

The RA team determined that adequate management systems are in place to ensure safe operations, significant improvements have been made in conduct of operations, personnel exhibit an awareness of health and safety requirements, and personnel are enthusiastic about the new rigor and discipline that is being required. The RA team determined that the DUO and Support Functions are adequately prepared to continue resumption. All Lockheed Martin Energy Systems Management Self-Assessment and DOE Y-12 Site Office Restart Team prestart findings have been closed. All poststart findings have approved corrective action plans.

Based on the above, I have determined that the DUO and Support Functions are ready to commence operations.

Should you need additional information, please contact D. P. Bryant, 576-3748, or T. R. Shope, 574-6328.

Sincerely,

F. P. Gustavson
Vice President
Defense and Manufacturing

FPG:lme

cc: D. P. Bryant - RC
T. R. Butz
G. G. Fee
F. P. Gustavson
J. E. Heiskell/J. E. Stone
M. K. Morrow
F. R. Mynatt
R. K. Roosa
P. R. Wasilko
A. K. Zava

Attachment 2
Memo, Spence to Seitz
Dated:

Memo Title:

DNFSB Recommendation 94-4 October Deliverables

95/5595

Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831—8555

Y-12 Site Office

September 29, 1995

Mr. F. P. Gustavson, Vice President
Defense and Manufacturing
Lockheed Martin Energy Systems, Inc.
Post Office Box 2009
Oak Ridge Tennessee 37831-8010

Dear Mr. Gustavson:

RESTART OF DEPLETED URANIUM OPERATIONS

In your letter of September 29, 1995, you stated that Lockheed Martin Energy Systems, Inc. (LMES) is ready to commence Depleted Uranium Operations (DUO).

The Y-12 Site Office Restart Team (YSORT) and the Facility Representatives have completed their reviews and have provided assurance to me that DUO can be resumed with the following conditions established:

1. LMES resumption area management shall ensure the successful and safe implementation of Restart Test Programs for low-hazard processes not immediately required for operation. LMES shall inform the Y-12 Site Office (YSO) in writing of each restart plan at least 10 working days prior to the implementation.

2. The YSO shall observe and evaluate the contractor's planning and execution of the Restart Test Program activities, closure of all post-restart preoperational findings, and initial operations to ensure the operation will be conducted in a safe manner.

3. LMES shall establish and implement effective administrative controls and compensatory measures, if any, required for the implementation of the Restart Test Program.

The DOE review will be a recurring process due to the nature of the DUO mission and to ensure that facility operations receive an adequate DOE review. This review will be accomplished by advising me of the execution of restart test plans in the time specified. Under these conditions, you are authorized to resume DUO.

A copy of the YSORT report entitled "Assessment of the Depleted Uranium Operations and Support Functions at the Y-12 Plant," dated September 26, 1995, is enclosed.

Please contact either Tom Tison (6-9854) or Mark Sundie (1-6441) of my staff, if you have any questions.

Sincerely,

Robert J. Spence
Y-12 Site Manager

DP-811:Tison

Enclosure

cc w/enclosure:
D. P. Bryant, 9119, MS-8235, Y-12
R. K. Roosa, 9113, MS-8208, Y-12

Attachment 3
Memo, Spence to Seitz
Dated:

Memo Title:

DNFSB Recommendation 94-4 October Deliverables

DOE F 1325.8
(4/83)

95/5595

United States Government **Department of Energy**

memorandum

Oak Ridge Operations Office

DATE: September 25, 1995

REPLY TO ATTN OF: DP-811:Christenson

SUBJECT: **TEAM LEADER OF LOCKHEED MARTIN ENERGY SYSTEMS, INC. READINESS ASSESSMENT FOR DEPLETED URANIUM OPERATIONS**

TO: James C. Hall, Manager, Oak Ridge Operations Office, M-1, ORO

Thru: ~~R. R. Nelson~~ RRN, Assistant Manager for Defense Programs, DP-80, ORO

Mr. Joseph P. Flynn has been designated as the team leader of the Lockheed Martin Energy Systems, Inc. (LMES), Independent Readiness Assessment (RA) for the resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant. Attached is the LMES letter that transmits the proposed change to the "Lockheed Martin Energy Systems, Inc., Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant," which was approved by the ORO Manager on June 12, 1995. This change does not affect the scope of the approved LMES RA and is recommended for approval.

If you have any questions or need additional information, please contact me at 6-0755.

Robert J. Spence
Y-12 Site Manager

Attachment

cc w/attachment:
F. P. Gustavson, 9704-2, MS 8016, Y-12
S. D. Richardson, M-2, ORO

Approved: James C. Hall Date: 9-25-95
James C. Hall, ORO Manager

Attachment 4
Memo, Spence to Seitz
Dated:

Memo Title:

DNFSB Recommendation 94-4 October Deliverables

MARTIN MARIETTA

95/5595

RECEIVED
1995 NOV -6 AM 8:21
DNF SAFETY BOARD

MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2009
OAK RIDGE, TENNESSEE 37831

August 30, 1995

Mr. R. J. Spence
Department of Energy, Oak Ridge Operations
Post Office Box 2001
Oak Ridge, Tennessee 37831

Dear Mr. Spence:

Team Leader of Readiness Assessment (RA) for the Resumption of Depleted Uranium Operations (DUO) and Support Functions at the Oak Ridge Y-12 Plant - Nuclear

Mr. Joseph P. Flynn has been designated as the team leader of the Lockheed Martin Energy Systems, Inc. (Energy Systems), independent RA for the resumption of DUO and Support Functions at the Oak Ridge Y-12 Plant. Enclosed is revised Section VIII, "Proposed Readiness Assessment Team Leader," and Appendix V, "Team Leader Qualification Summary," of Document Y/NA-1800C, "Lockheed Martin Energy Systems, Inc., Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant." This revision does not affect the scope of the approved Energy Systems RA.

Should you need additional information, please contact M. K. Morrow at 574-2112.

Sincerely,

F. P. Gustavson
Vice President
Defense and Manufacturing

FPG:bsw

Enclosures: (2) As Stated

PR-8. A routine operations drill program is required for certified operators and is documented in guides developed for the program. The specified number of operating and support personnel required for the scenario must be present, trained, and qualified during drills and simulations. Operations and operational support personnel demonstrate a satisfactory level of proficiency in response to routine operations drill scenarios. The routine operations drill program records are current and reflect an adequate program status. (CO-22)

DOE Order 5480.20, *Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities*, requires drills to be conducted to enable certified operations personnel to maintain proficiency in their ability to respond to abnormal or accident situations. Because of the low level of hazards associated with DU Operations and Support Functions, there are no positions requiring certification within DU Operations and Support Functions. Therefore, the requirement for a routine operations drill program does not apply.

PR-13. A revised process for the issuance of CSAs is developed and put into place. (DOE Concern, Section V.B.2.b.)

This PR does not apply to DU Operations and Support Functions because there are no CSAs for DU Operations and Support Functions.

VII. Estimated Readiness Assessment Start Date and Duration

The Energy Systems RA is expected to commence approximately one week after line management certification of readiness and endorsement by the Vice President, Defense and Manufacturing. The Energy Systems RA will require about two weeks to complete. The Energy Systems RA team training and familiarization will occur before Energy Systems issuance of the line management certification of readiness.

VIII. Proposed Readiness Assessment Team Leader

The Energy Systems RA team leader is Joseph P. Flynn. (See Appendix V for team leader qualifications.)

IX. Official to Approve Start of Energy Systems Readiness Assessment

The official to approve start of the Energy Systems RA will be the Vice President, Defense and Manufacturing. Approval will require the formal certification of the readiness to proceed by the line management responsible for a facility or operation that is within the scope of this RA.

X. Official to Approve Restart of the Facility

The restart authority for the facilities within the scope of this RA is F. P. Gustavson, Vice President, Defense and Manufacturing, with the concurrence of the Y-12 Site Office.

Enclosure 2 to Letter,
Gustavson to Spence
Dated: August 30, 1995

APPENDIX V

TEAM LEADER QUALIFICATION SUMMARY

Name: Joseph P. Flynn

Objectives Assigned: Readiness Assessment Team Leader

Employer/Normal Work Assignment: Lockheed Martin Energy Systems, Inc.
Manager, Evaluations Program

Summary of Technical Qualifications:

- B.S. Electrical Engineering, Purdue University Honors Program
- U. S. Navy Nuclear Power Program - six years
- Commercial Nuclear Plant Experience
  - Engineer
  - Maintenance Manager
  - Operations Manager
  - Technical Manager
  - Assistant Plant Manager
- Institute of Nuclear Power Operations (INPO)
  - Maintenance Department Assistant Manager
  - Operations Department Manager
    - Developed "Guidelines for the Conduct of Operations at Nuclear Power Stations"
  - Events Analysis Department Manager
  - Technical Development Department Manager
  - Plant and Corporate Evaluation Team Manager - more than 20 evaluations
- Consultant in areas of Operations and Maintenance
- Manager of Energy Systems Evaluations Program

Summary of Review/RA/Inspection Qualifications:

- See INPO experience.
- Participated in 13 Energy Systems Evaluations Group evaluations as a consultant to the team manager.

Basis for Acceptable Independence:

The Manager, Evaluations Program, reports to the Vice President, Compliance, Evaluations, and Policy.

Summary of Facility Familiarization:

Participated in one Energy Systems Evaluations Group evaluation of Y-12.

Training:

Completed DOE Order 5480.31 training in November 1994.

Attachment 5
Memo, Spence to Seitz
Dated:

Memo Title:

DNFSB Recommendation 94-4 October Deliverables

05/5595

United States Government

Department of Energy
Oak Ridge Operations Office

memorandum

DATE: September 29, 1995

REPLY TO ATTN OF: DP-811:Tison

SUBJECT: **RESTART OF DEPLETED URANIUM OPERATIONS**

TO: Robert J. Spence, Y-12 Site Manager, DP-81

Lockheed Martin Energy Systems, Inc. (LMES) stated in its letter of September 29, 1995, that the Depleted Uranium Operations (DUO) is ready to commence operations.

The Y-12 Site Office Restart Team (YSORT) has completed its assessment of the subject resumption area and identified 24 pre-restart findings and 34 post-restart findings. All pre-restart findings have been adequately closed. A copy of YSORT's final report, which was signed by the members of the team and approved by me, is attached. YSORT is confident that the DUO resumption area is ready for restart with the following conditions.

1. LMES resumption area management shall ensure the successful and safe implementation of Restart Test Programs for low-hazard processes not immediately required for operation. LMES shall inform the Y-12 Site Office (YSO) in writing of each restart plan, at least, 10 working days prior to the implementation.

2. The YSO shall observe and evaluate the contractor's planning and execution of the Restart Test Program activities, closure of all post-restart preoperational findings, and initial operations to ensure the operation will be conducted in a safe manner.

3. LMES shall establish and implement effective administrative controls and compensatory measures, if any, required for the implementation of the Restart Test Program.

Based on the results of the review, I recommend that you concur with LMES' approval to resume DUO with the above-mentioned conditions.

Please contact either Mark Sundie (1-6441) or me (6-9854) if you have any questions.

for Thomas S. Tison
Restart Team Manager

Attachment

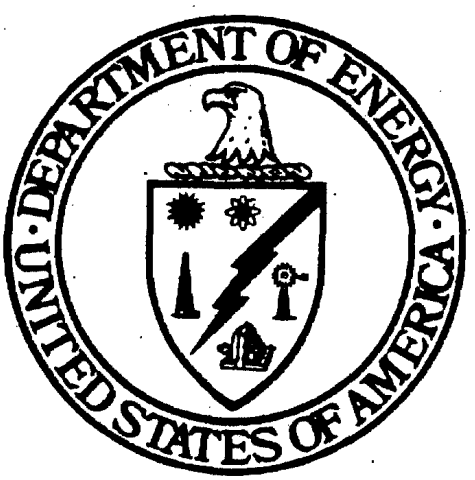
cc w/attachment:
D. E. Christenson, DP-811
D. K. Hoag, DP-813
M. A. Livesay, DP-812
M. A. Sundie, DP-811
D. L. Wall, DP-81

U.S. DEPARTMENT OF ENERGY
OAK RIDGE OPERATIONS

Y-12 SITE OFFICE RESTART TEAM

ASSESSMENT OF THE DEPLETED URANIUM OPERATIONS AND SUPPORT FUNCTIONS AT THE Y-12 PLANT

SEPTEMBER 26, 1995



U.S. DEPARTMENT OF ENERGY
OAK RIDGE OPERATIONS

Y-12 SITE OFFICE RESTART TEAM

ASSESSMENT OF THE DEPLETED URANIUM OPERATIONS AND SUPPORT FUNCTIONS AT THE Y-12 PLANT

SEPTEMBER 26, 1995

****

Submitted by: Mark A Sundie
Mark A. Sundie, Team Leader
Date: 9/26/95

Submitted by: Dale E Christenson
Dale E. Christenson, Team Leader
Date: 9/26/95

Approved by: Thomas S. Tison
Thomas S. Tison, Restart Manager
Date: 9/26/95

ASSESSMENT OF THE
DEPLETED URANIUM OPERATIONS AND SUPPORT FUNCTIONS
AT THE Y-12 PLANT

Y-12 Site Office Restart Team

Thomas S. Tison
Restart Manager

Mark A. Sundie
Team Leader

Dale E. Christenson
Team Leader

Richard L. Renne
Resumption Area Lead
and Safety Culture

Gerald R. Mountain
Procedures

Frank S. Poppell
Operations and
Level of Knowledge

Gary F. Weston
Procedures

Randy C. Foust
Management

Kirk W. Van Dyne
Operations and
Level of Knowledge

Peter R. Kulesza
Quality Assurance and
Management

Thomas Rogers
Training and Qualification

George Napuda
Facility/System Readiness
and Material Condition

ASSESSMENT OF THE
DEPLETED URANIUM OPERATIONS AND SUPPORT FUNCTIONS
AT THE Y-12 PLANT

Y-12 Site Office Restart Team

Donald A. Beckman
Technical Editor

Plackeel Eapen
Technical Editor

Amye E. Rice
Quality Assurance

Kay F. Dutton
Administrative Support

Nicola P. White
Administrative Support

Kimberly E. Hurd
Administrative Support

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Depleted Uranium Operations (DUO) at the Y-12 Plant was suspended by the Management and Operating Contractor on September 22, 1994. In accordance with *Department of Energy (DOE) Order 5480.31, Startup and Restart of Nuclear Facilities,* the resumption authority for DUO was delegated to the contractor (Lockheed Martin Energy Systems, Inc. [LMES]) management by the Manager of DOE Oak Ridge Operations Office. The delegation of restart authority to LMES was contingent upon DOE YSO line management concurrence in the LMES resumption authorization. LMES management conducted self-assessment activities and a formal LMES Independent Readiness Assessment (IRA) to evaluate their state of readiness to resume operations. The Y-12 Site Office Restart Team (YSORT) provided the Y-12 Site Office (YSO) line management oversight of the LMES activities to support DOE management's decision to concur with the LMES restart authorization as detailed in this report.

The YSORT conducted work observations, interviews, and document reviews of LMES activities in four organizations at the Y-12 Plant (Depleted Uranium [DU] Organization, Disassembly and Storage {DSO], Quality Organization [QO], and Waste Management [WM]) germane to the resumption of the Depleted Uranium Operations (DUO) mission activities from July 24, 1995, through September 22, 1995. YSORT consisted of about twenty full-time professional and administrative staff members with diverse nuclear backgrounds. The assessments were planned and performed in accordance with the "Y-12 Site Office Restart Team Assessment Plan for Depleted Uranium Operations," and consistent with DOE Order 5480.31 and the resumption scope defined by the DOE-approved Y/NA-1800C, "LMES Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant."

The facilities and processes within the scope of the LMES DUO Plan of Action (POA) were not all scheduled for immediate operation upon resumption. As such, LMES adopted a strategy in the POA to verify the readiness of the basic programs and staff to support DUO resumption in the LMES IRA. Low-hazard facilities and processes, such as arc melting and casting, will only be restarted when they are needed to support mission activities. LMES plans to control the restart of the low-hazard facilities, using Restart Test Programs specifically developed for each such facility. These Restart Test Programs provide specific actions needed to complete and verify the status of facilities and equipment, applicable procedures, and personnel training and qualifications.

The YSORT and internal LMES assessments of DUO readiness found that the basic DUO programs and staff were ready, on a general basis, to support the Restart Test Programs. However, a number of performance and program problems were identified in Conduct of Operations, Training and Qualification, and Restart Test Programs content that required LMES actions prior to the implementation of Restart Test Programs (i.e., actual operations in the particular restart area).

The YSORT assessments of DUO generated 58 findings. Of these, 24 were designated pre-restart in accordance with YSO guidance as requiring resolution prior to restart. The remaining 34 findings were designated as post-restart. Of the 34 post-restart findings, 22 must be resolved prior to the restart of low-hazard facilities and have been designated as preoperational findings. All YSORT pre-restart findings have not been closed as of the date of this report. Acceptable resolution for the post-restart findings discussed in this report will be ensured through the DOE oversight of the LMES corrective action plans.

A summary of results for each assessment functional area follows:

Conduct of Operations

The results of this assessment indicate that the Conduct of Operations Program was in the process of being fully developed and was not consistently implemented throughout all DUO organizations. Consequently, many implementation problems with respect to specific conduct of operations requirements were identified. None of the problems presented actual or potential significant safety risks. The long-term implementation of Conduct of Operations Program by the contractor is adequate to eliminate recurrence of these noncompliances.

Training and Qualification

The review of the training and qualification of personnel that are needed to support DUO determined that such personnel were not trained and qualified consistently among the organizations involved. For example, all DSO personnel on the resumption crew were trained and qualified, none of the QO personnel have completed all of their required training, and sufficient Uranium Chip Oxidation Facility (UCOF) personnel have completed their required training to meet their minimum staffing requirements. The adequacy determination of the DUO Training and Qualification Functional Area to support resumption is based on the existence of acceptable LMES controls to ensure that only qualified personnel are assigned to work activities.

Procedures and Programs

Procedures required for resumption of DUO were technically and operationally adequate. Personnel were knowledgeable of the procedures, and they exhibited knowledge of the procedure use and adherence requirements. Personnel have been provisionally qualified on the latest revisions, and measures were in place to prevent unqualified personnel from performing work.

Facility/System Readiness and Material Condition

YSORT determined that the condition and status of the facilities described in the DOE-approved LMES POA are adequate to support resumption. LMES plans to complete restart activities for individual, DUO low-hazard process areas and activities using Restart Test Programs that prescribe measures for preparing personnel, equipment, and procedures for specific mission activities such as arc melting and casting. The LMES overall strategy to use the Restart Test Programs was found to be acceptable. However, problems were identified with the Restart Test Programs, including insufficient equipment scope and missing plans for Non-Destructive Examination (NDE) and Dimensional Inspection activities. LMES has established measures to resolve the above problems prior to the implementation of the individual Restart Test Programs.

Safety Culture

YSORT has determined that a sufficient Safety Culture exists to support an LMES recommendation to restart DUO, provided that acceptable dispositions are confirmed for all pre-restart findings and that the Restart Test Programs are acceptably executed.

Management

Based on the results of this assessment, the activities performed by LMES were determined to be adequate in meeting the requirements defined by the assessment criteria, with the exception of the pre-restart deficiencies identified in the assessment reports. YSORT evaluated LMES IRA for the resumption of DUO. From this evaluation, YSORT concluded that the breadth, depth, and results of the LMES IRA were adequate to verify the readiness of hardware, personnel, and management programs defined in the POA. The LMES IRA identified no pre-restart findings. In addition, YSORT documented several positive observations to recognize the significant improvements made in this LMES IRA for DUO over that for Receipt, Storage, and Shipment operations.

Conclusion

The YSORT recommends that DOE concurrence for resumption of DUO be granted subject to the following conditions.

1. LMES resumption area management shall ensure the successful and safe implementation of Restart Test Programs for facilities and processes not immediately required for operation. LMES shall inform the YSO in writing of each restart test plan, at least, 10 working days prior to the implementation.

2. The YSO shall observe and evaluate the contractor's planning, execution of the Restart Test Program activities, closure of all post-restart preoperational findings, and initial operations to ensure the operation will be conducted in a safe manner.

3. LMES shall establish and implement effective administrative controls and compensatory measures, if any, required for the implementation of the Restart Test Programs.

YSORT also recommends that DOE provide written direction to the contractor for the implementation of the above actions. With these conditions in place, the YSORT considers that DUO will be resumed safely to meet the immediate mission needs, and, with subsequent DOE review and approvals, can proceed with the preparations for the implementation of the Restart Test Programs.

U.S. DEPARTMENT OF ENERGY OAK RIDGE OPERATIONS
Y-12 SITE OFFICE RESTART TEAM
ASSESSMENT OF THE
DEPLETED URANIUM OPERATIONS AND SUPPORT FUNCTIONS AT THE Y-12 PLANT

1.0 INTRODUCTION

The United States Department of Energy (DOE) established a system to standardize and control the process of facility startups in *DOE Order 5480.31, Startup and Restart of Nuclear Facilities*. DOE has delagated the authority to restart the Depleted Uranium Operations (DUO) to Lockheed Martin Energy Systems, Inc. (LMES), the Management and Operating Contractor, in accordance with the provisions of the above DOE Order. This delegation of authority is subject to DOE line organization's valdiation of the LMES state of readiness and concurrence in the contractor's authorization.

The overall framework to restart facilities at Y-12 was published in Y/AD-623, "Plan for Continuing and Resuming Operations, Oak Ridge Y-12 Plant," and was concurred by the Assistant Secretary for Defense Programs. To meet the intent of DOE Order 5480.31, the DOE Y-12 Site Office (YSO) organized and tasked a Y-12 Site Office Restart Team (YSORT) of subject matter experts to evaluate LMES readiness to resume DUO activities. Team biographical information is provided in Appendix 7.1.

The results of the YSORT assessment of DUO and the recommendations to the Y-12 Site Manager regarding LMES readiness to resume operations are documented in this report.

2.0 SCOPE

The assessment in accordance with "Y-12 Site Office Restart Team Assessment Plan for Depleted Uranium Operations," dated July 21, 1995, evaluated the adequacy of the actions taken by LMES to prepare DUO for restart. The YSORT Assessment Plan was based upon the scope defined in the DOE-approved Y/NA-1800C, "LMES Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant," dated June 1, 1995. In general the scope of this assessment included facilities and activities involved in arc melting, casting, metal working, storage, and inspection in over a dozen buildings. The YSORT reviews were performed using the Core Objective

(COs) described and scoped in the LMES DUO Plan of Action (POA). These reviews were organized into the following six functional areas of DUO.

- Conduct of Operations and Level of Knowledge
- Training and Qualification
- Procedures and Programs
- Facility/System Readiness and Material Condition
- Safety Culture
- Management

The YSORT assessment activities were conducted and documented in accordance with YSO Operating Procedure YSO 5.4-1, "Restart Team Assessments."

3.0 REFERENCES

A complete list of references are shown in Appendix 7.4.

4.0 ASSESSMENT RESULTS AND OVERALL CONCLUSION

The facilities and processes within the scope of the LMES DUO POA were not all scheduled for immediate operation upon resumption. Limited operations were planned for late calendar year (CY) 1995, and the CY 1996 activity will be based on emerging mission work. As a result of the uncertainties regarding specific facility and activity production restarts, the LMES employed a strategy in the POA whereby the basic DUO programs and staff would be verified as ready to support DUO resumption at the time of the LMES Independent Readiness Assessment (IRA). However, individual low-hazard facilities and processes, such as arc melting, casting, etc., would not be individually restarted until needed in support of mission activities. These individual restarts were to be controlled by low-hazard process Restart Test Programs as discussed in Section 5.4.

The Restart Test Programs for individual activities provide specific actions needed to complete and verify the status of facilities and equipment, applicable procedures, and personnel training and qualifications. Successful completion of the Restart Test Program activities require a sound conduct of operations foundation. The YSORT and internal LMES assessments of DUO readiness found that the basic DUO programs and staff were ready, on a general basis, to support the Restart Test Programs. However, a number of performance and program problems were also identified that require further action in the subject

areas of Conduct of Operations, Training and Qualification, and Restart Test Programs content. Consequently, the YSORT assessment findings and issues discussed below require further action by LMES prior to execution of the Restart Test Program for each individual restart activity. The post-restart findings that must be resolved prior to each individual restart activity were desinated as preoperational findings. Acceptable completion of the further actions will be managed via DOE oversight of the LMES corrective action plans for the respective findings.

4.1 Conduct of Operations Issues

Conduct of Operations programmatic and implementation problems were found in organization and administration, implementation of operational controls, and implementation of radiological controls. The team found that the various conduct of operations documents inadequately defined functional roles and responsibilities, reporting relationships, the details of commitment to specific *DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities*, provisions, and applicability of the LMES Conduct of Operations Manual and LMES Y-12 Procedures as discussed in Sections 5.1 and 5.6 of this report. The YSORT found that managers and workers frequently did not have clear understanding of the program documents nor the assignment of responsibilities under the program. As a result, the potential existed for important functions to be missed or improperly executed. For example, the interface responsibilities between Depleted Uranium (DU) Organization and Radiological Control (RadCon) Management were not working effectively. As a result, DU Organization and did not receive adequate RadCon departmental leadership and support.

Although there was not a clear result of the organizational and program definition problems, LMES also experienced difficulties in implementation of specific conduct of operations activities. Sections 5.1, 5.3, and 5.5 discuss numerous examples which indicate that the implementation of Conduct of Operations Program for DUO needs improvement to ensure that the Restart Test Programs will be successful and the restart activities safety implemented. Examples include procedure changes without proper approval; unworkable procedures issued to and used in the field; and problems with round sheet implementation and supervisory review, management tours, operators aids, and temporary modifications. RadCon problems included boundary area controls, adequacy and implementation of radiation work permit, and inappropriate postings.

4.2 Training Issues

The DUO training and qualification activities for conduct of operations provided basic knowledge but was weak, relied heavily on required reading, had no student performance evaluation, and did not provide strong reinforcement of management expectations. Task training based on activity walk-throughs resulted in provisional qualifications which require final, hands-on qualification certification as part of the Restart Test Programs. Examples of weaknesses in basic personnel knowledge and the provisional qualifications included the conduct of operations implementation problems discussed above, DU Organization and QO staff training not current with DUO resumption requirements, use of inappropriate on-the-job training (OJT) evaluation techniques, and a number of individual training delinquencies. Currently, no DU Organization or QO personnel fully meet the training and qualification requirements for an individual activity restart. Although the Restart Test Programs should result in adequate task qualification, the actions taken in response to YSORT and LMES Management Self-Assessment (MSA) and IRA findings must be shown to be effective prior to execution of the Restart Test Programs to ensure that personnel performance was acceptable in their execution.

4.3 Reliance on Restart Test Plans for Individual Activity Readiness

The Restart Test Programs were found to be acceptable in concept and considered them to provide appropriate levels of requirements for facility/equipment, procedure, and personnel readiness. However, both DOE and LMES assessments found that the plans did not include all necessary equipment in their scope (Section 5.4) and, consequently, may not include all necessary procedures and training requirements germane to the missing equipment. Further, Restart Test Programs had not been developed for the QO Non-Destructive Examination (NDE) and Dimensional Inspection functions. Because of the heavy reliance upon these programs as the vehicle for attaining and affirming individual facility/activity readiness, YSORT considers the correction of the programs and verification of their adequacy by YSORT to be a prerequisite for their individual execution.

4.4 Overall Conclusion

The YSORT recommends that DOE concurrence for resumption of DUO be granted subject to the following conditions.

1. LMES resumption area management shall ensure the successful and safe implementation of Restart Test Programs for facilities and processes not immediately required for operation. LMES shall inform the YSO in writing of each restart test plan, at least, 10 working days prior to the implementation.

2. The YSO shall observe and evaluate the contractor's planning, execution of the Restart Test Program activities, closure of all post-restart preoperational findings, and initial operations to ensure the operation will be conducted in a safe manner.

3. LMES shall establish and implement effective administrative controls and compensatory measures, if any, required for the implementation of the Restart Test Programs.

YSORT also recommends that DOE provide written direction to the contractor for the implementation of the above actions. With these conditions in place, the YSORT considers that DUO will be resumed safely to meet the immediate mission needs, and, with subsequent DOE review and approvals, can proceed with the preparations for the implementation of the Restart Test Programs.

5.0 FUNCTIONAL AREA REPORTS

5.1 Conduct of Operations/Level of Knowledge

The YSORT evaluated conduct of operations implementation to determine the readiness to resume DUO activities. This included the review of programs and procedures; the observation of field activities; the performance of the LMES MSA and IRA for the Operations Functional Area; and the actions taken by LMES to correct YSORT and other findings. The YSORT also evaluated the LMES staff's level of knowledge with respect to the procedures, programs, and operational activities needed to safely resume DUO activities. The level of knowledge of supervisors and operators was evaluated through surveillance of procedure walk-throughs; review of OJT; surveillance of the LMES IRA Team evaluation of level of knowledge; and interviews with operators and supervisors.

5.1.1 Core Objectives Reviewed

CO-17 required verification that the level of knowledge of operations personnel was adequate, based on reviews of

examinations, examination results, selected interviews, and observation of work performance.

CO-19, which addresses the adequacy of implementation of DOE Order 5480.19, was used as the basis for the YSORT assessment. The scope of the CO-19 review was established by the POA and the YSORT Assessment Plan and addressed the following chapters in DOE Order 5480.19:

I	"Organization and Administration"
II	"Shift Routines and Operating Practices"
V	"Control of On-the-Job Training"
VI	"Investigation of Abnormal Events"
VIII	"Control of Equipment and System Status"
XIV	"Required Reading"
XV	"Timely Orders to Operators"
XVI	"Operating Procedures"
XVII	"Operator Aids"

5.1.2 Condition of Contractor Programs and Procedures

The level of knowledge demonstrated by supervisors and operators was satisfactory, based on YSORT observations of supervisory job control and operator performance during simulated operations. Additionally, when procedure deficiencies, equipment abnormalities, or unexpected occurrences were identified, the operators and supervisory staff demonstrated good level of knowledge of the response actions as required by administrative procedures. One specific problem was identified, however, during simulated operations. The method of verifying valve position was not consistent between operators and, in some cases, incorrect. Valve positions were sometimes checked visually, and one operator checked a valve that was required to be closed by opening it.

The performance of the MSA for the Level of Knowledge Functional Area was considered to be adequate in scope and depth and consistent with the POA. The MSA team concluded that review criteria for CO-17 were met. This conclusion was independently reached by YSORT, through its reviews.

LMES had begun the development and implementation activities of the Conduct of Operations Program long before the 1994 stand-down, but had not been successful in achieving the changes in

plant programs or improving the safety culture. Comprehensive implementation plans for conduct of operations were not available until May 1995. As a result, the LMES Conduct of Operations Program was not fully developed and was inconsistently implemented across the Y-12 Plant organizational units. The overall status of program development and implementation, however, was considered adequate to support resumption subject to successful implementation of compensatory actions and interim corrective actions for YSORT and LMES MSA findings as discussed below.

The implementation of DOE Order 5480.19 for DUO is defined in MMES/Y-12-DOE-5480.19-CSA-147B. The YSORT assessment of the implementation of Conduct of Operations for each of the four DUO areas (DU Organization, Disassembly and Storage Organization [DSO], Quality Organization [QO], and Waste Management [WM]) was accomplished by verification of implementation of the commitments contained in the above compliance schedule agreement (CSA). For the most part, the team found that conduct of operations principles were being implemented in accordance with the CSA commitments. However, this assessment identified both, programmatic and specific implementation problems.

For most of the DUO organization, applicable Conduct of Operations requirements were contained in the Conduct of Operations Manual and were implemented, as specified in the CSA, at the manual chapter level. For DUO Storage and WM facilities, however, applicable Conduct of Operations requirements were contained in site procedures and were implemented in accordance with those procedures. It was not clear to YSORT how program requirements will be successfully implemented without the use of procedures and the associated review, approval, and revision controls of a procedure program. Furthermore, it was not clear how the Conduct of Operations Manual supercedes site procedures which remain effective. This concern had only minimal safety significance since the technical differences in the requirements established in the Conduct of Operations Manual and those in the site procedures were not significant.

For the QO, neither the CSA nor the Conduct of Operations Manual specifies the method of implementation. To address this concern, DUO management was utilizing memoranda of understanding in an attempt to implement Conduct of Operations within the QO.

However, these memoranda do not fully envelope all Conduct of Operations requirements or affected DUO facilities. DUO management has agreed to resolve this problem after resumption, but prior to equipment operation. Resolution and correction will be managed by LMES using the Restart Test Program or similar controlled processes. Additionally, review of the Conduct of Operations Manual indicates that the determination of applicable requirements may not have taken full advantage of a graded approach which could have eliminated or reduced several of the overly restrictive or nonapplicable Conduct of Operations requirements.

Many implementation problems were identified by the MSA Team and YSORT. None of the problems presented an actual or potential significant safety risk. Corrective actions proposed for the MSA and YSORT findings have appropriately resolved the issues for resumption. In the area of organization and administration, DUO has not clearly defined the roles and responsibilities of personnel identified in the Conduct of Operations Manual, and DUO area boundaries were not clearly defined with respect to "landlord" vs. "tenant." Consequently, a clear understanding of authority, accountability, and interfaces does not exist. In the area of shift routines and operating practices, round sheets were not always adequately completed by operators nor reviewed by management. Additionally, management tours were not completed as required. In the area of control of OJT, evidence of training does not exist for all activities/processes. In the area of equipment and system status, evidence of required system status control could not be retrieved. Additionally, the required temporary modification program is lacking or nonexistent. In the areas of required reading, timely orders, and operator aids, several minor deficiencies were identified. Finally, in the area of operating procedures, deficiencies regarding the improper approval of procedure revisions were identified.

The performance of the MSA for the Conduct of Operations Functional Area was considered to be adequate in scope and depth and consistent with the POA. The MSA team concluded that review criteria for CO-19 were not met. This conclusion was based on the lack of submittal of a request for approval (RFA) for the Conduct of Operations CSA; the lack of adequate management monitoring and tours; the deficiencies in the communication of management expectations for procedure use in the QO; the absence

of required radiography and dye penetrant records; and the lack of rigor and discipline in the performance of certain routine activities.

YSORT considers that the majority of these deficiencies were a result of inconsistencies between requirements contained in the Conduct of Operations Manual and site procedures and the imposition of overly restrictive or nonapplicable Conduct of Operations requirements, as discussed above. The LMES long-term program refinements, when implemented, should eliminate recurrence of these specific implementation deficiencies.

5.1.3 YSORT Finding/Issue Closure

The findings identified by YSORT in the Level of Knowledge and Conduct of Operations Functional Areas are summarized in Appendix 7.2. The specific findings and the contractor response documentation are available in the YSORT evidence files. Only one YSORT pre-restart finding was identified involving an incorrect method of verifying valve position. This finding has been closed.

5.1.4 Significant YSORT Restart Issues

None.

5.1.5 Conclusion

YSORT considers the Operations and Level of Knowledge Functional Areas within DUO acceptable for resumption.

5.2 Training and Qualification

The YSORT assessed the status of training and qualification of DUO personnel to determine readiness to resume DUO activities. This included the review of programs and training records, the performance of the LMES MSA and IRA, and the actions taken by LMES to correct YSORT and other findings.

5.2.1 Core Objectives Reviewed

Section 4, Criteria, of the YSORT Assessment Plan, requires evaluation of contractor performance in the Training and

Qualification Functional Area using COs-13, -14, -18, -20 and -23. Specifically,

CO-13 verified the Training and Qualification programs for operations personnel have been established, documented, and implemented and cover the range of duties required to be performed.

CO-14 verified the technical qualifications of contractor personnel responsible for facility operations were adequate.

Criterion 18.4 verified training and qualifications records reflect that the designated minimum staff has satisfactorily completed training required to support safe operations.

Criterion 20.5 verified operations personnel receive training on safety and environmental protection requirements.

CO-23 verified the management qualifications of contractor personnel responsible for facility operations were adequate.

This section documents the details of the YSORT assessment using the above criteria. Nine findings and nine observations were identified during the review. Two of the findings were classified as pre-restart findings and seven were classified as post-restart findings.

5.2.2 Condition of Contractor Programs and Procedures

The staffing for the DUO mission area includes personnel from DU Organization, DSO, QO, and the Uranium Chip Oxidation Facility (UCOF). The training programs and the personnel training status for each of these organizations were assessed during the DUO Training and Qualification Functional Area review.

The training program within DU Organization was being managed on a graded approach based on the hazards classification of their operations. DUO only has low hazards and generally accepted hazards operations. For low-hazards operations, DU Organization has established minimum staffing requirements and requires Performance Documentation Checklist (PDC) evaluations of operators who implement Class 2 procedures. The training

provided for generally accepted hazards was through informal OJT. This approach was explained in the POA.

At the time of this assessment, Y-12 was implementing the requirements of *DOE Order 5480.20, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities*, through their Y-12 Plant Training Implementation Matrix for DOE Order 5480.20 (TIM). The training programs were assessed using the scheduled deliverables in the TIM as a basis to determine readiness for resumption. DUO had no deliverables due at the time of this assessment and, therefore, was in compliance with the TIM; DSO had deliverables due and was not on schedule for some of them; the QO has deliverables due and was not on schedule for most of them; and the UCOF was not included under the TIM because it was not classified as a nuclear facility.

Training was primarily provided to DU Organization operating personnel through the Center for Continuing Education organization and by OJT trainers within the DU Organization. As such, there is no separate DU Training Organization.

One of the future TIM deliverables is the development and implementation of the training and qualification program for DU Organization operating personnel. Since the qualification program was not due and has not been developed, DU Organization established a matrix of resumption training requirements for personnel in all the DU Organization positions. The YSORT review determined that none of the training of the DU Organization personnel on the resumption crew was current with the training requirements matrix and that the DU Organization Manager does not intend for them to meet all requirements prior to DUO resumption. The requirements were intended to be met following DUO resumption and prior to resuming the low-hazard operations. It was not known when any low-hazard operations will be performed following DUO resumption. The DU Organization has administrative controls to ensure the training requirements were met through their Restart Test Program for the startup of each of the low-hazard operations. The training requirements for the personnel involved in generally accepted hazards were required to be verified by the supervisor.

Training was primarily provided to DU Organization operating personnel through the Center for Continuing Education organization and by OJT trainers within the DU Organization. The safety and health training was primarily provided through classroom training by an instructor, and the task-specific training and evaluation were provided through OJT and the PDC process.

DSO was not on schedule with all of their TIM deliverables, but all of their personnel identified on the resumption crew were qualified in accordance with their program requirements. The incomplete, overdue items include their Training Development and Administrative Guide (TDAG) and completion of the continuing training program.

The resumption training and qualification program requirements for the QO personnel on the resumption crew were not current.

Enough personnel from the UCOF were trained in accordance with the UCOF program requirements to meet minimum staffing requirements.

All DUO organizations have established minimum education and experience requirements that meet the requirements of DOE Order 5480.20. Personnel have been reviewed against this criteria to establish compliance and, where necessary, had obtained the required waiver of requirements. DOE Order 5480.20 allows a waiver of these requirements for all incumbents in position as of the date of the TIM approval, January 1995. The DUO resumption crew was composed of personnel who were incumbents as of January 1995.

The MSA team concluded that DUO failed to meet CO-13 criteria based on six findings and one observation issued by the team. Three of the findings were pre-restart items. The remaining three findings and the observation were post-restart items. The pre-restart findings were made against the QO training programs because they were not in accordance with the TIM schedule for radiographers, dimensional inspectors, and dye penetrant inspectors. These three items were now being reported as closed by QO with MSA team concurrences based on a draft change to the TIM. The post-restart findings were open. These findings identified that the dimension inspectors, radiographers, and the

dye penetrant personnel were not completing required training and that the qualification cards did not adequately document the status of the required training completion. The observation identified the omission of chip oxidation personnel from the TIM. The observation has been withdrawn by the MSA team because the TIM only covers nuclear facilities and the UCOF was not considered a nuclear facility. Based on the findings and the results contained in the MSA Report, it does not appear that the MSA team reviewed the training and qualification of the DSO personnel on the DUO resumption team. This conclusion was based on personnel interviews, the failure of the MSA to identify DSO's noncompliances with the TIM and incomplete qualification of DSO personnel, and because the MSA Report did not address the status of the DSO training and qualification. Areas in which the MSA performed reviews were considered to be adequate in depth.

5.2.3 YSORT Finding/Issue Closure

The findings identified by YSORT in this functional area are summarized in Appendix 7.2. The specific findings and the contractor response documentation are available in the YSORT evidence files. Pre-restart findings were issued to obtain LMES attention to the following concerns:

- The training for the QO was not meeting the schedule specified in TIM;
- TDAG and the continuing training program for DSO was not meeting the schedule specified in TIM;
- DU Organization personnel were not trained to meet the requirements specified in the training matrix;
- The waiver for the education requirements for the DSO manager was inappropriate; and
- The conduct of operations training for five DU Organization personnel was not current.

LMES has taken sufficient action to close the above pre-restart findings or instituted acceptable compensatory actions to address the concerns in the interim.

5.2.4 Significant YSORT Restart Issues

There were no training and qualification requirements established to resume the DUO mission area. Training and qualification requirements were established for each position on the DUO resumption crew that must be met prior to resuming low-hazard operations. Currently no DU Organization or QO personnel fully meet these requirements. LMES was using their startup program to ensure personnel were qualified to perform low-hazard operations and was using normal practices for making task assignments to ensure personnel were qualified to perform generally accepted hazard operations.

5.2.5 Conclusion

Training and qualification of DSO and UCOF personnel are in a condition to support DUO resumption and operation. Training and qualification of DU Organization and QO personnel were not in a condition to support DUO resumption or operation. Conclusions that the Restart Test Program is adequate under CO-28 for controlling low-hazard operations; that controls are adequately established to preclude untrained or unqualified workers from working under CO-14; and that the established minimum staffing requirements are met with available personnel under CO-18 are pre-requisites for DUO to resume normal operations.

5.3 Procedures and Programs

The YSORT conducted an independent assessment of the LMES procedure activities for DUO and observed the performance of the LMES MSA and IRA activities, using the criteria specified in YSORT Assessment Plan.

5.3.1 Core Objectives Reviewed

COs- 07, -14, and -16 were used to evaluate the DUO Procedures Functional Area. All of the criteria specified in the YSORT Assessment Plan for CO-07 were used. Additionally, the criteria from CO-14 that required an evaluation of the controls to preclude untrained personnel from performing work and the CO-16 criteria that require a determination whether personnel have been trained on the latest version of procedures were also used.

CO-07 verified that there were adequate and correct procedures for operating systems and utility systems.

CO-14 verified that technical qualifications of contractor personnel responsible for facility operations were adequate.

CO-16 verified that training has been performed to the latest revision of procedures.

5.3.2 Condition of Contractor Programs and Procedures

Low-hazard process procedures have been determined to be adequate to support resumption of DUO activities. This determination was on the performance of assessment activities and the work completed by DUO personnel in upgrading the technical adequacy of the procedures since the completion of the LMES MSA. DUO personnel have been provisionally qualified on these procedures with plans in place to qualify personnel during implementation of the restart test plans.

During performance of the LMES MSA, it was identified and documented in YSORT and MSA findings that the procedures were not technically adequate to support resumption. Through proactive actions taken by DUO management, a program was established to improve the technical correctness of the procedures. This involved enlisting the assistance of one of the MSA team members to train DUO personnel on the techniques to use when reviewing, verifying, and validating procedures. As a result of this effort, DUO now has a core group of personnel who have been trained on how to apply the required attention to detail in procedure work.

Two DUO supervisors participated with the MSA team member in the walkdown of three procedures. During these walkdowns the MSA member critiqued the DUO personnel, thus giving them immediate feedback on the methods to use when reviewing procedures. These two trained personnel then walked down the remaining low-hazard procedures with additional DUO personnel that they trained. DUO now has between four and six personnel who have been trained on how to perform a thorough review of procedures.

The reviews performed resulted in significant changes to the procedures that were subsequently verified, validated, and

approved. The procedures were not issued pending additional revisions required to respond to the concerns, if any, identified during the LMES IRA. During the IRA, minor problems were identified, and the procedures were being revised to address the identified problems at the time of this report.

Document control of DUO procedures was adequately implemented through the Plant Procedures Group who perform distribution. Although this process was slightly different than that specified in Y10-189, "Document Control", the methods used by DUO and the attention given to the process by DUO personnel have resulted in having no detectable document control problems. Since the process being used deviates from that described in Y10-189, the DUO manager issued a memorandum describing the process and individual responsibilities. Directing activities through a memorandum was not considered an acceptable method, and a finding was issued to address this concern. DUO management will develop a procedure, describing the process, to be issued prior to implementation of the restart test plans. DUO personnel were knowledgeable of the process, and operators were aware of the requirement to use controlled copies of procedures for work and to ensure they have the latest version of procedures.

DUO operators were evaluated to be knowledgeable of the procedures and the document control requirements. Some deficiencies in their knowledge of the procedure use categorization and procedure change process were discovered. In particular, on two occasions procedures were revised without following the Y10-102, "Operating Procedure Development, Revision, and Control," process. These deficiencies were documented in YSORT and MSA findings. DUO management has developed a training module that will be presented to explain the procedure use categorization system and to indoctrinate all DUO personnel on the procedure process within the next two weeks. This training will be monitored by YSORT.

Personnel have been trained to the latest revision of procedures. The process for identifying and documenting training on procedure revisions was not well defined by Y10-102, and the Training Management System (TMS) does not adequately track the accomplishment of the training. DUO has resorted to a system whereby the area supervisors make the determination of the need for training and the method to be utilized. Significant changes

to a procedure result in the creation of a procedure change directive to which all personnel are qualified. A TMS module will be created for each instance of required training on a procedure change. DUO has made the system work, but programmatic changes for all nuclear operations are necessary to make the system work and be user friendly.

Controls have been established to prevent unqualified personnel from performing work. Supervisors have been directed to verify personnel are qualified before allowing work to commence. All supervisors interviewed were familiar with this policy and knew how to access the information necessary from the TMS. Evidence files provided documentation that minimum staffing requirements have been identified, and interviews with supervisors revealed they were knowledgeable of the requirements.

DUO has a great deal of procedure work on Category III procedures remaining to be completed before execution of the restart test plans. This work is underway using facility process engineers as subject matter experts and procedure writers. The effort for preparation of the low-hazard procedures and the incorporation of lessons learned by management are assisting LMES in successfully completing this procedure work.

5.3.3 YSORT Finding/Issue Closure

The findings identified by YSORT in this functional area are summarized in Appendix 7.2. The specific findings and the contractor response documentation are available in the YSORT evidence files. Pre-restart findings were issued to address the following concerns:

- The categorization for use of a low-hazard process procedure was potentially incorrect;
- The low-hazard process procedures were not always technically adequate; and
- A procedure was changed after it was formally approved.

All of the above pre-restart issues were satisfactorily closed, or LMES has instituted effective compensatory measures to address the concerns in the interim.

5.3.4 Significant YSORT Restart Issues

There were no significant restart issues in the Procedures Functional Area. Completion of the training of DUO personnel on the procedure process (Y10-102) was adequate to resolve the remaining findings and to prepare DUO personnel to respond to real work conditions.

5.3.5 Conclusion

Procedures to support the resumption of DUO were technically adequate for operating the low-hazard processes. The response of DUO management in resolving earlier concerns over the quality of these procedures has been exemplary, and management accepted the problem and immediately understood and corrected the deficiencies. In addition, they had the foresight to determine and implement measures to preclude repetition of the identified problems.

5.4 Facility/System Readiness and Material Condition

YSORT evaluated the scope and content of the LMES Restart Test Programs for DUO, using the criteria specified in the YSORT Assessment Plan. This evaluation included independent reviews of the program and procedures, comparison of field conditions and procedures with the program documents, and observation of related activities of the LMES IRA Team. The IRA Team evaluated three of the eight DUO Restart Test Programs areas including the simulation of applicable procedures: casting furnaces in Building 9998, Lectromelt furnace in Building 9201-5, and gold recovery using potassium cyanide in Building 9201-5N. YSORT independently reviewed the programs and procedures in these three areas and observed IRA Team assessments.

5.4.1 Core Objectives Reviewed

CO-18 required verification that there were sufficient numbers of qualified personnel to support safe operations.

CO-28 required verification that an adequate startup test program has been developed which includes adequate plans for graded operations testing to simultaneously confirm operability of equipment, the viability of procedures, and the training of operators.

5.4.2 Condition of Contractor Programs and Procedures

The general strategy chosen by LMES for the Restart Test Programs appears adequate to support the individual area restarts. The programs provide specific actions needed to complete and verify the status of facilities and equipment, applicable procedures, and personnel training and qualifications. However, the LMES IRA Team had adverse findings in all three restart program areas evaluated with respect to the programs, procedures, and simulations. Additionally, YSORT had nine adverse findings, two of which identified absence of Restart Test Programs. Additionally, two observations highlighted the work to be completed prior to operations. These results indicate that similar deficiencies potentially exist in the remaining five Restart Test Program areas. Therefore, additional LMES actions were warranted to determine the adequacy of the Restart Test Programs in these areas.

A Restart Test Program has not been developed for the NDE area to address the calibration, startup, and other aspects of equipment readiness such as the lower voltage radiographic equipment and testing of radiography support systems such as interlocking alarms. Similarly, a Restart Test Program has not been developed for the Dimensional Measurement area, including the calibration, maintenance, and other aspects of devices and equipment.

Observation of Procedure Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces," simulation, interviews and independent walkdowns found that the DUO Restart Test Program for the casting furnaces 3N, 4N, 5N, and 6N does not include all support equipment for operations. Support equipment required to operate the furnaces that were not identified in the Restart Test Program include power supplies, house vacuum system, furnace vacuum pumps, furnace ram hydraulic systems and elevator. While the Restart Test Program identifies components in a system, it does not include the system. The service water system was an example of this. The IRA Team identified these deficiencies concurrently with this assessment. A YSORT-identified specific example of support equipment which was required to operate the furnaces, and omitted from the plan, was the MKS power supply readouts on each furnace control panel for furnace vacuum header pressure. These readouts were installed in 1982 and have never been included in the calibration recall program. Additionally, a management

decision was made not to maintain required calibrations current. Many other devices were also observed to be in need of calibration. LMES actions were required to ensure operability and reliability of these devices prior to operations.

Observation of Procedure Y50-24-81-005 simulation, interviews, and independent walkdowns demonstrated that the DUO Restart Test Program for the 10-inch Lectromelt VAR Furnace does not include all support equipment for operations. Support equipment required to operate the arc melter, that was not identified in the Restart Test Program, includes power supplies, acid transfer system, crucible rebuild facility, crucible cleaning facility, and new crucible argon drying system. While the Restart Test Program identifies components in a system, it does not include the system itself. The service water system was an example in this regard. The IRA Team identified these deficiencies concurrently with this assessment.

YSORT-identified specific example of noninclusion of a support equipment, which was required to operate the arc melter, was the Pressure Gauge HS/L-PI-0101 (mounted on the hydraulic pump located beneath the stairs). There was no calibration sticker on this gauge, and it appears that it was never included in the calibration recall program. Procedure Y50-24-81-005, paragraph VII.D.8, instructs the operator to verify the pressure indication on this gauge, but the gauge was not listed in the Restart Test Program. Similarly, there were no calibration stickers on the two hydraulic valve operators (located about 12 feet above floor level to the left behind the pump). Many other devices were also observed to be in need of calibration. LMES attention was required to ensure operability and reliability of these devices prior to operations.

Interviews and independent walkdowns of Procedure Y50-24-33-001 demonstrated that the DUO Restart Test Program for gold recovery does not include all support equipment operations. Support equipment required to operate the F-5700-9 solution tank that were not identified in the Restart Test Program include DC power supplies, heater and controls, circulating pump and filter, and the process scale. One specific example of noninclusion of support equipment identified by YSORT was the velometers installed at the face of each of two hoods. These devices were not included in the calibration recall program. A portable

anemometer was listed in the Restart Test Program and required to be calibrated. However, this device was not mentioned in the operating procedure, but the velometers were included. It was not clear to which instrument(s) the procedure paragraphs apply. Similarly, a dial thermometer was used to ensure the correct temperature of the water prior to adding potassium cyanide. The operating procedure does not require verification of the thermometer calibration, and the Restart Test Program does not list such a device. Also noted was that fire system small bore piping appeared to penetrate the tops of exhaust ducts that were near the ceiling. During a discussion, the fire captain stated that this portion of the fire system was being inspected and tested on a routine basis. However, the DUO staff was unaware of such system testing.

Matrices have been developed by the UCOF for calibration, maintenance, and other related activities. These management tools were used to prioritize, schedule, and track work activities. Equipment status and temporary modification information were also included in the matrices. The management approach to readiness for resumption was to maintain calibrations current. Selected gauges were examined and their calibration stickers indicated they were within the established cycle. The appearance and condition of equipment, including housekeeping, were acceptable.

Review of records, including evidence files, indicated that selected facilities have identified their minimum staffing needs, including required qualifications and training. DUO has implemented a provisional qualification policy, as discussed in Section 5.2, but has not fully trained all individuals on the minimum staffing lists.

The computerized maintenance database, COMPASS, was discussed with cognizant personnel for a better understanding of the process. A maintenance job request (MJR) is generated for each identified task, including every tag that was issued to describe the problem, maintenance, etc. A hard copy of the MJR is forwarded to the maintenance group who processes the request, schedules the work, and enters the information into COMPASS. An MJR may also be generated in COMPASS by the requestor. The MJRs remain in COMPASS until the work is completed. The backlog of MJRs and estimated man-hours needed to complete the work can also

be determined from COMPASS data. Work was being prioritized with respect to DUO resumption and restart of equipment. Weekly meetings were held among cognizant personnel to discuss maintenance backlog, priorities, and schedule. However, the system lacks a method to readily determine work backlog and human resources allocation as discussed in YSORT Assessment No. YSORT-95-02165.

During a walkdown of Building 9998, unidentified wire leads/jumpers were found in the casting furnace area draped over a railing at the top of furnace 4N and extending down to floor level where these were wrapped around a pipe. The physical condition suggested that these were in place for an extended period. Workers were unable to identify the purpose or the owners of the leads. The presence of these wires demonstrated a lack of administrative control of status of equipment and possibly the existence of a temporary modification. An administrative procedure was in place that addresses the control of temporary modifications. However, a YSORT observation highlights the need for periodic briefing or refresher training in the above administrative procedure for the DUO and support staff to emphasize the control of temporary modifications and other aspects covered by this procedure.

5.4.3 YSORT Finding/Issue Closure

The closure of YSORT pre-restart findings and the development of acceptable corrective action plans for preoperational findings will be adequate to support DUO resumption.

5.4.4 Significant YSORT Restart Issues

There were no significant restart issues in this functional area.

5.4.5 Conclusion

DUO was ready for resumption of operations subject to the resolution and/or correction of the identified pre operational deficiencies.

5.5 Safety Culture

As stated in the LMES POA, there were no ongoing funded missions for DUO at the time of this assessment. As such, this assessment was based on the review of documents, interviews with personnel, and observations of limited evolutions and simulations. Documents were reviewed to determine if elements were in place to establish and define Y-12 programs. Personnel were interviewed to establish evidence of the level of understanding within the DUO plant population relative to the safety, health, environmental, and conduct of operations cultural condition. Evolutions and simulations were observed to evaluate DUO personnel relative to their ability to perform operational functions in a manner consistent with the formality and rigor expected by DOE Order 5480.19.

5.5.1 Core Objectives Reviewed

This assessment was conducted using COs-20 and -29. These COs, as documented in the YSORT Assessment Plan, require verification of personnel awareness of public and worker safety, health and environmental protection requirements, and the existence of a program to promote site-wide safety culture, respectively.

5.5.2 Condition of Contractor Programs and Procedures

The reviews, interviews, and observations indicated that a developing safety culture exists in the DU Organization. The working environment, the management and workforce attitudes, and the values promote safety. YSORT had previously evaluated the LMES employee concerns, lessons learned, and required reading programs during prior assessments for Receipt, Storage, and Shipment (RSS) resumption and found them to be adequate. The limited opportunity to observe operations, however, limited the team's ability to fully evaluate DUO's performance in this regard.

As further indicators of safety culture, the team reviewed the occupational safety programs data. The occupational safety program was established at the Y-12 Plant when DOE adopted commercial industry standards of the Occupational Safety and Health Administration (OSHA) in 1989. Since that time, DUO has had 4,483 OSHA-related findings and has closed 4,470 of these findings to date. This safety record was indicative of a serious

concern for safety and was evidence of a significant effort to create a safe working environment.

In addition to occupational safety, DUO radiological conditions also represent a hazard to workers. The team's review of the implementation and practices of the radiological protection program indicated that, although the new RadCon Program was not yet fully implemented, the attitudes and values of the workers and their management reflected an appropriate concern for safety.

5.5.3 YSORT Finding/Issue Closure

Eleven findings consisting of eight pre-restart and three pre-operation had been identified. Of the eight pre-restart findings, three had been evaluated for closure and conditionally approved.

5.5.4 Significant YSORT Restart Issues

No specific restart issues were identified with respect to the Safety Culture Functional Area except those in the pre-restart findings. However, the DUO and Support Functions had not fully developed and matured its conduct of operations training, programs and procedures, or implementation practices as discussed in the other sections of this report.

5.5.5 Conclusion

YSORT has determined that a sufficient Safety Culture exists to support an LMES recommendation to restart DUO, provided that acceptable dispositions were confirmed for all pre-restart findings and that the Restart Test Programs were acceptably executed.

5.6 Management

YSORT evaluated the activities in the Management Functional Area using COs-24, -25, -27, and -30 and the associated criteria specified in the YSORT Assessment Plan for DUO. This evaluation included a combination of interviews, document reviews, observations, a review of the LMES MSA, and an observation and review of the LMES IRA.

5.6.1 Core Objectives Reviewed

CO-24 required a determination whether functions, assignments, responsibilities, and reporting relationships were clearly defined, understood, and effectively implemented with line management control of safety. Also included in the scope of CO-24 was a review on the acceptability of resuming DUO without the use of mentors.

CO-25 required a determination whether a 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. Also included in this CO were review activities associated with the overall performance of the LMES MSA.

CO-27 required a review to determine if nonconformances to applicable DOE Orders had been identified and if schedules for gaining compliance had been justified in writing and formally approved.

CO-30 required an assessment to determine if the breadth, depth, and results of the LMES IRA were adequate to verify the readiness of hardware, personnel, and management for operations.

5.6.2 Condition of Contractor Programs and Procedures

5.6.2.1 Core Objective-24

An assessment was performed to determine if the functions, assignments, responsibilities, and reporting relationships were clearly defined in LMES-approved documents and were adequately implemented throughout DUO.

DUO is a multi-organizational activity requiring the efforts of four separate organizations at Y-12; namely, DU Organization, WM, QO, and DSO. Also included in DUO was the control function performed by Y-12 Program Management.

Interviews and document reviews were conducted to determine if the resumption activities were performed and effectively implemented. Interviews were performed to gather information on the knowledge and awareness of the DUO personnel on their roles and

responsibilities. The DUO support organizations' work activities relative to the DUO resumption scope were also assessed for adequacy.

From the review, several deficiencies were identified that indicated that the roles and responsibilities were not clearly defined, not well understood, and not effectively implemented specifically within the support organizations. As such, two pre-restart and three post-restart findings were identified during the course of this review. The pre-restart findings require resolution prior to resumption of DUO.

To address the DOE concern identified by Prerequisite No. 16 from the POA, the assessment included a determination on the acceptability of resuming DUO without the use of mentors. RFA CSA-147B and the results of the LMES MSA addressing the compliance of DUO for compliance to the Nuclear Operations Conduct of Operations Manual were reviewed for this purpose.

The need for mentors was typically identified as a compensatory measure to address deficiencies in the area of DOE Order 5480.19 compliance. LMES prepared and submitted to DOE the RFA CSA-147B to identify deficiencies and corrective actions and to achieve DOE Order 5480.19 compliance in DUO. The need for mentors for DUO was addressed in Section 4 of CSA-147B, which has been reviewed and approved by DOE.

The findings and observations identified by the MSA team were reviewed. None of the deficiencies posed a significant threat to the health and safety of the public, of the workers, or of the environment.

Based on the review performed and DOE's prior concurrence with CSA-147B, it was concluded that resumption of DUO without the use or need for mentors was justified. The health and safety risks associated with DUO were not considered significant to require the use of mentors as a compensatory measure.

Further details of this assessment are documented in Assessment Reports 1224, YSORT-95-02166, and -02171.

5.6.2.2 Core Objective-25

YSORT reviewed the process employed by LMES to determine the adequacy of corrective actions taken to resolve deficiencies identified from internal and external assessments conducted since October 1993. Also included was a review of the deficiencies classified as post-restart to determine their acceptability to remain open post-DUO resumption. The review was performed by evaluating the evidence files compiled by DU Organization, QO, DSO, and WM.

Each of the organizations within the scope of DUO resumption compiled lists of internal and external assessments conducted since October 1993. The deficiencies, including corresponding corrective actions, were reviewed by the respective organizations management to determine if the corrective action taken was adequate and if it was evaluated for pre- or post-restart significance. Numerous observations and findings were identified from this review relating to the process differences among the organizations and documentation deficiencies, which were identified from the evidence file review.

Results from this review indicate that the process employed lacked consistency among the organizations involved with preparation of the evidence packages, and four pre-restart findings were identified to address these concerns.

An evaluation was performed on the LMES MSA for DUO. Included in this evaluation was a determination of whether the actions taken to close or resolve MSA pre-restart findings and observations were adequate. In addition, the evaluation included a review of those findings classified as post-restart to determine if these findings were correctly classified.

The evaluation of the LMES MSA process was performed by a review of the MSA Assessment Plan, discussions with YSORT personnel, and a review of the MSA Final Report.

The following results were noted:

- All COs and prerequisites from the POA were included in the MSA Plan.

- Results of the MSA were documented in a final report. The final report was a comprehensive document that contained

complete information to allow a review and understanding of the issues identified, their significance, and their impacts on resumption for each of the functional areas.

- The MSA Final Report provided a listing of all MSA participants. A review of these individuals' qualifications indicate that they were adequately qualified to perform the assessment. Participants in the DUO' MSA included those individuals who performed the RSS MSA and additional management and supervisory personnel from DU Organization.

No deficiencies were identified with the process with which LMES performed the MSA.

As of September 13, 1995, LMES reported that all pre-restart findings and observations were closed. The evidence files were reviewed to determine if the actions taken to close these findings were adequate. In addition, the findings, which were classified as post-restart, were evaluated to determine if these findings were appropriately classified.

The assessment was performed by a review of the MSA Final Report that contains all deficiencies identified during the course of the MSA (included in the report was the pre-/post-restart screening criteria), and a review of the evidence files was performed to determine the adequacy of the corrective actions.

Three classifications of deficiencies--Findings, Observations, and Evidence--were identified by the MSA team. In total, 124 deficiencies were identified. Of these, 29 were findings (19 pre-restart and 10 post-restart), 44 were observations (42 pre-restart and 2 post-restart) and 51 related to the evidence files.

Since DUO involve the activities of four Y-12 organizations, the deficiencies were grouped and assigned to specific organizations. The assignment/responsibility for resolution of the 124 deficiencies were as follows: Of the 29 findings, 15 were assigned to DU Organization (12 pre-restart and 3 post-restart); 11 were assigned to QO (6 pre-restart and 5 post-restart); 2 were assigned to DSO (both post-restart); and 1 pre-restart finding was assigned to WM. Of the 44 observations, 27 pre-restart were assigned to DU Organization; 9 pre-restart were assigned to QO; 2

pre-restart were assigned to DSO; and 4 pre-restart and 2 post-restart were assigned to WM.

From a review of the finding and observation closure evidence, it was concluded that the corrective actions were adequate to close a majority of the issues. However, some deficiencies were identified that apply to specific findings and observations and require additional corrective action to resolve. The deficiencies were identified as pre-restart findings and were contained in Assessment Reports YSORT-95-2172 and Assessment Report No. 73. Furthermore, the review of the pre/post-restart screening forms for the findings classified as post-restart indicates that the findings were appropriately classified with no deficiencies identified.

Further details of this assessment are documented in Assessment Reports Nos. 73, 408, YSORT-95-2159, -02164, and -02172.

5.6.2.3 Core Objective-27

An assessment was performed to verify that baseline compliance reviews had been conducted on the 51 DOE Orders of interest to the Defense Nuclear Facilities Safety Board (DNFSB) and that non-compliances were addressed in DOE-approved RFAs or exemptions. The assessment also included a review to verify that compensatory measures, actions, and schedule commitments had been implemented and were effective. The assessment was performed by a review of the RSS CO-27 evidence files and assessment reports, DU Organization evidence files, documentation, correspondence, and interviews. From this it was determined that baseline compliance reviews had been conducted for the 51 DOE Orders of interest to the DNFSB, and all non-compliances applicable to DUO were addressed in DOE-approved RFAs.

For DU Organization and its support organizations, only RFA 82B and 147B were required to be approved by DOE prior to resumption. These RFAs had been reviewed and were approved by DOE. Compensatory measures were identified for DUO in CSA-82B. CSA-82B requires an implementation of the requirements defined in General Employee Training (GET) and Radiation Worker II and to train personnel in these requirements. GET includes information on facility safety, emergency preparedness, and radiation protection. Radiation Worker II includes posting and entry control,

radiological work permits, and the selection and use of protective clothing for radiological protection. Training was verified under CO-13 and CO-16. GET and Radiation Worker II implementation was verified in CO-20. The RFA process was an on-going living process. Non-compliances were being adequately identified, documented, approved, and tracked to closure by systems in existence and were enhanced by Oak Ridge Operations, YSO, and LMES compliance personnel who stay in constant communication.

Further details of this assessment are documented in YSORT assessment reports YSORT-95-02148 and -02153. No findings were identified during the course of this assessment.

5.6.2.4 Core Objective-30

YSORT evaluated the LMES IRA to determine if the breadth, depth, and results were adequate to verify the readiness of hardware, personnel, and management programs to support resumption of DUO. Also included in this evaluation was a review of the actions and/or compensatory measures needed to resolve/close pre-restart findings identified by the IRA Team. The assessment was performed by a combination of observations and document reviews. YSORT also observed the interviews, document reviews, and field activities of the LMES IRA Team

Observations of the LMES IRA Team activities indicate a significant improvement over the process employed during the assessment of RSS. The qualifications of the team participants were determined to be adequate for performing independent assessments. The training of the LMES IRA team was determined to be adequate to familiarize the team on the scope of the assessment and on the activities for an effective IRA. From a review of the Criteria and Review Approach Documents, it was determined that the breadth and depth of the LMES IRA were adequate to verify the readiness of hardware, personnel, and management programs to support the resumption of DUO.

No pre-restart findings were identified by the IRA Team. This is attributed to the limited resumption scope as defined by the POA, pre-/post-restart screening criteria given the health and safety significance of DUO, definitional differences between YSORT and LMES regarding findings or observations, and the fact that the DUO resumption effort is a two-tier process involving (1) resumption

authorization, and (2) pre-operational evaluation of DUO' readiness prior to performing specific work activities.

Based on the results of this YSORT assessment, it is concluded that the LMES IRA was performed in a manner to effectively establish the readiness of DUO to resume operations. The activities performed by LMES were determined to be adequate in satisfying the acceptance criteria associated with this assessment activity as scoped by the POA

5.6.3 YSORT Finding/Issue Closure

The findings identified by YSORT in the Management Functional Area are summarized in Appendix 7.2. The actual finding and contractor response documentation (when complete) will be available in YSORT evidence files.

All ten of the pre-restart findings had been provided to LMES for resolution. At the time of this report, LMES had not provided closure criteria or evidence to support the resolution. The resolution of these issues must be completed prior to DOE concurrence on DUO resumption.

5.6.4 Significant YSORT Restart Issues

No significant restart issues were identified during the performance of this review, with the exception of the deficiencies identified in the findings. Those findings classified as pre-restart require resolution prior to DOE concurrence on resumption of DUO.

5.6.5 Conclusion

Based on the results of the assessment activities associated with COs-24, -25, -27, and -30, the activities performed by LMES were determined to be adequate in meeting the requirements defined by the assessment criteria, with the exception of the pre-restart deficiencies identified in the assessment reports. Contingent upon successful resolution of the YSORT pre-restart issues, it was concluded that all activities required by the POA had been completed to a level necessary to support resumption of DUO.

6.0 ACRONYMS

CO	Core Objective
CSA	Compliance Schedule Agreement
CY	Calendar Year
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
DSO	Disassembly and Storage Organization
DU	Depleted Uranium
DUO	Depleted Uranium Operations
GET	General Employee Training
IRA	Independent Readiness Assessment
LMES	Lockheed Martin Energy Systems, Inc.
MJR	Maintenance Job Request
MSA	Management Self-Assessment
NDE	Non-Destructive Examination
OJT	On-The-Job Training
OSHA	Occupational Safety and Health Administration
PDC	Performance Documentation Checklist
POA	Plan of Action
QO	Quality Organization
RadCon	Radiological Control
RFA	Request for Approval
RSS	Receipt, Shipping, and Storage
TDAG	Training Development and Administrative Guide
TIM	Training Implementation Matrix
TMS	Training Management System
UCOF	Uranium Chip Oxidation Facility
WM	Waste Management
YSO	Y-12 Site Office
YSORT	Y-12 Site Office Restart Team

7.0 APPENDICES

7.1 Team List and Biographies

Y-12 SITE OFFICE RESTART TEAM

Restart Manager - Thomas S. Tison
Team Leader - Mark A. Sundie
Team Leader - Dale E. Christenson
Resumption Area Lead - Richard L. Renne

FUNCTIONAL AREA	TEAM MEMBER
Procedures	Gerald R. Mountain
Operations and Level of Knowledge	Kirk W. Van Dyne (Lead) Frank S. Poppell (Alternate)
Safety Culture	Richard L. Renne
Facility Conditions	George Napuda
Training and Qualification	Thomas Rogers
Management	Randy C. Foust (Lead) Peter R. Kulesza (Alternate)
Technical Editors	Plackeel Eapen Donald A. Beckman
Quality Assurance	Amye E. Rice
Administrative Support	Kay F. Dutton Kimberly E. Hurd Nicola P. White

YSORT Biographies

Donald A. Beckman

Mr. Beckman has 25 years experience in the management, operation, maintenance, design, and regulation of nuclear power plants and defense facilities. He holds a B.S. degree in Marine Engineering from the U.S. Merchant Marine Academy, 1969. Since 1982, he has been providing consulting services to government and industry. His assignments support nuclear utilities and the Department of Energy (DOE) in the development and evaluation of management programs. Ongoing engagements include support to the Nuclear Regulatory Commission (NRC) in special inspections, support to the DOE for management of production programs, major design and construction projects, facility startup and restart, and to nuclear utilities in the areas of management and quality program support. Prior to his consulting career, Mr. Beckman was the first NRC Senior Resident Inspector assigned to the Beaver Valley Power Station in 1979. His career with NRC spanned 1977-1982 and included duty as a region-based inspector in the areas of operator training, quality assurance, operations, maintenance, and engineering. He was part of NRC's immediate response team for the Three Mile Island Accident. His last assignment involved management of an engineering section responsible for general systems engineering, fire protection, environmental qualification of electrical equipment, and related subjects. From 1976 to 1977, Mr. Beckman was a startup and test supervisor for Burns and Roe's for the Clinch River Breeder Reactor and a variety of nuclear and non-nuclear generating station projects. In 1971, Mr. Beckman, as a test engineer for submarine reactor plants, joined Newport News Shipbuilding and Dry Dock. During the next 5 years, he certified as Shift Test Engineer, directed the refueling and overhaul activities of nearly two dozen nuclear submarines, and served as Chief Test Engineer and Delivery Engineer for the last two 637 Class attack boats. From 1969 to 1971, Mr. Beckman served as a U.S. Coast Guard and U.S. Atomic Energy Commission-licensed engineering officer on board the Nuclear Ship Savannah, the first and only U.S. civilian-operated, nuclear-powered merchant ship culminating as a shift supervisor. He also served intermittently as an engineering officer on oil-fired steam and diesel-powered merchant ships.

Wayne L. Britz

Mr. Britz received a B.S. degree from the U. S. Merchant Marine Academy and a M.S. degree in Nuclear Engineering, from the Georgia Institute of Technology. He was a nuclear engineer, health physicist, deck officer, and an Atomic Energy Commission-licensed reactor operator on the Nuclear Ship Savannah from 1966 to 1970. He was an inspector, nuclear engineer, and health physicist for the Atomic Energy Commission/Nuclear Regulatory Commission from 1971-80 where he developed criteria and guides supporting regulations, and evaluated systems for their ability to meet regulatory requirements. He was Manager of Radiation Protection Services at Public Services Electric and Gas Company (PSE&G) from 1980 to 1986 where he was responsible for the radiological protection program for the Salem and Hope Creek nuclear power plants to comply with Nuclear Regulatory Commission regulations. At PSE&G, he was responsible for the radiological environmental monitoring program and for radiological support to the emergency preparedness program. He provided expert witness and written testimony to the government and private industry. Since 1986, Mr. Britz has been a consultant to various government agencies, nuclear power utilities, and private industry. He served as a Project Manager for the Center for Disease Control's dose reconstruction project at the Idaho National Engineering Laboratory. He was a member of the DOE Plutonium Vulnerability Study at the Pantex Plant. He has conducted Operational Readiness Reviews for the Department of Energy at Rocky Flats, the Waste Isolation Pilot Plant, and Savannah River.

Dale E. Christenson

Mr. Christenson received a B.S. degree, in Civil Engineering from the University of Washington and a M.S. degree, in Civil Engineering from the University of Maryland. He is a registered Professional Engineer in the State of Maryland. He has five years experience in the nuclear operations field. As an officer in the Department of Defense, he served for eight years in the Naval Nuclear Reactor program, which is recognized as one of the most respected nuclear programs in the country. While in the Navy, he served in the engineering department for three years and was certified to act as an Engineer on board U.S. Naval Vessels with nuclear plants. He joined the Department of Energy (DOE) in 1991 and has been a member of Y-12 Site Office since August 1994. Mr. Christenson has completed the Conduct of Operations assessment training conducted by EM-25. He has also received training on DOE Order 5480.31, "Restart of Nuclear Facilities." He has been instrumental in the development of the Plan of Action for the "DOE Readiness Assessment for Receipt, Shipment, and Storage of Special Nuclear Material at Y-12 Plant."

Plackeel Eapen

Dr. Eapen earned a PH.D. degree, in Nuclear Physics and Engineering from, Southern Methodist University and a M.A. Degree, in Business Administration, with a major in Organization Management from Rutgers State University. He has over 25 years of diversified experience in research, architect/engineering, operations, and regulatory fields of nuclear power industry. Dr. Eapen held progressively responsible positions through out his career, including 13 years at the Nuclear Regulatory Commission as an inspector and first-line supervisor. Since 1985, he has managed complex team readiness inspections and assessments for the Nuclear Regulatory Commission, including the startup of the controversial Seabrook Nuclear Power Plant in New Hampshire. He was responsible for managing a minimum of two complex team inspections each fiscal quarter in the areas of maintenance, operational readiness, probabilistic risk, motor-operated valve, and service water. Dr. Eapen was responsible for conceptually designing these complex inspections and assessments, staffing the teams, and monitoring the day-to-day progress of each team. He personally led the pilots for some these inspections. Additionally, he led several reactor team inspections, including the Augmented Inspection Team at Nine Mile Point to assess the loss of ultimate heat sink and the inadvertent lifting of fuel assemblies, while removing the reactor vessel head during refueling at Indian Point 3. Dr. Eapen is a certified lead auditor and qualified Nuclear Regulatory Commission inspector. He has extensive training and demonstrated knowledge in MORT, accident investigation, quality assurance, Kepner-Tregoe, Total Quality Management, and Probabilistic Risk Assessment.

Randy C. Foust

Mr. Foust received a B.S. degree, in Mechanical Engineering and a M.A. degree, in Business Administration from the University of Tennessee, Knoxville, and has 15 years experience in the nuclear field. Prior to his current assignment at the Department of Energy (DOE) Y-12 Site Office, Mr. Foust spent 5 years at DOE's Savannah River (SR) plant where he was initially employed by Westinghouse Savannah River Company (WSRC) in the Reactor Quality Assurance Department of the Reactor Division and later transferred to the Environmental Protection Department of the ESH&QA Division. At SR, Mr. Foust was assigned duties of Division Coordinator for interface and resolution of DOE Findings, Lead Quality Engineer for the review of Design Modification Packages, ALARA Committee Member, Quality Representative on the Startup Test Review Board, Principal Engineer/Team Lead on the Readiness Self Assessment for Chargeback and Restart of K-Reactor, and Environmental Support and Regulatory Interface for Transition and Decontamination & Decommissioning activities. Prior to joining WSRC, Mr. Foust spent 10 years working in the commercial nuclear field. Initially, Mr. Foust worked for the Tennessee Valley Authority where he was assigned duties of Responsible Systems Engineer for the construction, modification and testing of NSSS and Safety Systems on a Westinghouse PWR, and later, Staff Specialist on Environmental Qualification per 10CFR50.49. He also worked on the Clinch River Breeder Reactor Project as an Assistant Cognizant Engineer for Westinghouse, Advance Reactor Division, and spent two years working as a Marketing Manager and Senior Environmental Qualification Engineer for a independent engineering materials testing laboratory.

Peter R. Kulesza

Mr. Kulesza received a B.S. degree, in Mechanical Engineering from Bucknell University and has over 14 years of experience in the nuclear field. Prior to joining DOE's Restart Team at Y-12, he was employed by Midwest Technical Inc. During that two-year period, he worked as the assistant manager and coordinator for the condition assessment survey of facilities at Y-12. Mr. Kulesza worked for Lockwood Greene Engineers for 11 years in various capacities ranging from lead engineer to planning consultant. His responsibilities included determining the scope, schedule, and budget for projects, as well as managing all technical disciplines for several inter-state projects simultaneously. While with Lockwood Greene, Mr. Kulesza was involved with facility, utility, and process upgrades, and conceptual designs. The work encompassed chilled water, steam, compressed air, perchloroethylene, oxygen, ventilation, and acid recovery systems; biodenitrification; uranium reclamation processes from digestion to derby production; vacuum casting and ingot processing; core element machining; and scrap processing. He has also conducted process improvement work for the metals, heat pump, and rubber industries. This work was performed in facilities in Tennessee, Kentucky, and Ohio.

Gerald R. Mountain

Mr. Mountain has A.S. and B.S. degrees, in Nuclear Engineering and over 25 years experience in the nuclear field. He is a Cum Laude graduate of North Carolina State University and a graduate of the Navy nuclear power program. Since 1992, he has been involved full time in supporting The Department of Energy (DOE) and its contractors in the areas of procedure program development, assessment, and improvement. During 1992, he served as a mentor for EG&G Rocky Flats to the Director, Plant Procedures. Tasks performed included assessment of the plant procedure and document control programs and development and implementation of program improvements. In 1993 he supported the staff of the Office of Nuclear Safety by assisting in the implementation of a new division procedure program, developing a DOE Facility Procedure Program Assessment Plan, performing procedure program assessments, and was a member of the DOE Spent Fuel Task Force that performed assessments of the status of spent fuel facilities at eleven DOE facilities. Mr. Mountain is a member of the DOE Procedure Standards Committee, which has been responsible for the development of DOE standards on procedures. During 1994, he performed an order compliance assessment at Pantex for Mason & Hanger on DOE Orders 5480.21, 22, 23, and 24. In the commercial nuclear field, he has been an Nuclear Regulatory Commission Licensed Senior Reactor Operator at a commercial boiling water reactor (BWR), a procedure program manager, an operator trainer, and technical consultant. From 1978 to 1981 he was the Inspection Manager for BWR inspection for American Nuclear Insurers (ANI) where he was responsible for the management and performance of ANI semi-annual inspection activities at all commercial BWRs. During this time, he was also a certified Quality Assurance lead auditor. Prior to entering the commercial nuclear industry, he served ten years in the U.S. Navy as a Reactor Operator, Gunnery Officer, ASW Officer, and is a graduate of the Naval Enlisted Scientific Education Program.

George Napuda

Mr. George Napuda has over 30 years experience in commercial and naval nuclear power, vendor control, and manufacturing. He is a graduate of Picatinny Arsenal Toolmaker School and attended Franklin and Marshall College and Fairleigh Dickinson University. He holds Journeyman Certification from the Department of Army and Federal Committee on Apprenticeship, a B.A. degree, in Liberal Arts and Science and an M.A. degree, in Industrial Psychology. He has held certifications, based on formal examinations, in eddy current, magnetic particle, liquid penetrant, radiographic, ultrasonic, and visual nondestructive testing techniques; statistical quality control, metrology, and vendor evaluation; and management oversight, performance evaluation, and severe accident overview. He has also earned a number of other certifications by examination including Pressurized Water Reactor Facilities and Regional Inspector (Nuclear Regulatory Commission (NRC)); Lead Auditor (utility); and Oxygen Breathing Apparatus (Department of Interior). He has participated in comprehensive management, program, and performance assessments for almost two decades both as a team member and a team leader. He has successfully completed a number of international assignments, presented technical presentations at professional conferences, and presented adult technical training courses. Examples of areas in which he was instrumental in effecting industry performance improvements include design, procurement, material management, quality assurance, and quality control programs; corrective action methodology; root cause analysis; and maintenance, training, and manufacturing processes. He has presented technical papers at international, national, and regional levels. He has given formal training sessions and "field" training to the Department of Energy, the NRC, and utility technical and professional staff. His career has included positions with private industry, Department of Defense, and NRC. He is now serving as a consultant to the Department of Energy, NRC, and the domestic and international nuclear power industries.

Frank S. Poppell

Mr. Poppell received a B.S. degree, in Nuclear Engineering, from the Georgia Institute of Technology and has eighteen years in the nuclear field. He has three years experience at the DOE Rocky Flats and Savannah River facilities performing safety evaluations, assisting with the resolution of DOE issues for restart of K-Reactor, evaluating Department of Energy (DOE) oversight concerns (Operational Readiness, Tiger Team, and Defense Nuclear Facility Safety Board Reviews) for incorporation into waste management facility startup documents, and performing DOE Order compliance assessments. He has eleven years experience in the commercial nuclear industry primarily in the areas of Licensing/Regulatory Compliance, Reactor Engineering, and Operations as a Shift Technical Advisor. His commercial nuclear power experience includes coordinating resolution of Nuclear Regulatory Commission issues, providing Operations oversight for Technical Specification operability and reportability determinations, directing control rod movements and power maneuvers, and preparing/reviewing Unreviewed Safety Question evaluations. He also has four years nuclear experience at Charleston Naval Shipyard as a Shift Test Engineer coordinating reactor plant testing on submarines during overhaul and refueling.

Richard L. Renne

Mr. Renne received a M.S. of Public Health Degree in Health Physics, Medical Physics, and Environmental Health from the University of Minnesota. He has 25 years of experience in operational health physics, medical radiology, environmental health in governmental, private, and institutional operations. He has served in international operations as technical liaison to the Federal Republic of Germany, the Republic of South Korea, and the British Ministry of Defense. He has served as consultant/radiological advisor to Salem and Cooper nuclear power facilities, Professor and Chairman of the Department of Radiological Sciences, University of Tennessee Center for Health Sciences, Radiation Manager at Pantex, Fernald, and Rocky Flats, Chief Health Physicist for the US Army Missile Command, and Radiation Specialist for the 4th Naval district as an Officer in the United Stated Navy. Mr. Renne has operational experience in radiological devices and applications including medicine, operational health physics, lasers, electro-magnetic pulse technology, and nuclear weapons. He has served as consultant to numerous private enterprise companies in association with new product development and marketing techniques. Mr. Renne has been an instructor, evaluator, and assessor for Conduct of Operations implementation at various locations. He received his initial NRC assessment training as a health physicist employed with an agreement state for nuclear licensing, inspection, and evaluation. Mr. Renne has qualified as an NRC licence manager for medical and operational sources. He started his career by obtaining National Certification from the American Registry of Radiologic Technology for medical uses of radiation and radiation producing devices.

Amye E. Rice

Ms. Rice has worked for the Department of Energy (DOE) as a Quality Assurance Specialist for approximately eight years. She achieved this position by completing both on the job and classroom training in a structured two-year upward mobility training program. Her responsibilities as a Quality Assurance Specialist, consisted of monitoring, inspecting, analyzing, and investigating components used in assemblies and subassemblies for nuclear weapons ensuring products adherence to policies, procedures, and personnel requirements. Health, safety, and housekeeping issues were also monitored. Her inspection of parts relied on guidance from DOE and contractor procedures and Design Agency drawings. Ms. Rice performed visual inspections of production processes and customer specifications, reviewed test results, and oversaw sample testing operations. She also reviewed certificates of inspection and certified part cards. Weapons and non-weapons storage were included in the reviews. Ms. Rice has experience in classified document accountability processes, occurrence reporting, self-assessment activities, non-weapon oversight and surveys, corrective action plan tracking, and master surveillance plans development for the Y-12 Site Office. Prior to her work with DOE, Ms. Rice served as a secretary at the Clinch River Breeder Reactor. The division she was attached to had oversight responsibilities for the construction contractor, Stone & Webster. This position involved office management, assisting engineers with procedure reviews, report generation, and typing and filing for a staff of fourteen.

Charles H. Robinson

Mr. Robinson has B.S. degree in Chemical Engineering from the University of Massachusetts and has completed graduate course work toward a M.S. Degree in Nuclear Engineering at the University of Lowell. He has seven years experience in nuclear criticality safety. Prior to contracting with the Department of Energy through Enercorp Federal Services Corporation in 1995, he was employed as a Nuclear Criticality Safety Engineer by Babcock & Wilcox, Naval Nuclear Fuels Division, in Lynchburg, Virginia. While at Babcock & Wilcox, he performed criticality safety analyses; served as a certified quality assurance reviewer of analyses; reviewed and approved procedures; and conducted audits, assessments, and investigations. Prior to Babcock & Wilcox, he was employed by the U. S. Nuclear Regulatory Commission (NRC) as a Nuclear Process Engineer and Chemical Engineer, and was certified as an NRC Incident Investigator. While at the NRC, he performed various licensing and inspection activities for licensed nuclear fuel cycle facilities, including reviewing and approving license amendments; performing independent criticality safety analyses; and conducting operational team assessments, augmented inspections, and root-cause investigations. His assessment/inspection/restart experience, as a team member, at facilities includes Allied Chemical, Babcock & Wilcox, Combustion Engineering, General Electric, Nuclear Fuel Services, Sequoyah Fuels, Siemens, and Westinghouse, and involves commercial fuel production, naval nuclear fuel production, uranium hexafluoride production, uranium recovery, and waste treatment.

Thomas Rogers

Mr. Rogers received a B.S. degree in Nuclear Engineering from the Georgia Institute of Technology and has seventeen years experience in the nuclear field. He has over four years experience at Department of Energy (DOE) facilities working for DOE's Office of Nuclear Safety where he performed assessments at the Princeton Tokamak and the Los Alamos TA-55 Plutonium Facility. He served as an Operational Readiness Review team member for Westinghouse Savannah River Company at the Savannah River K-Reactor and In-tank Precipitation Facility. He has eight years experience in the commercial nuclear industry where he participated in numerous performance-based assessments including conduct of operations assessments, emergency operating procedure assessments, safety system functional inspections, and quality assurance audits. He also participated in restart efforts at the Sequoyah, Indian Point 3, North Anna, and Rancho Seco nuclear power stations. Additional commercial nuclear power experience includes over three years with the Nuclear Regulatory Commission where he served as an operator-licensing examiner for pressurized water reactors. He has five years experience at a naval shipyard as a nuclear shift test engineer on fast attack submarine and cruiser reactor plants.

Mark A. Sundie

Mr. Sundie has a B.S. degree in Nuclear Engineering from the Pennsylvania State University and has over 15 years experience in the nuclear field. Prior to joining the Department of Energy (DOE) in late 1989, he was employed by the Tennessee Valley Authority (TVA) for ten years, where he was assigned to the Bellefonte Nuclear Plant in Scottsboro, Alabama, as a Systems Engineer and Reactor Engineer. While at Bellefonte, he completed the training programs for Shift Technical Advisor and Station Nuclear Engineer. He also spent five years at the Sequoyah Nuclear Plant in Soddy-Daisy, Tennessee, where his duties included nuclear engineering, reactor core surveillance, Restart Test Director, and Refueling Test Director. Mr. Sundie joined DOE in late 1989 at the Savannah River (SR) Operations Office under the Assistant Manager for Defense Programs, Separations Division. His first assignment was as a Facility Representative for FB-Line, 247F, and 235F facilities. He served in this position for three years. In his next assignment as Program Engineer for Separations F-Canyon programs and Division Training Liaison, Mr. Sundie participated in the Order Compliance reviews for HB-Line, FB-Line and F-Canyon and completed all the necessary division requirements for subject matter expert in the area of Training and Qualification programs. His restart experience consists of roles as a team member in the HB-Line, FB-Line, and 247F Operational Readiness Reviews. Most recently, he served as the DOE-SR Team Leader for both the F-Canyon and FB-Line Restart efforts, where he supervised eighteen subject matter experts from the DOE-SR staff and validated the contractor's state of readiness prior to commencement of the independent Operational Readiness Review. Mr. Sundie came to the Y-12 Site office in February 1995, where he currently serves as the Technical Support Team Leader.

Thomas S. Tison

Mr. Tison received a B.S. degree, in Aerospace Engineering from Virginia Polytechnic Institute and a MBA, in Research and Development from Florida State University. He also completed courses of study at the U.S. Air Force (USAF) Squadron Officer's School and Air Command and Staff College. Mr. Tison has 15 years experience with the Department of Energy (DOE). Prior to his position as Restart Team Manager, he served as Site Manager for the DOE K-25 Site Office. He provided direction to the Management and Operations contractor with a work force of 1800 employees. The primary focus of the K-25 Site is environmental restoration and waste management activities. Mr. Tison was responsible for ensuring that effective programs were established and maintained by the contractor for environmental, safety, and health permitting and compliance with national programs, such as the Clean Air Act; Clean Water Act; Resource Conservation and Recovery Act; OSHA; and Nuclear Safety. Mr. Tison was also responsible for the safe, compliant, efficient operation of the Toxic Control Substance Act incinerator. He supervised fifteen federal employees and provided direction to eleven contractor employees. Previous to his work at K-25, Mr. Tison served in positions ranging from Program/Project Engineer to Program Management Branch Chief at the DOE Y-12 Site Office. He was involved in the design and construction of numerous capital construction projects and was responsible for establishing and implementing project management policy and guidelines. Before joining DOE, Mr. Tison performed work for the Clinch River Breeder Reactor. He also served 10 years in the USAF as a program control officer, configuration manager, and structural engineer.

Kirk W. Van Dyne

Mr. Van Dyne has over 15 years of nuclear regulatory experience in the U.S. Navy nuclear propulsion program, commercial nuclear power program, and Department of Energy (DOE) facilities. He has a broad technical background in the areas of operations, licensing/regulatory compliance, inspection, and oversight. Mr Van Dyne received a B.S. degree, in Civil Engineering Technology from Virginia Polytechnic Institute and State University. Prior to his involvement in the assessment of resumption activities at Y-12, Mr. Van Dyne consulted to the Nuclear Regulatory Commission (NRC) at Tennessee Valley Authority (TVA) Watts Bar nuclear facility. In this capacity, he augmented NRC inspection resources to determine TVA's readiness for receipt of an operating license. Mr. Van Dyne consulted to Westinghouse Savannah River Company (WSRC) and participated in the development and implementation of the Systematic Evaluation Program (SEP). He contributed a commercial nuclear regulatory perspective to this evaluation program. Prior to the SEP, his efforts were focused on the resolution of issues relating to the K-Reactor restart as well as the development and implementation of the post-restart issue management system. For three years, Mr. Van Dyne assisted in the restart and startup of troubled commercial nuclear plants, including Comanche Peak and Turkey Point. During these periods Comanche Peak received an operating license and Turkey Point was removed from the NRC's list of Category "3" plants. Mr. Van Dyne was also employed by the NRC where he held various positions, including that of Resident Inspector. He received advanced training in both pressurized water and boiling water reactor technologies. While employed by the U.S. Navy, Mr. Van Dyne served as a Shift Test and Chief Test Engineer at Norfolk Naval Shipyard. His responsibilities included the planning, supervision, and review of plant condition changes and post maintenance testing in support of the overhaul of S5W and S6G submarine reactor plants.

Gary F. Weston

Mr. Weston received a B.S. of Engineering degree in Marine Engineering, from the State University of New York Maritime College and has over 25 years experience in various engineering positions and assignments. Prior to joining the Y-12 Restart Team, he was employed by Stone and Webster Engineering Corporation where he served in positions as project manager for outage modifications, project design manager, certified lead auditor, lead startup engineer, consultant for events analysis and system operations assessments, design baseline verification program manager, and construction completion planning supervisor for various nuclear utilities. During this period of employment, he spent two years with the Institute of Nuclear Power Operations as a program manager in the Events and Analysis Division, which was responsible for plant operations assessments and event analysis. Prior to these assignments, he was employed by EDS Nuclear as superintendent of mechanical quality engineering for a nuclear construction project, by LPL for both field engineering and startup and test engineering positions and by Newport News Shipbuilding as a nuclear construction supervisor for overhaul and refueling of S5W plants. Previous to these nuclear assignments, he served in 2nd and 3rd assistant engineering positions aboard various US merchant vessels.

7.2 YSORT Findings

YSORT Finding Number	Description	Core Objective(s)	Functional Area	Pre-Restart	Post-Restart
*73.01	Findings that were previously closed by the MSA based on draft documents remain in a noncompliance condition, and the change request could not be located within DUO or Quality as required by the closure criteria.	13	TQ		x
73.02	The TIM does not include D&S Material Coordinator as a qualified position in Building 9720-18, and the D&S Technical Support personnel that were included in the TIM could not be identified.	13	TQ		x
*73.03	Building 9720-18 D&S training programs are not in compliance with the TIM.	13	TQ		x
*79.01	None of the DUO personnel identified for meeting the minimum staffing requirements are current in all the established training requirements.	13 18	TQ		x
80.01	A finding was issued when YSORT determined that the justification for waiver of minimum education requirements for a manager was not recognized by DOE Order 5480.20.	14	TQ	x	
81.01	A finding was issued when YSORT identified that five DUO personnel on the resumption crew were not current in their training on the CONOPS manual, Module 13547.	19	TQ	x	
83.01	None of the radiographers or weld inspectors (dye penetrant) are current in all the required training for DUO resumption	18	TQ		x
83.02	None of the 9201-5 and 9201-5N Dimensional Inspection Personnel are current in all the required training for DUO resumption.	18	TQ		x
84.01	A finding was issued when YSORT determined that Performance Documentation Checklist evaluations were being performed in group sessions.	13	TQ		x
405.01	A finding was issued when YSORT determined that the implementation of applicable Conduct of Operations requirements, as discussed in CSA-147B and committed to in the DUO POA, had not been accomplished.	19	OP		x
406.01	During simulated performance of the Arc Melt and Casting procedures, operators incorrectly verified valve positions. Valves that were required to be closed were verified by operators in the open direction.	19	OP	x	
407.01	DUO has not clearly defined the roles and responsibilities of personnel identified in the Conduct of Operations Manual.	19	OP		x
407.02	All DUO area boundaries have not been defined for the facilities in which DUO is a "tenant," as required by Chapter I and Appendix III of the Conduct of Operations Manual.	19	OP		x
408.01	Evidence provided for resolution of MSA findings and observations (OP-1, OP-3, OP-16, or OP-23) was incomplete or inadequate. Evidence files are not updated to provide evidence of closure for items previously statused as open.	25	MG		x
1071.01	Procedure 70-100 requires that anit-C gloves be removed prior to contact with non-contaminated, no-working surfaces. This requirement was not met during the subject MSA.	19	SC	x	
1071.02	Procedure Y50-24-18-143 meet the criteria for a Class I procedures per Procedure Y10-102, yet it is labeled as a Class II procedure.	7	PR	x	

1423.01	DUO procedures have been classified for use without completing the necessary paper work to formally make a change to a procedure.	7	PR		x
1423.02	A finding was issued when YSORT determined that Procedure Y50-24-33-001 was improperly revised in violation of Y10-102.	7	PR		x
1423.03	Procedure Y50-24-33-001 history files contains verification forms that are annotated for steps 4, 5, and 6. The steps in performing a verification need to be performed as stated on the applicable checklist.	7	PR		x
1425.01	Issuance of a memo to control the procedures document control function within DUO is an unacceptable method of implemented the process.	7	PR		x
1426.01	A finding was issued when YSORT identified minor problems with the documentation provided for Evidence Packages CA01.04 and AM01.04.	7	PR		x
*1816.01	A restart test program has not been developed for the NDE area to address the calibration, start up of equipment such as the lower voltage radiographic equipment; and testing of radiography support systems such as interlocking alarms.	28	FS		x
*1816.02	A restart test program has not been developed for the Dimensional Measurement Area to address calibration of devices and equipment.	28	FS		x
*1817.01	A finding was issued when YSORT identified the non-inclusion of support equipment required to operate furnaces that may be a safety issue. MKS Power Supply Readouts were not included in the calibration recall program.	28	FS		x
*1819.01	A finding was issued when YSORT identified the non inclusion of support equipment required to operate the arc melter. No calibration stickers were displayed for pressure gauge HS/L-PI-0101 and two hydraulic valve operators.	28	FS		x
*1819.02	There was no evidence that the computer program that supports operation of the arc melt furnace will be verified/validated prior to restart or that engineering staff will be present for initial operation.	28	FS		x
*1819.03	Although DUO recognized the need for periodic standy operational verifications to be performed monthly, the restart test program did not recognize the need for periodic standy operational verifications.	28	FS		x
*1820.01	Velometers installed at the face of each two hoods are not included in calibration recall. The portable anemometer is listed in the restart test program and required to be calibrated, yet it is not addressed in the procedure.	28	FS		x
*1820.02	A finding was issued when YSORT determined that Procedure Y50-24-33-001 does not require verification of thermometer calibration nor does the restart test program list such a device.	28	FS		x
2133.01	Procedure Y50-24-33-001 is not technically adequate to support resumption of the gold recovery.	7	PR	x	
2140.01	RWP did not provide adequate information that clearly describes the personal protective equipment necessary to proceed in radiological areas.	20	SC	x	
2140.02	Personnel Contamination Monitors at boundary control stations did not have identifiable information related to daily operable performance tests to the specific devices.	20	SC	x	
2140.03	Boundary Control Station No. 15 exit posting has fallen off the wall and is partially obscured by a yellow decontamination can.	20	SC	x	
2154.01	A finding was issued when YSORT identified an unacceptable posting.	20	SC	x	

*2157.01	Numerous plant-wide procedures exist which implement DOE Order 5480.19. It would be appropriate for these procedures to implement the Conduct of Operations manual.	19	OP		x
*2157.02	DUO Conduct of Operations RFA does not specify the method by which ConOps is implemented with the Quality Organization.	19	OP		x
2161.01	During a walkthrough of Procedure Y50-24-18-143, Operation of 3N, 4N, 5N, and 6N, a member of the LMES RA Team was observed operating equipment.	29	SC	x	
2163.01	A finding was issued when YSORT determined that RWPS were incomplete and did not identify shoe cover personal protective clothing for entering a High Contamination Area. RWPs did not authorize the use of RWP Supplemental Information Form.	7 20 23 30 24	SC	x	
2163.02	Radiological contamination should be controlled nearest the source.	7 20 23 30 24	SC		x
2163.03	A finding was issued when two LMES RA team members signed a RWP and entered a High Contamination Area without recognizing that the RWP was incomplete and did not specify personal protective clothing.	7 20 23 30 24	SC	x	
2163.04	Electroplating personnel were unable to complete simulation of LMES Procedure Y50-24-33-001.	7 20 23 30 24	SC		x
2163.05	RWPs and boundary control stations have not been adequately maintained. RWPs are incomplete and contain erroneous information.	7 20 23 30 24	SC		x
2164.01	A finding was issued when YSORT determined that revisions and changes to documents were being made without initialing and dating the change.	25	MG	x	
2164.02	Deficiencies that were identified during LMES interviews should have been incorporated into the Corrective Action System and evaluated for pre/post restart significance.	25	MG	x	
2164.03	A finding was issued because the Quality Organization failed to perform a complete review of deficiencies as required by Core Objective 25.	25	MG	x	
2164.04	Issues or findings assigned to other Y-12 Organizations and DSO should have been incorporated in the scope of Prerequisite 10 from the DUO POA.	25	MG	x	
*2165.01	Two unidentified wire jumper/leads were draped over the railing of the deck above Casting Furnace 4N located in Building 9998.	28	FS		x
2166.01	Functions, assignments, responsibilities, and reporting relationships are not clearly defined for DUO.	24	MG		x

2166.02	A finding was issued when YSORT determined that there is no integrated relationship between the Nuclear Conduct of Operations Manual and site level programs to ensure that roles and responsibilities are clearly defined and interfacing.	24	MG		x
2166.03	Individuals within the Quality Organization did not know their Organization Unit Manager as defined by the memorandum of understanding between Quality and DUO. They were not trained or given any instruction of the Conduct of Operations Manual.	24	MG	x	
2166.04	A finding was issued when YSORT determined that no memorandum of understanding existed between Quality, DSO, and EUO.	24	MG	x	
2166.05	The approved Quality Organization organizational chart does not reflect the Conduct of Operations Manual.	24	MG		x
2167.01	Procedure Y50-24-81-005 was changed after the procedure approvals were obtained.	7	PR	x	
2172.01	Some of the findings identified by the MSA team were applicable to all organizations involved in the DUO resumption effort. The screening forms for organizations that were assigned responsibility for common findings was not contained in the MSA report.	25	MG		x
2172.02	Review of the evidence files for SV-01 and SV-03 revealed that the actions taken were inadequate for closure of the findings be were adequate for the purpose of resolving the issue for resumption.	25	MG	x	
2172.03	A finding was issued when YSORT identified a discrepancy in Evidence File SV-03. The evidence file referred to Procedure Y50-37-81-007 and the procedure contained in the evidence file was Y50-37-81-005.	25	MG	x	
2172.04	A finding was issued when YSORT determined that standing orders were signed by DUO Organization Unit Manager instead of the Operation Manager and that standing orders were not review by affected personnel within DUO, as required by Y10-105.	25	MG	x	
2172.05	No documentation was contained in the evidence files to support closure of MSA Observation Pre-01 and Pre-02 as required by Y60-160.	25	MG	x	

* Post-restart, Pre-resumption

Totals	
YSORT Findings	58
Pre-restart	24
Post-restart	34

7.3 LESSONS LEARNED

YSORT reviewed its activities and those of the LMES DUO, of the LMES MSA, and of the IRA to identify areas in which LMES should improve during future resumption activities.

1. Similar to the experience in RSS, the operations support organizations' (QO, Plant Shift Superintendent's Office, Facility Management Organization, etc.) interfaces with the primary organization, DU Organization, were not well defined and managed. For example, the QO involvement in conduct of operations activities was insufficient, based on their overall role in DUO support.

2. Also similar to the RSS experience, in many cases LMES management expectations were based on meeting minimal performance standards instead of excellence. As a result, actual performance, in many areas, did not achieve DOE's expectations. For example, the support organization's responsible for boundary control station housekeeping met neither the DOE nor the DUO Manager's expectations, resulting in DUO taking extraordinary action to ensure adequate conditions were established and maintained.

3. DUO made substantial improvements, in some respects, over the RSS performance and effectively used the prior lessons learned. This positive performance should also be viewed as a lessons learned for future resumptions:

    a. DUO meetings and management activities were generally performed in an organized and business-like manner with DUO management providing clear and consistent expectations for the participants.

    b. The DUO IRA overcame many of the performance problems of the RSS IRA such as communication and viability of the IRA process, team organization and coordination with DOE and DUO, and the effectiveness of team meetings.

    c. The DUO management team approached problems with a positive attitude and accepted ownership and accountability for their performance. This enabled the interface with DOE to work more effectively and for problems to be addressed and closed more efficiently.

7.4 REFERENCES

1. *DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities,"* May 18, 1992.

2. *DOE Order 5480.20, "Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities,"* June 19, 1991.

3. *DOE Order 5480.31, "Startup and Restart of Nuclear Facilities,"* September 15, 1993.

4. DOE "Y-12 Site Office Restart Team Assessment Plan for Depleted Uranium Operations Resumption," July 21, 1995.

5. DOE Y-12 Site Office Operating Procedure YSO-5.4.1, "Restart Team Assessments," April 14, 1995.

6. Lockheed Martin Energy Systems, Inc., Y/NA-1800C, "Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant," June 1, 1995.

7. Lockheed Martin Energy Systems, Inc., Y/AD-629, "Readiness Assessment Implementation Plan for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant," September 8, 1995.

8. Lockheed Martin Energy Systems, Inc., Compliance Schedule Approval (CSA) MMES/Y-12-DOE-5480.20-CSA-82B, July 28, 1995.

9. Lockheed Martin Energy Systems, Inc., Compliance Schedule Approval (CSA) MMES/Y-12-DOE-5480.19-CSA-147B, August 18, 1995.

10. Lockheed Martin Energy Systems, Inc., Y-12 Plant Y/NA-1802, "Management Self-Assessment Plan for Depleted Uranium Operations and Support Functions," July 24, 1995.

11. Lockheed Martin Energy Systems, Inc., Y-12 Plant Y/NA-1803, "Report of Management Self-Assessment for Depleted Uranium Operations and Support Functions," September 5, 1995.

7.4 REFERENCES (CONT.)

12. Martin Marietta Energy Systems, Inc., Y-12 Plant Procedures, Administrative 10 Series, Vol. 3, Y10-102, "Operating Procedure Development, Revision, and Control," June 25, 1991.

13. Martin Marietta Energy Systems, Inc., Y-12 Plant Procedures, Administrative 10 Series, Vol. 4, Y10-189, "Document Control," April 25, 1995.

14. Martin Marietta Energy Systems, Inc., Y-12 Plant, "Nuclear Operations Conduct of Operations Manual," 1995.

15. Martin Marietta Energy Systems, Inc., Y-12 Plant Y/GA-66/R4, "Training Implementation Matrix for DOE Order 5480.20," January 1995.

16. Martin Marietta Energy Systems, Inc., Y-12 Plant Y/AD-623, "Plan for Continuing and Resuming Operations," October 1994.

17. Lockheed Martin Energy Systems, Inc., Y-12 Plant Procedure, Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," August 21, 1995.

18. Lockheed Martin Energy Systems, Inc., Y-12 Plant Procedure, Y50-24-81-005, "Operation of the Lectromelt Arc Melt Furnace B-3001," September 5, 1995.

19. Lockheed Martin Energy Systems, Inc., Y-12 Plant Procedure, Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces," July 10, 1995.

Attachment 6
Memo, Spence to Seitz
Dated:

Memo Title:

DNFSB Recommendation 94-4 October Deliverables

Y/AD-631

Y-12

OAK RIDGE Y-12 PLANT

MARTIN MARIETTA

Lockheed Martin Energy Systems, Inc.
Readiness Assessment Report
for the
Resumption of
Depleted Uranium Operations
and Support Functions
at the
Oak Ridge Y-12 Plant

September 11-21, 1995

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

I, by signature here, acknowledge that I concur with the findings and conclusions of this report.

R. N. Cothron
Systems Verification and Procedures

R. E. Fenstermaker
Management

G. A. Gregory
Training and Level of Knowledge

C. A. Hall
Management

M. W. Kohring
Training and Level of Knowledge

J. E. Lee
Operations

J. B. Richard
Management

M. S. Taylor
Systems Verification and Procedures

APPROVED: _____ DATE: 9/22/95
J. P. Flynn, RA Team Manager

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EXECUTIVE SUMMARY

The Lockheed Martin Energy Systems (LMES) Independent Readiness Assessment (RA) is one of the activities to be completed prior to resuming operations for Depleted Uranium Operations and Support Functions at the Department of Energy (DOE) Y-12 Site. The results of this RA will be used to determine whether the core objectives as described in the Plan of Action (POA), Y/NA-1800C, have been adequately met.

Operations at the Y-12 Plant were shut down in September 1994 as a result of operational deficiencies noted by the Defense Nuclear Facilities Safety Board (DNFSB) staff during routine activities. LMES initiated a Type "C" Investigation to determine the full significance of the deficiencies observed. The investigation revealed that several improvements were necessary to resume operations in a disciplined manner. The resulting extended shutdown led to the completion of this RA in accordance with DOE Order 5480.31, "Startup and Restart of Nuclear Facilities," and DOE Standard 3006-93, "Planning and Conduct of Operational Readiness Reviews (ORR)."

The RA was conducted September 11-21, 1995. The RA was a systematic inquiry into the ability of the Y-12 staff to conduct Depleted Uranium Operation and Support Function activities in a safe and disciplined manner. The scope of the RA was determined by the core objectives identified and approved in the POA. The DU Operations and Support Functions facilities within the scope of the RA are not governed by Criticality Safety Approvals (CSA), Operational Safety Requirements (OSR), or Class I procedures.

The RA team determined that adequate management systems are in place to ensure safe operations, significant improvements have been made in Conduct of Operations, personnel exhibit an awareness of health and safety requirements, and personnel are enthusiastic about the new rigor and discipline that is being required. The RA team also determined that Depleted Uranium Operations and Support Functions are adequately prepared to continue resumption activities.

However, the RA team documented 16 observations and four findings (Appendix C). The following are the four findings. These findings need to be resolved prior to actual operation of low-hazard systems.

SV1-01: The restart programs for all three low-hazard facilities do not identify all necessary support equipment associated with and integral to the low-hazard processes.

PR1-05: Adequate training on Y-12 plant procedure Y10-102, "Technical Procedure Process Control," revision 7/21/95, has not been provided.

PR2-02: Management controls do not exist to ensure that retraining is conducted on a revised procedure when necessary.

TR1-06: Training requirements are not always adequately identified, and training is not always properly conducted or documented.

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I. INTRODUCTION

A. General

During a review of Building 9204-2E containerized storage operations and applicable Criticality Safety Analyses (CSA) on September 22, 1994, violations of administrative safety controls associated with material storage arrays were observed. Operations personnel, upon discovery of the criticality safety violation, did not immediately administratively control the area (i.e., assuring personnel were kept at a safe distance away from the array). They also did not immediately notify Nuclear Criticality Safety Department (NCSD) personnel or the Plant Shift Superintendent. This was a violation of Lockheed Martin Energy Systems, Inc. (Energy Systems) and Y-12 Plant training and procedures. Following the event, all CSAs were walked down and seven categories of criticality safety nonconformances were identified with a total of 1,344 individual observations.

Examination of the data from the evaluation of the CSA walkdowns, the occurrence report covering the initial infraction, the Type "C" Investigation, and the Defense Nuclear Facility Safety Board (DNFSB) Recommendation 94-4 indicate the basic cause to be a lack of rigor in conduct of operations that permitted less than strict compliance with procedures. The issue was not of operations being outside the safety envelope. The primary safety controls remained intact. Rather, the issue was the need to enhance organizational performance and to improve the safety management process in daily operations. Within the umbrella of conduct of operations, the principal failure was the result of personnel not following procedures with the rigor required. A contributing factor was the lack of training on CSAs in particular. CSAs were not always clearly written and their limitations were not well understood by some personnel.

DOE Assistant Secretary for Defense Programs memorandum of November 8, 1994, *Resumption of Y-12 Operations*, to the Oak Ridge Operations Office has stipulated that the Readiness Assessment is the appropriate format to ascertain readiness for restart. The Assistant Secretary for Defense Programs (DP-1) has stated his concurrence that the Manager, Oak Ridge Operations Office (ORO M-1), will be the restart authority in this same memorandum.

B. Y-12 Plant

The Y-12 Plant is one of two installations in Oak Ridge, Tennessee, managed by Energy Systems for the DOE. Energy Systems also manages the Oak Ridge K-25 Site. For five decades the Oak Ridge Y-12 Plant has been the national center for the handling, processing, storage, and disassembly of all DOE-controlled enriched uranium (EU) materials and components, as well as depleted uranium (DU) and other special materials components.

The DOE Defense Programs at the Y-12 Plant include the dismantling of nuclear weapons components returned from the national arsenal, serving as the nation's storehouse for special nuclear materials, maintaining nuclear weapons components production capability and stockpile support, and providing special production support for other DOE programs and customers. In addition, as the primary EU repository for the United States, the Y-12 Plant has the facilities and security systems for EU storage, chemical recovery, and material purification and fabrication.

Resumption activities for the Y-12 Plant are divided into mission areas that are defined by programmatic mission descriptions and needs. The RA Implementation Plan (IP) (Appendix A) addresses the scope of the Resumption of DU Operation and Support Function activities.

C. DU Operations and Support Functions

The DU Operations and Support Functions at the Oak Ridge Y-12 Plant include facilities for the production of components for Directive Schedule and Design Agency production and for the dismantlement activities for the Weapon Returns Program. The typical materials processed are depleted uranium and depleted uranium alloys and non-uranium materials, such as ferrous and nonferrous alloys and plastics. The DU Operations and Support Functions areas include metalworking, machining, storage, plating, dimensional inspection, radiographic inspection, dye penetrant inspection, waste processing, and the weapons materials management support function.

The DU Operations and Support Functions facilities within the scope of the RA are non-reactor nuclear facilities. These facilities are, or contain, radiological contamination areas. Hazard screening performed for these facilities according to DOE Order 5481.1B, "Safety Analysis and Review System," indicates that only low-hazard and generally-accepted hazard processes exist within DU Operations and Support Functions. There are no moderate- or high-hazard processes associated with DU Operation and Support Functions. The DU Operations and Support Functions facilities within the scope of the RA are not governed by Criticality Safety Approvals (CSA), Operational Safety Requirements (OSR), or Class I procedures.

Refer to Appendix I in the Plan of Action (POA), Y/NA-1800C, for a list of DU Operations and Support Functions facilities. In addition, a detailed description of the facilities and a flowchart of DU Operations and Support Functions activities is shown in Y/NA-1799C, "Facility Descriptions and Process Flowcharts for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant."

D. Readiness Assessment Process

The Readiness Assessment was conducted to determine if Depleted Uranium Operations and Support Functions were ready to resume the activities that were shut down as a result of events on September 22, 1994.

A Readiness Assessment Implementation Plan was prepared to comply with the requirements of DOE Order 5480.31 and DOE-STD-3006-93. The scope of the RA is described in the POA, Y/NA-1800C, which was prepared by Y-12 Plant line management and approved by the Manager of the Oak Ridge Operations Office (ORO). The POA designates the Vice President, Defense and Manufacturing as the restart authority.

The implementation plan, Y/AD-629, contains the overall assessment procedure and its appendices including the Criteria and Review Approach Documents (CRAD) that define the review objectives and criteria as well as the approach for assessing each objective.

Results of the assessment are provided in this report. Deficiencies are classified as pre-start findings, which must be closed prior to resumption of unlimited operations; post-start findings, which should have approved corrective action plans and milestones in place prior to restart, or

observations, which may be used by management to support continuous performance improvement. It should be noted that there may be a considerable time between the issuance of this report and actual commencement of operations. As a result, post-start findings were also evaluated to determine if they were required to be resolved prior to actual operation of low-hazard processes.

The Readiness Assessment team consisted of four Energy Systems employees, one Lockheed Martin Utility Services employee, three Oak Ridge National Laboratory employees, and a senior technical consultant. Two of the team members had participated in the Type "C" Investigation that investigated the events of September 22, 1994. One of the team members led the corporate review team following the event.

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II. READINESS ASSESSMENT EVALUATION

A. Management (MG)

The review in this area assessed the implementation of management systems and conversion of management to new disciplines. The review also verified that a program was established to promote a site-wide safety culture and adherence to conduct of operations principles in a graded manner. The review was conducted to ensure that a process had been established and was being effectively used to identify, evaluate, and resolve deficiencies and recommendations made by internal self-assessments, oversight groups, official review teams, and audit organizations. The results of the LMES Management Self Assessment were evaluated. The DUO restart test programs were reviewed to verify that they included adequate plans for safe, appropriately controlled operations. The conformance to applicable DOE orders was assessed. Functions, assignments, responsibilities, and reporting relationships were reviewed to ensure they were clearly defined, understood, and effectively implemented with line management and individual responsibility for control of safety.

The Y-12 Plant management organization has been established in accordance with LMES procedures. Management positions are filled, and the personnel assigned understand their responsibilities. These managers appear to be capable of managing the continued effort required to proceed from completion of the LMES RA to start-up of DUO activities. The operations manager structure is in place and is noteworthy. Presently, the new organizational concept seems to be molding DUO and the support functions into a single team.

The effort on the part of Y-12 Plant management to promote safety and conduct of operations principles in the work place is obvious. This effort appears successful based on extensive interviews of DUO, disassembly and storage, quality assurance, and waste management personnel. Interviews were conducted in a vertical look at the organization from the Vice President, Defense and Manufacturing level to the floor worker (machinists, etc.). DUO has effectively implemented the plan-of-the-day. This activity promotes safety in the workplace and establishes a method to authorize access and approve work to be performed.

While Y-12 supporting departments have not completed their transition to conduct of operations, it is believed that the full authority vested in the operations managers can keep the controls in place. These positions are vital and must have qualified, authoritative backups if DU operations are to experience a minimum of problems. Control of access of support personnel not assigned to a facility is of particular concern (DUO-RA-MG1-01 and -02).

The review sampled the corrective action process and closure documents. The process was judged to be sufficiently well-established to support resumption. The Energy Systems Action Management System (ESAMS) issue/management/commitment tracking system is in place and being used by Y-12 management. A similar system, the Waste Information Tracking System (WITS), is being effectively used by waste management personnel to document local issues.

Actions to conform to DOE orders were reviewed and Request for Approval (RFA) action plans and schedules have been prepared. While not all RFAs have been completely approved by DOE, measures are in progress to implement the planned actions.

The review analyzed the implementation status of the October 1994 Martin Marietta Corporate Review of the Y-12 Plant and found most items had been implemented, even though the culture change is not yet complete. Most significant among the Corporate Review recommendations were: accepting individual responsibility, delegating clear job assignments, assigning operations with authority and control over access to work activities, recognizing individual and organization authority, asking and listening to the work force through Performance Measurement Teams (PMT), implementing status boards, and taking introspective looks at progress through informal self assessment. A positive response to these recommendations and other changes are clearly evident in DUO and support functions. It may require a considerable management focus if these gains are to be fully institutionalized.

As was noted in the LMES RA for Receipt, Storage, and Shipment (RSS), the Y-12 internal self-assessment/management-appraisal program needs additional definition, including a schedule for assessments. Progress towards disciplined operations has been achieved by the resumption activities; however, to maintain the gains, an effective self-assessment program must be implemented.

The management team validated that no facility process changes had occurred, thereby leaving the safety basis intact.

After completion of the reviews associated with this functional area and an evaluation of the programs in place, it was judged that DUO resumption activities should continue.

The deficiencies identified in the management area are as follows:

MG1-01: The individuals who control access to Y-12 facilities have numerous titles.

MG1-02: Maintenance activities are being performed without prior approval of designated operations personnel.

MG5-01: Radiological boundary control station design does not ensure the spread of contamination is controlled.

B. Operations (OP)

The operations assessment was conducted by a single assessor with input from assessors in the areas of management, training, procedures, systems verification, and level of knowledge. This summary reflects the combined input for the area of operations.

The review in this area assessed whether there were sufficient numbers of qualified personnel to support safe operations and if the implementation status for DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities," was adequate for DUO and support functions. The scope of the assessment was limited to the following chapters of DOE Order 5480.19:

Chapter I. Operations Organization and Administration
Chapter II. Shift Routines and Operating Practices
Chapter V. Control of On-the-Job Training
Chapter VI. Investigation of Abnormal Events
Chapter VIII. Control of Equipment and System Status

Chapter XIV. Required Reading
Chapter XV. Timely Orders to Operators
Chapter XVI. Operating Procedures
Chapter XVII. Operator Aid Postings

The assessment included document reviews, interviews, and observation of evolutions. Emphasis was placed on observation of actual evolutions. However, because of the current lack of activity, several activities were simulated to allow assessment.

The minimum staffing and qualification requirements of supervisors and operators were determined by review of the low-hazard procedures, review of the Depleted Uranium Operations Job Qualification Requirements document, interviews of personnel from each of the low-hazard facilities, and direct observation of actual and simulated activities.

Staffing levels are adequate for resumption of the low-hazard operations; however, deficiencies were identified in the area of training (DUO-RA-TR1-06). Upon resolution of finding DUO-RA-TR1-06 and completion of the restart test program for each of the low-hazard operations, a sufficient number of qualified personnel will exist.

The assessment of the nine applicable chapters of the Conduct of Operations (COO) order began with a review of the Y-12 Nuclear Operations Conduct of Operations Manual to determine what level of grading has been applied to the order. Operations findings and observations from the recently conducted Management Self Assessment (MSA) were also reviewed to identify potentially weak areas.

Each of the low-hazard facilities was assessed against nine chapters of DOE Order 5480.19, while the nine chapters were selectively sampled for facilities with generally-accepted hazards. Operator rounds were observed at all low-hazard facilities, required reading and narrative logs were reviewed at all facilities, control of operator aids was assessed at all facilities, and a simulated performance of a procedure was performed at each of the low-hazard facilities.

Every facility exhibited a system for issuing and controlling required reading, operator aids, and timely orders. Some of the facilities have no operator aids, but all have a system for approval, issue, and control.

The Nuclear Operations Conduct of Operations Manual assigns approval of operator aids exclusively to the Operations Manager; however, in most cases, the Unit Manager approves them, which seems to be appropriate.

During simulation of procedures at the low-hazard facilities, the operators were knowledgeable and followed the procedures. When anticipated equipment responses were not obtained, the operators took proper action.

The facilities each exhibited different levels of ownership, as demonstrated through general housekeeping and material condition. Some of the facilities effectively utilized the standdown period to improve material conditions, and others did not.

From the observations of operator rounds, reviews of completed documentation at the facilities, and interviews conducted during this assessment, the COO culture is apparent. Some problems were identified with operator rounds (DUO-RA-OP-01 and -02).

In some cases, the culture has not fully matured; however, it is adequate for low-hazard and generally-accepted hazard facilities.

No formal self-assessment program exists to determine the areas in which COO improvements are needed. This is an open MSA finding; therefore, a redundant finding will not be generated as part of this assessment.

After completion of the reviews associated with this functional area and an evaluation of the programs in place, it was judged that DUO resumption activities should continue. However, finding DUO-RA-TR1-06 must be resolved prior to actual operation of low-hazard processes.

The deficiencies identified in the operations area are as follows:

OP2-01: Operators and supervisors do not always identify and correct problems.

OP2-02: Round sheets are not always completed properly.

C. Systems Verification (SV)

The review in this area included the assessment of the restart test programs applicable to the low-hazard processes. The review also assessed these programs to ensure that when restart testing is complete, each low-hazard process will be capable of safely performing its intended function; the restart test programs will include adequate controls to ensure calibrations, corrective maintenance, and leak checks have been completed prior to operation of each low-hazard process; process and support equipment will be determined to be functional as required to ensure that mission operations do not result in an unacceptable risk to the environment or to the health or safety of employees; and documentation of the operability of the associated equipment, of the adequacy of training for the operation of associated equipment, and of the viability of procedures for operation of the associated equipment will be included in the restart test programs.

The assessment for systems verification also included reviewing processes that are intended to ensure calibration and surveillance, where required by the Uranium Chip Oxidation Facility safety authorization basis, will be verified complete prior to operation of the chip oxidation process.

The managers, process engineers, and line supervisors interviewed were cognizant of the restart test programs. Not all interviewees could state the scope of the restart test programs, which includes personnel training/qualification, procedures, and equipment operability.

Discussions with managers revealed that the equipment included in the restart test programs was the equipment required to avoid low-hazard scenarios identified in the hazard screening information as defined by current DOE standards and orders.

As identified in discussions with DUO personnel, the support equipment necessary to have the low-hazard processes safely perform their intended functions has not been identified in the restart test programs (DUO-RA-SV1-01). The intended function cannot be met without the necessary support, such as the operation of important building cranes and ventilation systems. Other examples of specific support equipment not included in the programs are listed in the RA deficiency forms for systems verification

(DUO-RA-SV1-01). Upon incorporating the necessary support equipment into the restart test programs, additional calibrations, Equipment Testing & Inspection (ET&I) certifications, and corrective maintenance need to be included in the restart test programs.

Waste management personnel are responsible for the operation of the Uranium Chip Oxidation Facility. Activities to ensure the authorized safety basis is met include rounds, tracking of outstanding work orders, and weekly status notes of the waste processing operations, which address compliance and compensatory measures, equipment status, and temporary modifications. Emphasis is placed on systems and components identified in the facility safety authorization basis by use of a weekly prioritization system. Other support equipment is also identified and tracked during weekly meetings with support organizations. The activities underway at the Uranium Chip Oxidation Facility are focused on maintaining operability of functional equipment.

After completion of the reviews associated with this functional area and an evaluation of the programs in place, it was judged that DUO resumption activities should continue. However, finding DUO-RA-SV1-01 must be resolved prior to actual operation of low-hazard processes.

The deficiency identified in the systems verification area is as follows:

SV1-01: The restart test programs for all three low-hazard facilities do not identify all necessary support equipment associated with and integral to the low-hazard processes.

D. Training and Qualification (TR) and Level of Knowledge (LK)

The review in the training and qualification area assessed the training and qualification programs that support Depleted Uranium Operations and Support Functions. The review also assessed these programs to ensure they were adequately established, documented, and implemented to cover the range of duties required to be performed. The assessment recognized the graded application as described in the approved Plan of Action.

The review in the level of knowledge area assessed the adequacy of the technical qualifications of personnel responsible for facility operations; the level of knowledge of operations personnel based on reviews of examinations, exam results, selected interviews, and observation of work performance; and managerial qualifications of personnel responsible for facility operations.

Training, qualification, and level of knowledge were assessed by reviewing procedures, policies, and personnel training records; interviewing selected managers, supervisors, operations and support function personnel; and observing process simulations.

Selected DUO and support function managers were interviewed to determine their understanding and knowledge of requirements significant to safety and conduct of operations. Operators were then interviewed or observed during procedure simulations to determine if managers are effective in communicating these requirements and expectations to the work force.

The interviews with the managers confirmed that they have a good understanding of the requirements for safe operation and are committed to ensure their staff are adequately trained and kept aware of these requirements through a number of communication vehicles.

All of the managers interviewed displayed a high level of confidence that the members of their organization had been adequately trained to support resumption of DU operations. They strongly expressed a belief that their particular organization had taken significant steps to promote conduct of operations principles as a tool to improve safety and efficiency of operations. It was readily apparent that managers felt the operators had been actively included in resumption efforts through the revision of procedures, the definition of training and qualification requirements, and the implementation of conduct of operations practices within their particular job areas.

The operators interviewed or observed were very knowledgeable and personally involved with development of procedures in their area. Operators in low-hazard areas had been provisionally qualified on procedures through Performance Documentation Checksheet simulation. All voiced a commitment to following rules and procedures and doing their job right. They were aware of their stop-work authority and the procedure change process.

The earliest Training Implementation Matrix (TIM) milestone for DUO is January 1996. The DUO organization is well ahead of schedule on TIM commitments. As previously identified during the DUO Management Self Assessment, the disassembly and storage and quality organizations are behind schedule with the approved Y-12 Plant TIM. The current TIM is being revised to be consistent with Y-12 Resumption Plans of Action and to include requirements of DOE Order 5480.20A, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities."

Training and qualification records were reviewed for selected DUO and support function operators and supervisors with a focus on the formality and completeness of training record management. It was determined that tabletop job task analyses (JTA) were used initially to establish training and qualification requirements. However, revisions to the requirement lists were based on informal communication, rather than on any documented JTA (DUO-RA-TR1-05).

Training Management System (TMS) documentation was reviewed to ensure that requirements had been defined for each operator and supervisor position, and that the required level of knowledge was specified for each position. It was discovered that, in some cases, the requirements listed in TMS did not match the requirements that supervisors believed to be necessary to support resumption of work (DUO-RA-TR1-02).

In order to support resumption of DUO and to ensure a sufficient number of qualified personnel are trained on the most recent revision of low-hazard process procedures, a provisional qualification process was instituted. This provisional qualification is documented through a Performance Documentation Checksheet (PDC) and demonstrates the employee's level of knowledge and skills necessary to perform the tasks required in the procedure.

A PDC evaluation for operation of a casting furnace was observed with an operator and supervisor who had both been provisionally qualified on the previous revision of the procedure in July. Although the operator demonstrated a thorough understanding of the procedure, the equipment, and the knowledge questions asked by the evaluator, many of the tasks of the procedure were discussed rather than simulated, contrary to organizational instructions.

After completion of the reviews associated with this functional area and an evaluation of the programs in place, it was judged that DUO resumption activities should continue. However, finding DUO-RA-TR1-06 must be resolved prior to actual operation of low-hazard processes.

Findings and observations identified during the assessment are as follows:

TR1-01: Training records for some personnel are not complete.

TR1-02: The Training Management System (TMS) does not adequately document training requirements or the status of completed training.

TR1-03: The training status in the TMS is not consistent with the file copies of training records.

TR1-04: Performance Documentation Checksheet (PDC) evaluations are not conducted in a manner to adequately evaluate operator facility-specific knowledge.

TR1-05: Revisions to training and qualification requirements are not being properly reviewed and approved.

TR1-06: Training requirements are not always adequately identified, and training is not always properly conducted or documented.

E. Procedures (PR)

The assessment in the procedures area included assessment of low-hazard process procedure health and safety requirements, procedure technical accuracy, the process for control and issuance of procedure revisions in the field, and management controls that ensure training has been performed to the latest revision of procedures.

Y-12 Plant procedure Y10-102, "Technical Procedure Process Control," is the basis for development, control, and revision of the DUO low-hazard process procedures. The latest revision of Y10-102 became effective September 1, 1995. In an effort to provide clarification and guidance the DUO Division Manager issued an explanatory internal correspondence. None of the DUO line management or process engineers have been trained on Y10-102 (DUO-RA-PR1-05). The acting Division Procedures Manager and the Division Procedures Coordinator are the only DUO personnel who have been trained on Y10-102.

The current status of the eight low-hazard process procedures identified in the POA is one of continual change and improvement. Only one of the latest approved revisions of the eight low-hazard process procedures were in the procedure master files. One low-hazard process procedure has not been developed as identified in a DUO Management Self-Assessment finding.

In general, the health and safety requirements specified in the low-hazard process procedures are developed from environmental, health, and safety risks. These risks are identified in the hazard screening document and other references including, for example, air sampling data and material safety data sheets for the establishment of respirator protection. However, in one specific low-hazard process procedure, the development of one health and safety requirement could not be linked back to the references

(DUO-RA-PR-06). Interviews with the line personnel revealed they knew the hazards of their work assignments.

The casting procedure simulation produced some operator errors. The operators said the errors occurred due to the confusing way the procedure was written. Additionally, the Casting Unit Manager said one operator had not been able to provisionally qualify on the procedure due to the way it was written. During the simulation of gold recovery, the operators identified some deficiencies and omissions in the procedure (DUO-RA-PR1-02 and -03). However, for the most part, the procedures are adequate. The personnel involved with the development and use of the procedures were personally committed to achieving compliance and excellence. Personnel involved in development and writing of procedures include line management, process engineers, and craft personnel.

During the simulations, all of the operators demonstrated a good understanding of procedure use, control, and operation of their equipment. The operators were aware of the process for control and revision of procedures and relied on the supervisor and the process engineer to get revisions incorporated. Simulated operations revealed some procedural deficiencies that were not corrected during the previously performed verification and validation process.

In assessing training to the latest procedure revision requirements, the line supervisors said they use the weekly TMS status report provided to them by the Unit Manager to determine who is qualified to perform specific tasks. The TMS status report has some drawbacks in that it does not provide the revision date of the procedure. This deficiency was pointed out to the appropriate support personnel, and they are working on a solution.

In review of the management controls that ensure applicable personnel have been trained on the latest procedure revision, it was identified that no formal process or requirements have been established for identifying if requalification is necessary when a procedure is revised (DUO-RA-PR2-02). Unit Managers said they had no formal guidance or requirement on how to review a revised procedure to determine if requalification was necessary. The Unit Managers did say they were reviewing revised procedures to determine if requalification was necessary. The Unit Managers that were interviewed on this matter said they compared the current PDC with the new procedure revision to determine if a new PDC was required.

After completion of the reviews associated with this functional area and an evaluation of the programs in place, it was judged that DUO resumption activities should continue. However, findings DUO-RA-PR1-05 and PR2-02 must be resolved prior to actual operation of low-hazard processes.

The deficiencies identified in the procedures area are as follows:

PR1-01: The controlled procedure file does not ensure the latest procedure revisions are made available to the operator.

PR1-02: Procedure Y50-24-18-143 is written in a manner that has caused problems for some operators.

PR1-03: Procedure Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," contains a step that cannot be performed as written.

PR1-04: An improper procedure revision was made.

PR1-05: Adequate training on Y-12 plant procedure Y10-102, "Technical Procedure Process Control," revision 7/21/95, has not been provided.

PR1-06: Procedure Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," does not incorporate respiratory protection guidelines.

PR1-07: The arc melting area procedure library does not follow procedure control guidelines.

PR2-02: Management controls do not exist to ensure that retraining is conducted on a revised procedure when necessary.

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III. LESSONS LEARNED

- LMES management needs to ensure that there are adequate numbers of qualified, experienced individuals assigned to RA teams. LMES management also needs to ensure that normal job duties do not detract from a team member's ability to support the team.

- Prior to beginning the RA, team members must be reminded of some basic principles such as the following:

  - Do not operate equipment, open equipment doors, test alarm lights, etc.

  - Follow all rules. Be particularly aware of requirements on Radiological Work Permits, Safety Work Permits, etc. Do what the permit says - not what someone tells you it says.

  - Do not interfere with the evolutions you are observing.

- Team members need to update Form 1s on a daily basis and give them to the team manager.

- The Team Manager needs to ensure that adequate preparation time is available. This time will vary depending upon such items as team familiarity with the area to be assessed, availability of CRADs, scope of the assessment, and training of team members, e.g. General Employee training, Radiation Worker II training.

- The Team Manager needs to minimize the number of observers at any one evolution to lessen the impact on the individual observed.

- Team members need to spend as much time in the field as possible, but they also need to spend time together outside of meetings to share information.

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IV. ACRONYMS

COO	Conduct of Operations
CRAD	Criteria and Review Approach Document
CSA	Criticality Safety Appraisal
DNFSB	Defense Nuclear Facility Safety Board
DU	Depleted Uranium
DUO	Depleted Uranium Operations
ESAMS	Energy Systems Action Management System
ET&I	Equipment Test & Inspection
EU	Enriched Uranium
JTA	Job Task Analysis
LMES	Lockheed Martin Energy Systems, Inc.
MSA	Management Self Assessment
NCSD	Nuclear Criticality Safety Department
ORO	Oak Ridge Operations
ORR	Operational Readiness Review
OSR	Operational Safety Requirements
PDC	Performance Documentation Checksheet
PMT	Performance Measurement Team
RA	Readiness Assessment
RFA	Request for Approval
TIM	Training Implementation Matrix
TMS	Training Management System
WITS	Waste Information Tracking Systems

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APPENDIX A

Copy of Y/AD-629

Lockheed Martin Energy Systems, Inc.
Readiness Assessment Implementation Plan
for the
Resumption of Depleted Uranium
Operations and Support Functions
at the
Oak Ridge Y-12 Plant

September 8, 1995

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Y/AD-629

Y-12

OAK RIDGE
Y-12
PLANT

MARTIN MARIETTA

Lockheed Martin Energy Systems, Inc.
Readiness Assessment
Implementation Plan
for the
Resumption of
Depleted Uranium Operations
and Support Functions
at the
Oak Ridge Y-12 Plant

September 8, 1995

MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

Y/AD-629

Lockheed Martin Energy Systems, Inc.
Readiness Assessment
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APPROVED: J P Flynn 9/8/95

J. P. Flynn, RA Team Manager

September 8, 1995

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I. INTRODUCTION

A. General

This implementation plan has been prepared to comply with the requirements of Department of Energy (DOE) Order 5480.31, "Startup and Restart of Nuclear Facilities," and DOE-STD-3006-93, "Planning and Conduct of Operational Readiness Review (ORR)." The scope of the Readiness Assessment (RA) is described in the Plan of Action (POA), Y/NA-1800C, which was prepared by Y-12 line management and approved by the Department of Energy, Oak Ridge Operations Office, on June 12, 1995, and revised by a letter from F. P. Gustavson to R. J. Spence on August 30, 1995.

The Vice President, Defense and Manufacturing, LMES, is the designated restart authority. The concurrence of the Y-12 Site Office is also required.

The plan of action was prepared to require verification of corrective actions defined by Energy Systems plan Y/AD-623 with endorsements from DOE-ORO La Grone to DOE HQ Defense Programs, DP-1, Reis and approval letter with comments from Reis to La Grone.

This implementation plan contains the overall assessment procedure, and its appendices include the Criteria and Review Approach Document (CRAD), which defines the review objectives and criteria as well as the approach for assessing each objective. Results will be provided in a report that is discussed in section IX of this implementation plan.

The proposed nonreactor nuclear facilities subject to resumption of operations include both hazard Category 3 and some less than category 3 nonnuclear facilities as defined in DOE-STD-1027-92, "Guidance on Preliminary Hazard Classification and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Safety Analysis Reports."

B. Y-12 Plant

The Y-12 Plant is one of two installations in Oak Ridge, Tennessee, managed by Lockheed Martin Energy Systems, Inc. (Energy Systems) for the DOE. Energy Systems also manages the Oak Ridge K-25 Site. For four decades the Oak Ridge Y-12 Plant has been the national center for the handling, processing, storage, and disassembly of all DOE-controlled enriched uranium (EU) materials and components as well as depleted uranium (DU) and other special materials components.

The DOE Defense Programs at the Y-12 Plant include the dismantling of nuclear weapons components returned from the national arsenal, serving as the nation's storehouse for special nuclear materials, maintaining nuclear weapons components production capability and stockpile support, and providing special production support for other DOE programs and customers. In addition, as the primary EU repository for the United States, the Y-12 Plant has the facilities and security systems for EU storage, chemical recovery, and material purification and fabrication.

Resumption activities for the Y-12 Plant are divided into mission areas that are defined by programmatic mission descriptions and needs. This Implementation Plan (IP) addresses the scope

of the Resumption of DU Operations and Support Functions activities, which is one of the mission areas for the Y-12 Plant.

After successful completion of the DU Operations and Support Functions Readiness Assessment (RA) conducted in accordance with this IP, the DU Operations and Support Functions activities/facilities will be able to continue resumption of operations in compliance with the DUO restart test program. Successful implementation and completion of the approved restart test program should restore DUO to full capabilities as they were prior to the September 22, 1994, incident.

C. DU Operations and Support Functions Activity

The DU Operations and Support Functions at the Oak Ridge Y-12 Plant include facilities for the production of components for Directive Schedule and Design Agency production and for the dismantlement activities for the Weapon Returns Program. The typical materials processed are depleted uranium and depleted uranium alloys, and nonuranium materials, such as ferrous and nonferrous alloys and plastics. The DU Operations and Support Functions areas include metalworking, machining, storage, plating, dimensional inspection, radiographic inspection, dye penetrant inspection, waste processing, and the Weapons Materials Management support function.

The DU Operations and Support Functions facilities within the scope of the RA are nonreactor nuclear facilities. These facilities are, or contain, radiological contamination areas. Hazard screening performed for these facilities according to DOE Order 5481.1B, "Safety Analysis and Review System," indicates that only low hazard and generally accepted hazard processes exist within DU Operations and Support Functions. There are no moderate or high hazard processes associated with DU Operations and Support Functions. The DU Operations and Support Functions facilities within the scope of this RA are not governed by Criticality Safety Approvals (CSA), Operational Safety Requirements (OSR), or Class I procedures.

Refer to appendix I in the Plan of Action (POA), Y/NA-1800C for a list of DU Operations and Support Functions facilities. In addition, a detailed description of the facilities and a flowchart of DU Operations and Support Functions activities is shown in Y/NA-1799C, "Facility Descriptions and Process Flowcharts for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant."

II. PURPOSE

This Readiness Assessment will determine if Y-12 is ready to resume the DU activities that were shut down as a result of events on September 22, 1994. The Readiness Assessment will be conducted in accordance with this implementation plan.

III. SCOPE

A. Breadth of the Readiness Assessment

1. Basis for RA Breadth

The approved POA addresses each of the 20 core requirements of DOE Order 5480.31. The 20 core requirements (CR) were further subdivided by the POA into 36 core objectives (CO) to aid applicability determination as described in DOE's June 2, 1994 change request, *Revision of DOE 5480.31*, proposed by the director of the Nuclear Operations and Analysis Division, EH-63. DOE OR concurrence in the use of the 36 core objectives was granted on November 10, 1994.

a. Causal Factors of the Precipitating Event

The breadth of the RA is defined by a correlation between the COs and the causal factors and the issues associated with the September 22, 1994 incident. The causal factors were derived from Y/AD-622, "Type C Investigation of the Y-12 Plant Criticality Safety Approval Infractions Event at Building 9204-2E on September 22, 1994." The following were identified as causal factors:

- Management had not ensured that some Nuclear Criticality Safety (NCS) deficiencies and their root causes were always identified and corrected in a timely manner.
- Shortcomings existed in verbal and written communications regarding some CSAs.
- Inadequate attention to detail and rigor existed in some areas of the conduct of operations at Building 9204-2E in VTR-2 and VTR-3.
- Roles and responsibilities for some positions had not always been clearly understood and implemented.

b. Additional Core Issues

The following two additional issues have been included to address root causes of the precipitating event and further specifically address DNFSB recommendation 94-4:

- Personnel knowledge and experience (technical, procedural, and safety cultural) may not be sufficient to uniformly support continued safe operations per DNFSB recommendations 93-1, 93-6, and 94-4(3);
- A comprehensive review of the nuclear criticality safety program at the Y-12 Plant is necessary to assure effective performance.

c. Focus of Restart Preparations and Readiness Assessment

The focus of the restart preparations is on correcting the causal factors and additional core issues described above. These factors and issues are centered largely on the rigor and formality of the operations performed.

The focus of this assessment is on personnel and training since the causal factors and issues were primarily associated with conduct of operations errors. The COs are used to verify the readiness of personnel, training, systems, equipment, facilities, procedures, and administrative systems. The RA also includes those areas where deterioration of capability may have occurred during the period of shutdown, such as operator level of knowledge.

In addition, a detailed description of the facilities and a flowchart of DU Operations and Support Functions activities is shown in Y/NA-1799C, "Facility Description and Process Flowcharts for the Resumption of Depleted Uranium Operations and Support Functions at Oak Ridge Y-12 Plant."

2. List of Core Objectives

The scope of the RA as defined in the approved POA includes the following Core Objectives. The POA includes additional discussion concerning the scope or focus intended for each CO. The individual CRADS have incorporated this additional specificity. Some core objectives of DOE 5480.31 are excluded from the Readiness Assessment Scope. The discussion and justification for the exclusion decisions is in the DOE-approved POA.

CO-7. There are adequate and correct procedures for operating systems and utility systems. (CR-1)

CO-13. Training and Qualification programs for operations personnel have been established, documented, and implemented that cover the range of duties required to be performed. (CR-2)

CO-14. Technical qualifications of contractor personnel, responsible for facility operations, are adequate. (CR-19)

CO-16. Training has been performed to the latest revision of procedures. (CR-18)

CO-17. Level of knowledge of operations personnel is adequate based on reviews of examinations, exam results, selected interviews, and observation of work performance. (CR-3)

CO-18. There are sufficient numbers of qualified personnel to support safe operations. (CR-13)

CO-19. The implementation status for DOE 5480.19, "Conduct of Operations Requirements for DOE Facilities," is adequate for operations. (CR-12)

Chapter I. Operations Organization and Administration

Chapter II. Shift Routines and Operating Practices

Chapter V. Control of On-the-Job Training

Chapter VI. Investigation of Abnormal Events

Chapter VIII. Control of Equipment and System Status

Chapter XIV. Required Reading

Chapter XV. Timely Orders to Operators

Chapter XVI. Operating Procedures

Chapter XVII. Operator Aid Postings

CO-20. 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-14)

CO-23. Managerial qualifications of contractor personnel, responsible for facility operations, are adequate. (CR-19)

CO-24. Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and effectively implemented with line management responsible for control of safety. (CR-11)

CO-25. A 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. (CR-6)

CO-27. Nonconformances to applicable DOE Orders have been identified, and schedules for gaining compliance have been justified in writing and formally approved. (CR-7)

CO-28. An adequate startup or restart test program has been developed that includes adequate plans for graded operations testing to simultaneously confirm operability of equipment, the viability of procedures, and the training of operators. (CR-10)

CO-29. A program is established to promote a site-wide safety culture. (CR-14)

B. Basis for Readiness Assessment Depth

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

documentation checks, interviews, and walkdowns. Increased depth is attained by applying more of the review approaches for a given criteria or objective. The depth to which the different COs are assessed varies, depending on the particular facility characteristics (e.g., category 3 versus less than category 3 facilities) and according to the degree to which the requirement contributed to the incident on September 22, 1994. The graded approach, as described in Appendix 1 of DOE-STD-3006-93, is used to assist the team members in determining the appropriate assessment depth.

The depth of the readiness assessment for DU Operations and Support Functions is determined by a graded approach, which is based on the hazard classification of the processes. Since there are no high or moderate hazard processes in DU Operations and Support Functions, the graded approach is applied to the low hazard and generally accepted hazard processes. This includes procedures, equipment, personnel and training required for operation of those processes. Safety, health, and environmental protection requirements are integrated into procedures, personnel selection, qualification, and training based on the hazards involved and the risks associated with the process.

1. **Conduct of Operations Discussion**

A general discussion follows that correlates the hazards and expected degree of rigor for application of conduct of operations. The graded approach to Conduct of Operations will be performed in accordance with DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities," and implemented through the appropriate Conduct of Operations Implementation Plans for DU Operations and Support Functions facilities. Appendix I of the approved DU RA Plan of Action identifies facilities within the scope of the RA that are generally accepted hazards, versus low hazard facilities.

a. Low Hazards

Low hazards are defined as those that present the potential for minor health effects to on-site personnel, negligible health effects to off-site personnel, and negligible impact to the environment. This category indicates that the need may exist for independent reviews and approvals of safety-related activities, traceable documentation, formal training and qualification, operational procedure walk downs, disciplined practices, and implementation of a compliance self-assessment program. Procedures will provide detailed steps to follow in performing the work, provide acceptance criteria, and may provide for sign-offs at the completion of crucial or safety-related steps. Documentation requirements shall provide for completion of forms required by the procedure, reviews and approvals, and traceability to actions and results. The personnel selection, qualification, and training programs are developed based on the hazards involved and the risks associated with the process. Equipment and components that could reasonably be expected to contribute to, prevent, or mitigate a low hazard will be maintained through preventive maintenance, calibration, inspection, or surveillance.

b. Generally Accepted Hazards

Generally accepted hazards encompass insignificant or standard industrial hazards and are defined as those with the potential for negligible health effects for on-site and off-site

personnel and negligible impact to the environment. This category indicates the need exists for occasional management reviews and approval of job performance, informal or on-the-job training, and normal good work practices. Work controls, verbal and written, should stress what is to be accomplished, when it is to be accomplished, when it is to be completed, general direction as to how to accomplish the task, and what acceptable criteria are applicable. Written procedures, where utilized, will establish the objectives, the standards to be met, the limited acceptance criteria, identify forms to be used, and outline the approach to follow in performing the work. Detailed step-by-step compliance for work performance is not required. Examples of tasks utilizing procedures for reference include job-specific tool changing and press operation basics for the 7500-ton press. Job-specific tasks performed by machine cleaners and/or oilers would typically utilize verbal work controls. Equipment components that are designed features for personnel safety will be maintained through preventative maintenance and calibrations or surveillances.

2. Personnel Qualification and Training Discussion

Qualification and training programs are developed consistent with recognized hazards involved and the risk associated with the particular operation to assure facilities can be operated safely. Personnel shall be trained as appropriate for individual job responsibility. Qualification and training programs will provide reasonable assurance that personnel decisions and actions will ensure assigned responsibilities are conducted properly and safely. Each organization shall apply the guidelines for conduct of operations as appropriate through a graded approach, i.e., determination of the degree of rigor resulting from an evaluation of the operational risk associated with the operation and/or facility. A general discussion follows for low and generally accepted hazard facilities, which correlates the hazards and expected degree of rigor, for application of qualification and training programs.

a. Low Hazards

For those DU nuclear facilities with low hazards, the degree of rigor of the qualification and training program is expected to consist of the following:

- job assignment review
- on-the-job training
- general procedure guidance and discipline practices
- documentation requirements required by procedures

b. Generally Accepted Hazards

For those DU nuclear facilities with generally accepted hazards, the degree of rigor of the qualification and training program is expected to consist of the following:

- occasional management approval/review of job performance
- informal on-the-job training and normal good work practices
- procedures for reference, as required, to accomplish the task and to provide general, not step-by-step direction
- general plant procedures may be utilized

c. Qualification and Training Process

Qualification Process

- Qualification requirements are documented for personnel in each functional position.
- For each job assignment, only qualified personnel make independent decisions.
- Responsibilities are conducted properly and safely.

Training Process

- Documentation of training material is by Training Management System.

- All Environmental, Safety and Health training is identified and current. This includes plant and area requirements and special training (i.e., respirators, cranes, forklifts, etc.)
- All Y-12 personnel are in compliance with the General Employee Training program training.
- All technicians and maintenance personnel who make independent decisions in their specialty are qualified.
- All technical support personnel training is established in the facility specific areas, as appropriate.

d. Adherence to DOE Order 5480.20, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities."

The Training Implementation Matrix (TIM) is a matrix for DOE Order 5480.20 compliance, created by the Facility Manager and DU Training Analyst for each facility (based on the operational risk). Training and qualification will be conducted in accordance with the approved TIM schedule.

IV. READINESS ASSESSMENT PREREQUISITES (PR)

Several PRs have been identified that must be complete before beginning the Energy Systems RA. These PRs consist of management plans and reviews necessary to ensure line management readiness to proceed; i.e., activities/facilities will be able to support safe resumption of operations. Specifically, the PRs are as follows:

PR-1. A viable process is in place for control of the issuance and use of procedure revisions by the field which will ensure that all operating procedures that govern low hazard processes have been reviewed, corrected, and validated, prior to execution of the operating procedure. Operating procedures that govern generally accepted hazard processes are designated as Phase III continuing improvements, and a schedule for their completion has been submitted to management. All identified operating procedures have been categorized and are adequately controlled. The most recent revisions of operating procedures are in the workplace as required. Restrictions against use of unapproved operating procedures will be in place. (CO-7)

PR-3. Operators and supervisors are identified, trained, and qualified in accordance with the Y-12 Plant TIM milestones. The level of training and qualification sufficient to support resumption has been defined by the applicable Organization Manager and has been achieved. Training and qualification records reflect satisfactory completion of the requirements for a sufficient number of personnel to resume safe operations. (COs-13, -14, -18)

PR-4. Identified operations personnel have completed training on the latest revision of operating procedures that govern low hazard processes, prior to execution of the operating procedure. The applicable Organization Manager will define the training requirements and controls to preclude anyone not current on stated training requirements from performing work. Personnel understand the procedure compliance policy and their responsibilities. (CO-16)

PR-5. The levels of knowledge of operations personnel are validated and documented as satisfactory. The levels of knowledge are evaluated by examinations, observations of the performance of simulations, or by oral interviews of the operating personnel, as appropriate. Training and qualification requirements sufficient to support resumption have been defined by the applicable Organization Manager, and the required levels of knowledge have been achieved. (CO-17)

PR-6. The status of the conduct of operations implementation program is in accordance with the submitted plant and facility level RFAs. (CO-19)

PR-7. The safety culture is established and verified to be adequate. Required policy statements and program procedures are in place. Personnel have received an adequate indoctrination in the programs and policies. The status of radiological control for operating areas and support functions within the scope of this POA is verified by walkdowns to be satisfactory to resume operations. (COs-20, -29)

PR-9. Managerial qualification and awareness of functions, assignments, responsibilities, and reporting relationships are satisfactory. The managerial qualification requirements are defined in Energy Systems policy statements, position descriptions, and performance appraisal criteria. (COs-23, -24)

PR-10. Operations managers have reevaluated the results of internal and external assessments performed since October 1993 on their operations and facilities identified in this RA to determine if the corrective actions were appropriate. Operations managers have reviewed the ESAMS status for their facilities. Any overdue items are approved to remain open. A record of the evaluation is complete and available. (CO-25)

PR-11. Operations managers have reviewed all compensatory and corrective actions identified by the Y-12 Plant programmatic and facility programmatic and adherence-based compliance assessment of the 51 DOE orders which are of interest to the DNFSB. The actions described in the RFAs are adequately addressed for their facilities/activities. Corrective actions that are not adequately addressed are resolved, or compensatory measures implemented, prior to certification of readiness to proceed. (CO-27)

PR-12. A restart test program has been developed to ensure that any low hazard processes which are restarted will be capable of performing their intended functions when the restart testing is complete. The restart test program includes adequate controls to ensure that calibrations, corrective maintenance, leak checks, etc., will be completed prior to operation of the low hazard processes. Process and support equipment will be determined to be functional as required to ensure that mission operation does not result in an unacceptable risk to the environment or to the health or safety of employees. The restart test program requires documentation of the operability of the associated equipment, the adequacy of the training for operation of the associated equipment, and the viability of procedures for operation of the associated equipment that has been in the stand-down mode. The status of radiological control for operating areas and support functions within the scope of this POA is verified by walkdowns to be satisfactory to resume operations.

Calibration and surveillances, where required by the UCOF facility safety authorization basis, will be verified to have been completed prior to operation of the process. Applicable systems and components are identified in Appendix III. (CO-28 and DOE Concern)

PR-14. The Energy Systems procedure categorization process has been approved by the DOE Y-12 Site Office. (DOE Concern)

PR-15. Documentation of compensatory measures is complete and available. Operations supervisors and personnel understand the compensatory measures and when they are required for operations. The conditions for the removal of compensatory measures are documented and understood by operations supervisory personnel. A program for the periodic management assessment of the continued need and adequacy of compensatory measures is in place and documentation of these assessments is complete and available. (DOE Concern)

PR-16. The use of mentors as compensatory measures for conduct of operations requirements is documented. Qualifications, experience, and responsibilities for mentors have been established, mentors have been selected, and mentors have been assigned to specific facilities. Performance objectives have been established which define the minimum performance of line personnel before mentor removal. (DOE Concern)

PR-17. A Management Self Assessment (MSA) is complete and verifies readiness to resume operations. The MSA verified the satisfactory status of the above prerequisite conditions, including those for support programs; the completion of the resumption project plan; the satisfactory condition of the facility and support organizations against the RA Criteria and Review Approaches or the RA core objectives; and the completion of commitments in the approved restart plan, Y/AD-623, "Plan for Continuing and Resuming Operations," that are applicable to the facilities and processes being restarted. (All COs and DOE Concerns)

PR-18. Line management for all facilities and processes within the scope of this RA certifies in writing that readiness to resume operations has been achieved. [DOE Order 5480.31, Section 9.b.(2)]

Prerequisites Excluded from the Readiness Assessment Scope

Prerequisites PR-2, PR-8, and PR-13, which are included in the generic RA POA developed in support of the Y-12 resumption effort, are not within the scope of this RA. The basis for exclusion of the prerequisites is provided in the approved POA.

V. OVERALL APPROACH

The RA will provide Energy Systems senior management with independent, objective measurement of the readiness to resume DU operations at Y-12. It will also be an indicator that Y-12 has a management team with a satisfactory level of proficiency to resume DU activities. The following paragraphs outline the sequence of the readiness assessment.

A. Y-12 Line Management Readiness-to-Proceed Certification

Upon completion of the Y-12 management self assessment (MSA), including resolution of all pre-start findings (with the exception of a manageable list of open pre-start findings that have a well defined schedule for closure) the Y-12 Restart Manager will issue a readiness to resume operations certification discussed in prerequisite PR-18. The Energy Systems RA will not begin until the Restart Manager has provided his certification of readiness and direction has been received from the Vice President, Defense and Manufacturing to start the Readiness Assessment.

B. Readiness Assessment

The RA team members will review Y-12 DUO documentation and procedures; inspect equipment, systems and buildings; interview personnel; and observe simulated or actual operations as they are performed. The reviews conducted by each RA team member will be guided by a set of Criteria, Review, and Approach Documents (CRAD) included as Appendix 2. The review approaches include record reviews, interviews, and review of operational performance. The level of knowledge interviews will determine the awareness of fundamentals and the retention of material included in the training program. For a specific operation, the team members will review the records and procedures, observe the operation, 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 evaluation, operators with similar qualifications may be questioned concerning their response to a similar situation. It must be noted that activities in DUO are limited. Therefore, where "Shift Performance" is indicated in the CRADs, it will be monitored only if there are activities in process or if activities can reasonably be simulated.

The RA will place emphasis on reviewing samples of results or observing performance for adequacy. It will place less emphasis on systematic review of program structure and organization. However, if any portion of the review indicates a weak program, then further analysis of that program may be required. It must be noted that activities in DUO are limited. Therefore, where "Shift Performance" is indicated in the CRADs, it will be monitored only if there are activities in process or if activities can reasonably be simulated.

The RA is conducted in two phases, the first being a review of documents associated with the implementation of prescribed programs, for example, corrective actions following the September 22 event, revised procedures, radiological controls procedures implementation, and completed surveillances. These

reviews will be evaluated against DOE and facility requirements. The second phase stresses preparation for operations, to permit evaluation of the operational proficiency developed in preparation for resumption of DUO activities. This phase evaluates operators' and selected support personnel's level of knowledge. Emphasis is placed on any areas of concern identified during operations to determine if problems noted are of a general nature or unique to an individual. This manner of review allows the RA team to build a focused picture of the readiness to resume DU operations.

The Team Manager, in consultation with the applicable team member, has the responsibility for making the determination of whether a finding or observation is pre-start or post-start. The criteria to be used in this determination are given in Appendix 3. The results of this determination are documented on a Deficiency Form (Form 2).

At the completion of the RA, a report will be prepared summarizing the review and commenting upon the readiness of Y-12 DUO to restart. The Team Manager and team members will sign the final report and transmit it to senior Energy Systems managers. Dissenting opinions will also be forwarded as part of the final report.

Energy Systems and Y-12 management will be responsible for making corrective action plans in accordance with the requirements of Energy Systems procedure QA-16.1, "Corrective Action Program," and for closing all findings in accordance with QA-16.1. The Responsible Manager as defined in QA-16.1 will prepare evidence files for each finding submitted for closure. Assistance in the development of corrective action plans or interpretation of individual findings may be requested from the Team Manager or applicable team members.

The RA Team Manager must concur with the closure of all pre-start findings or observations.

C. Assessment Results Briefings

The team will provide briefings on the conduct and results of the RA to Y-12 management and, upon request, to senior Energy Systems or DOE management for their information and to help inform their decision regarding start-up.

VI. RA TEAM PREPARATIONS

Prior to commencement of onsite RA activities, training and familiarization for RA team members will be conducted. It will consist of site and facility familiarization, necessary radiological and safety training for facility access, facility program status, and development of the RA Implementation Plan and associated CRADs. Each team member has assessment experience or appropriate training. No team member has any connection with DU operations that impact his independence to review assigned functional areas. By their selection, the Team Manager certifies that each team member is technically competent, has appropriate assessment experience, is independent, and will become familiar with the facility through the familiarization process described above. Summaries of experience are contained in Appendix 1.

VII. ENERGY SYSTEMS RA PROCESS

The Team Manager, assisted by team members, has developed the CRADs for this review. These CRADs provide defined bases for conducting the RA within the scope set forth by the core requirements and derived core objectives of DOE Order 5480.31. 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, the potential hazards of operations, and the findings of internal and external review groups.

VIII. ADMINISTRATION

The team will meet daily during the onsite review. These meetings will permit the team members to discuss significant observations or problems identified during the day and will permit the Team Manager to identify any trends or areas where 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 Energy Systems RA team members and daily onsite review of the findings of the team members.

IX. REPORTING AND RESOLUTIONS

A. Forms

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

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

The Deficiency Form (Form 2) is used to document the issues revealed during the criteria evaluation process. A separate Form 2 should be generated for each issue related to a particular objective. For instance, in reviewing a CRAD, or portion of a CRAD, a team member will generate a single Form 1 that describes the methods utilized in the investigation. If one distinct issue is discovered, the team member would 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 Forms 1 and 2 are located in Appendix 4.

B. Finding Classification

A single issue or a group of related issues that have been documented on Deficiency Forms may constitute a finding. The Team Manager, in consultation with the team member(s), has the responsibility for making the determination of whether a finding is pre-start or post-start. Appendix 3 provides the criteria to be used to aid in this determination. The results of this determination are documented on the Deficiency Form.

C. Lessons Learned

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

D. Final Report

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

Team members will be asked to sign the DUO report, showing they concur with the DU RA final report in the areas of their expertise. Dissenting opinions that have not been resolved will be appropriately addressed in the report. The Energy Systems RA report will be transmitted by the Team Manager to the Energy Systems Vice President, Defense and Manufacturing.

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

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

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

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

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

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

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

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

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

a. Implementation Plan
b. Team List and Qualification Summaries
c. Criteria and Review Approach Documents (CRAD)
d. Assessment Forms (Form 1)
e. Deficiency Forms (Form 2)
f. Dissenting Opinions (if applicable)

X. SCHEDULE

The Y-12 DUO Energy Systems RA is expected to commence approximately one week after line management certification of readiness and endorsement by the Vice President, Defense and Manufacturing. The Energy Systems RA will require about two weeks to complete. The Energy Systems RA team training and familiarization may occur prior to Energy Systems issuance of the line management certification of readiness.

APPENDICES

Appendix 1: Team Member Summaries of Qualification
Appendix 2: Criteria, Review, and Approach Documents
Appendix 3: Finding Classification Criteria
Appendix 4: RA Assessment and Deficiency Forms

APPENDIX 1

TEAM MEMBER SUMMARIES OF QUALIFICATION

TEAM LIST

NAME	AREA(s)
Joe Flynn	Team Manager
*Ed Lee	Operations
*George Gregory	Training/Level of Knowledge
Mark Kohring	Training/Level of Knowledge
*Roy Fenstermaker	Management
**Chuck Hall	Management
Jack Richard	Management
*Randy Cothron	Systems Verification/Procedures
Mike Taylor	Systems Verification/Procedures

*Lead evaluator for assigned area(s)
**Corporate advisor

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: Joseph P. Flynn

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

READINESS ASSESSMENT TEAM MANAGER

SUMMARY OF TECHNICAL QUALIFICATIONS:

- B.S. Electrical Engineering, Purdue University Honors Program
- U.S. Navy Nuclear Power Program - six years
- Commercial Nuclear Plant Experience
  - Engineer
  - Maintenance Manager
  - Senior Reactor Operator
  - Operations Manager
  - Technical Manager
  - Assistant Plant Manager
- Institute of Nuclear Power Operations
  - Maintenance Department Assistant Manager
  - Operations Department Manager
    - Developed "Guidelines for the Conduct of Operations at Nuclear Power Stations"
  - Events Analysis Department Manager
  - Technical Development Department Manager
  - Plant and Corporate Evaluation Team Manager - more than 20 evaluations
- Consultant in areas of Operations and Maintenance
- Manager of LMES Evaluations Program

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- See INPO experience.
- Participated in 13 LMES Evaluations Group evaluations as a consultant to the team manager.

SUMMARY OF FACILITY FAMILIARIZATION:

Participated in one LMES Evaluations Group evaluation of Y-12.

BASIS FOR ACCEPTABLE INDEPENDENCE:

The Manager, Evaluations Program reports to the Vice President, Compliance, Evaluations, and Policy.

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: Randall N. Cothron

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

SYSTEMS VERIFICATION (SV): Core Objective 28
PROCEDURES (PR): Core Objectives 7, 16

SUMMARY OF TECHNICAL QUALIFICATIONS:

Twenty years experience in Nuclear Industry as follows:

- Five years nuclear systems construction at PGDP
- Seven years Physical and Electrical Standards (Y-12)
- Line supervision responsibilities at PGDP
- Department Manager of Material Services (Shipping, Receiving, Traffic and Material Control
- Radiological Area Reduction Manager at PGDP

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Certified Evaluator LMES Evaluations Group
- Certified Lead Evaluator LMES Evaluations Group
- Experience on Portsmouth, K-25, and Y-12 evaluations
- Evaluations training classes instructor at PORTS, K-25, PGDP, and Y-12

SUMMARY OF FACILITY FAMILIARIZATION:

- Seven years employment at Y-12
- Lead evaluator on construction assessment at Y-12 in February 1994

BASIS FOR ACCEPTABLE INDEPENDENCE:

Reports to LMUS Safety and Health Organization at PGDP. No responsibilities for any Y-12 activity.

ACCEPTABLE TO TEAM LEADER (team leader sign) J P Flynn 9/7/95

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: Roy E. Fenstermaker, Jr.

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

MANAGEMENT (MG): Core Objectives 20, 24, 25, 27, 29

SUMMARY OF TECHNICAL QUALIFICATIONS:

- Chemical Engineering Degree, Vanderbilt University
- U.S. Navy Nuclear Power Program
- Eight years nuclear submarine experience
- Twenty years operations and quality assurance experience, including three years as the Quality Manager for ORNL Research Reactors Operations

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Chaired the first Operational Readiness Review of the K-25 TSCA Incinerator
- Chaired the Readiness Review for the Restart of the Tower Shielding Reactor
- Quality Assurance Manager for the High Flux Isotope Reactor Restart
- Member of the Readiness Review Board for the ORNL preparations to receive waste from Nuclear Fuels Services
- Member of the Operational Readiness Review for General Purpose Heat Source (GPHS) Project at Y-12
- Trained in DOE 5480.31
- Readiness Assessment Team Leader for Y-12 RSS Resumption Area

SUMMARY OF FACILITY FAMILIARIZATION:

Chaired the Type C Investigation of the Y-12 Plant Criticality Safety Approval Infractions Event at Building 9204-2E on September 22, 1994.

BASIS FOR ACCEPTABLE INDEPENDENCE:

As Deputy Director of Quality, reports to the Energy Systems Director of Quality.

ACCEPTABLE TO TEAM LEADER (team leader sign) J P Flynn 9/7/95

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: George A. Gregory

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

TRAINING (TR)/LEVEL OF KNOWLEDGE (LK): Core Objectives 13, 14, 17, 23

SUMMARY OF TECHNICAL QUALIFICATIONS:

- B.S. degree in Operations Management, University of Tennessee
- Conduct of Operations Program Manager, Paducah Gaseous Diffusion Plant
- Performance Improvement Manager, LMES, PGDP
- Line Manager, Y-12 Manufacturing

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- LMES Evaluations Group team manager. Participated in five performance-based evaluations.
- Management Self-Assessment lead, PGDP
- K-25 Site Technical Audit, Maintenance evaluator
- USEC Procedures Assessment, Paducah and Portsmouth
- Lead for Construction Safety Performance Assessment, K-25, ORNL, and Y-12

SUMMARY OF FACILITY FAMILIARIZATION:

- Fifteen years employment at Y-12
- Assistant team manager, Y-12 Performance Evaluation
- Team manager, Construction Safety Performance Assessment, Y-12

BASIS FOR ACCEPTABLE INDEPENDENCE:

Reports to EM&EF Business Unit at Paducah. No Y-12 responsibilities.

ACCEPTABLE TO TEAM LEADER (team leader sign) J P Lyon 9/7/95

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: Charles Hall

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

MANAGEMENT (MG): Core Objectives 20, 24, 25, 27, 29

SUMMARY OF TECHNICAL QUALIFICATIONS:

- 4 years of Y-12 heading major functional department
- 7 years DNFSB related areas
- PhD Engineering
- Weapons Material Handling Discipline (Conduct of Operations)
- Former MMES vice president
- Former MMSC president

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- TSCA Incinerator Re-Start
- Orlando Low Altitude Night Targeting and Infra Red Navigation System (LANTIRN) Operational Readiness Assessment
- Production of Hardware in Rigidly Controlled Spacecraft Environment
- Sandia Production Readiness Startup
- Pinellas Plant Restart of Critical Processes
- Y-12 Recipt, Storage, and Shipment Readiness Assessment Team

SUMMARY OF FACILITY FAMILIARIZATION:

Employed in Central Organization at Y-12 for four years, spending considerable time in operational facilities.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Has no responsibilities for any current Y-12 operations.

ACCEPTABLE TO TEAM LEADER (team leader sign) J F Lynn 9/7/95

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: Mark W. Kohring

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

TRAINING (TR)/LEVEL OF KNOWLEDGE (LK): Core Objectives 13, 14, 17, 23

SUMMARY OF TECHNICAL QUALIFICATIONS:

- M.S. Nuclear Engineering, University of Tennessee
- Ten years Navy Nuclear Propulsion Program
- Four years Technical Support Engineer ORNL Research Reactors Division
- Two years ORNL Training Coordinator
- Six years Director of ORNL Office of Operational Readiness and Facility Safety

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Conducted series of ORNL nuclear facility training program compliance evaluations
- Team member of Quality Readiness Review of the MMES Radioisotope Thermal Generator Program
- Team member of Readiness Review for Building 2026 Restart
- Team member for evaluation of OSR compliance for ORNL nuclear facilities
- Team member for evaluation of Y-12 and Paducah Gaseous Diffusion Plant Training Accreditation programs
- Team leader for internal management appraisal of ORNL Laboratory Protection Division

SUMMARY OF FACILITY FAMILIARIZATION:

Facility familiarization to be conducted prior to readiness assessment.

BASIS FOR ACCEPTABLE INDEPENDENCE:

Reports to Associate Director of ORNL Operations, Environment, Safety and Health directorate. No organizational responsibility for any operations at Y-12.

ACCEPTABLE TO TEAM LEADER (team leader sign) J P Flynn 9/7/95

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: J. E. Lee

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

OPERATIONS (OP): Core Objectives 18, 19

SUMMARY OF TECHNICAL QUALIFICATIONS:

- B.S. Engineering, University of Tennessee at Chattanooga, Highest Honors Program
- M.S. Engineering, University of Alabama in Huntsville
- Registered Professional Engineer, State of Tennessee
- Commercial Nuclear Plant Experience
  - Design Engineer
  - Startup Engineer
  - Maintenance Engineer
  - Maintenance Manager
  - Senior Reactor Operator (SRO) trained
  - Training Manager
- Research Reactor Experience
  - Developed High Flux Isotope Reactor Conduct of Operations Program
  - SRO qualified at HFIR
  - Plant Manager at HFIR

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- Developed and currently implement the HFIR self-assessment program
- Participated in HFIR restart review and approval process
- Served on activities oversight committee at Y-12 after September 1994 shut down
- Completed MMES observation training program

SUMMARY OF FACILITY FAMILIARIZATION:

Overview training by Y-12 management

BASIS FOR ACCEPTABLE INDEPENDENCE:

Normally assigned to High Flux Isotope Reactor at ORNL (HFIR) with no regular interface with the Y-12 site.

ACCEPTABLE TO TEAM LEADER (team leader sign) J P F Lyon 9/7/95

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: Jackson B. Richard

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

MANAGEMENT (MG): Core Objectives 20, 24, 25, 27, 29

SUMMARY OF TECHNICAL QUALIFICATIONS:

- Responsible for Readiness Review Process and Restart of High Flux Isotope Reactor and Tower Shielding Reactor-II at ORNL
- Member of MMES Readiness Review Board for K-25 TSCA Incinerator Restart
- Chairman of MMES Readiness Review Board for ORNL receipt of PU Waste and scrap from NFS, Inc.
- Member of Type C Investigation Board Investigating September 22, 1994, CSA Infractions at Y-12 Plant
- Member of LMES Readiness Assessment (RA) Team for Resumption of Receipt, Storage, and Shipment (RSS) of Special Nuclear Materials (SNM) at Y-12 Plant, August 7-18, 1995

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

Forty-two years experience managing, inspecting, and appraising/assessing a wide variety of technical operations as follows:

- as an officer in the U.S. Navy with the U.S. Naval Nuclear Propulsion Program
- as a senior executive with a public company (and NRC licensee) distributing radioactive materials
- as a senior executive with an electric utility company with extensive nuclear power plant operations
- as a consultant to management of numerous other nuclear power plants
- as a senior executive with LMES/ORNL managing DOE facilities

SUMMARY OF FACILITY FAMILIARIZATION:

- Member of the Type C Investigation Board investigating September 22, 1994, CSA Infractions at Y-12 Plant
- Member of LMES RA Team for RSS of SNM at Y-12 Plant, August 7-18, 1995

BASIS FOR ACCEPTABLE INDEPENDENCE:

Has no direct responsibilities for any operations ongoing currently at the Y-12 Plant.

ACCEPTABLE TO TEAM LEADER (team leader sign) J P F Lynn 9/7/95

TEAM MEMBER QUALIFICATION SUMMARY

TEAM MEMBER NAME: Michael Stuart Taylor

TECHNICAL AREA(S)/CORE REQUIREMENTS ASSIGNED:

SYSTEM VERIFICATION (SV): Core Objective 28
PROCEDURES (PR): Core Objectives 7, 16

SUMMARY OF TECHNICAL QUALIFICATIONS:

- B.S. Chemical Engineering, University of Tennessee, honors
- Procedure writing experience
- Assistant Manager - Three site DUF_6 Inventory Management

SUMMARY OF ASSESSMENT/ORR/INSPECTION QUALIFICATIONS:

- LMES qualified evaluator
- Three performance-based plant evaluations
- Paducah Operations Independent Assessment on causes of operator errors and procedure deficiencies

SUMMARY OF FACILITY FAMILIARIZATION:

- Performance-based evaluation at Y-12
- Previous briefings on DU operations

BASIS FOR ACCEPTABLE INDEPENDENCE:

Program Manager for Enrichment Facilities Support, position reports up through to vice president of EM&EF.

ACCEPTABLE TO TEAM LEADER (team leader sign) J F Flynn 9/7/95

APPENDIX 2

CRITERIA AND REVIEW APPROACH DOCUMENTS (CRAD)

Depleted Uranium Operations
Implementation Plan CRADs

Contents Page

LEVEL OF KNOWLEDGE (LK)

Objective

LK-1 (CO-14) Technical qualifications of contractor personnel, responsible for facility operations, are adequate. (Cr-19)

Criteria

Training and qualification of personnel responsible for facility operations are at a level sufficient to support resumption.

Personnel not meeting the current qualification requirements for a low hazard process shall have a qualified individual with them while performing that particular operation.

Entry-level requirements are established for each operations position and include, as applicable, the minimum education, experience, technical, and medical requirements. (5480.20, para 9, Ch. 1 and 4)

NOTE: The evaluation should occur in coordination with CO-13 to assess the adequacy of the technical training and qualification requirements including development of those requirements to be responsive to the needs of the DU and support functions facilities.

Approach

Record Review:

Coordinate with the record reviews of CO-13 to determine the adequacy of the technical training and qualification requirements.

Verify procedures are in place that require a non-qualified operator to be escorted while performing the particular operation.

Review the procedures or policies that describe the personnel selection and entry-level requirements to ensure they address the minimum physical attributes a trainee must possess, and the minimum educational, technical, and experience requirements necessary for the employee to meet job requirements.

Review records of selected operators to ensure they meet entry-level requirements.

Interviews:

Interview operators and supervisors to verify they understand the need to have qualified operators with non-qualified operators while performing low hazard processes.

Shift Performance:

Observe a selected operator walk through of a selected low hazard process procedure to assess conformance to DUO procedures.

Objective

LK-2 (CO-17) Level of knowledge of operations personnel is adequate based on reviews of examinations, exam results, selected interviews, and observation of work performance. (Cr-3)

Criteria

The required level of knowledge for each operational and supervisory position has been determined and promulgated consistent with discussion of POA V.C.2.

The facility-specific knowledge required by operations personnel is evaluated by examinations, observations of the performance of simulations, or by oral interviews of the operating personnel.

Approach

Record Review:

Review documents that specify training, qualification, and knowledge requirements for each operational and supervisory position within the scope of the RA.

Review examinations and oral interview questions against the Y-12 Plant TIM and training requirements defined by the applicable operations manager to determine if they adequately test the operators' understanding of technical fundamentals, facility systems, operating procedures, and procedure use.

Interviews:

Interview personnel who conduct oral interviews and observe process simulations to determine the adequacy of the qualification process.

Shift Performance:

Observe a staged oral interview and staged observation of a process simulation to determine the adequacy of the qualification process.

Objective

LK-3 (CO-23) Managerial qualifications of contractor personnel, responsible for facility operations, are adequate. (Cr-19)

Criteria

The managerial qualifications of the Y-12 managers up to and including the Manager, Nuclear Operations, and the Manager, Waste Management, meet the requirements specified in LMES policy statements, position descriptions, and performance appraisal criteria. A record of the verification of managers meeting the specified requirements is maintained.

Managerial personnel understand and effectively promote awareness of requirements for safe operation as defined in appropriate policies and procedures.

Approach

Record Review:

Review LMES policy statements concerning managerial qualifications, position descriptions, and performance criteria. Compare with selected personnel records to assess whether the managers up to and including the Nuclear Operations Manager and Waste Management Manager meet the specified requirements. (First-line supervisors are not considered managers).

Interviews:

Interview selected managerial personnel at all levels to determine their understanding of the qualification requirements as well as to demonstrate the necessary knowledge and understanding of the requirements significant to safety including appropriate policies and procedures.

Interview selected managers to determine how they promote awareness of requirements for safe operation.

Interview selected operators to determine whether managers effectively promote the awareness of requirements for safe operations.

Shift Performance:

If the opportunity is afforded, assess managerial awareness and performance while observing routine evolutions to determine if they adequately promote and require necessary administrative and safety-basis requirements.

MANAGEMENT (MG)

Objective

MG-1 (CO-24) Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and effectively implemented with line management responsible for control of safety. (Cr-11)

Criteria

A clear management structure is established, approved, and in place to define the organization from the first-line supervisor to the Nuclear Operations Manager and Waste Management Manager. Relationships between the Waste Management Manager and Nuclear Operations Manager are formally defined. This structure is implemented and is understood by the operators and operations support personnel. (5480.19, Ch. I and III)

Determine which facilities or activities will be restarted with and without mentors. For those facilities restarting without mentors, determine that the operational proficiency of the work force and other conditions within the facility supports having no mentors. For those mentors that are in place, verify that line management has documented who the mentors are, their qualifications and experience, and their responsibilities. Verify that line management has also identified the conditions under which mentors can be removed. (Letter, Reis to La Grone of November 8, 1994)

Approach

Record Review:

Review documentation that defines the functions, assignments, responsibilities, and reporting relationships of operators and supervisors within the scope of the RA.

Verify that facility procedures implement the requirements.

Ensure that the requirements are consistent with required operational relationships.

Documentation specific to mentors should be reviewed to ensure the criteria are met.

Interviews:

Interview selected operators and supervisors to verify their understanding of the functions, assignments, responsibilities, and reporting relationships. Verify their view of the adequacy of the implementation of the requirements.

NOTE: The interviews to assess this area may be conducted concurrently with other interviews.

Interview mentors and managers to verify their understanding of individual and mutual responsibilities, requirements, and limitations.

Shift Performance:

While observing evolutions, verify that the specified functions, assignments, responsibilities, and reporting relationships are properly implemented.

Objective

MG-2 (CO-25) A 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. (Cr-6)

Criteria

A system for identifying, reviewing, cataloging, and resolving deficiencies and recommendations is adequately implemented. (5480.19, Ch. VI and VIII; 5700.6C, para 9.b.(1)(c), 9.b.(3)(a), and Attachment I, para II.A.3.)

Outstanding open deficiencies have been assessed by management to ensure that the affect of any individual deficiency or the aggregate affect of several deficiencies will not preclude safe resumption of operations.

Operations management has reevaluated all findings from internal and external assessments which have occurred since October 1993 to ensure the adequacy and effectiveness of corrective actions. (Y/AD-623)

The order compliance self-assessment program is an ongoing and viable program that supports the needs of line management.

Managers understand and use data generated from review, evaluation, and resolution of deficiencies.

Approach

Record Review:

Review the Energy Systems Action Management System (ESAMS), selecting representative issues (Action Items) and assessing the adequacy of the program.

Assess the backlog and prioritization system for reducing it. Review the record of the management review of open deficiencies.

Review the record of the review of the past assessments.

Review the order compliance self-assessment program for adequacy to support line management requirements.

Interviews:

Interview management personnel to establish their qualification and understanding of the program, including how they use data generated from the program.

Interview managers to assess their understanding and effective utilization of the system.

Interview managers to assess their understanding of the purpose and use of the issues management system.

Shift Performance:

Evaluate the Issue Management Programs' effectiveness in ensuring that corrective actions are being completed and tracked to closure through the system.

Objective

MG-3 (CO-27) Nonconformances to applicable DOE orders have been identified, and schedules for gaining compliance have been justified in writing and formally approved. (Cr-7)

Criteria

All noncompliances identified by the Y-12 Plant compliance assessments of the 51 DOE Orders of interest to the DNFSB have approved schedules for gaining compliance. (Y/AD-623)

Actions described in the Request for Approvals (RFA) have been adequately addressed for the facility/activity. This includes both the site-level programmatic and the facility-level programmatic and adherence-based assessments. (Y/AD-623)

Operations managers have reviewed the compensatory and corrective actions taken to address the identified nonconformances and have verified that they remain in place. (Y/AD-623)

Approach

Record Review:

Review the records of the order compliance reviews to verify the existence of approved schedules for gaining compliance. Verify that actions described in the RFAs have been adequately addressed.

Review the record of the managers' reviews that all compensatory measures and corrective actions remain in place.

Review the criteria for removal of compensatory measures.

Interviews:

Interview personnel responsible for coordination of the order compliance program to identify all non-compliances, RFAs, corrective actions, and compensatory measures.

Interview facility managers to verify the review of compensatory measures and corrective actions.

Shift Performance:

Incident to observation of evolutions, verify selected corrective actions and compensatory measures that resulted form the order compliance review process.

Objective

MG-4 (CO-20) 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-14)

Criteria

Operations personnel, including operators and supervisors, are knowledgeable of safety, environmental protection, and radiological controls requirements and understand how they are implemented. (5480.19, Ch. II)

Operations personnel, including operators and supervisors, understand the importance of procedural compliance and adhere to the policy. (5480.19, Ch. I and XVI)

Approach

Record Review:

Review the training records that indicate that operations personnel have received instruction on safety, radiological controls, and environmental protection requirements and their implementation, and the procedure compliance policy.

Review the procedure compliance policy to verify it conforms to 5480.19 guidance.

Review implementation procedures for radiological controls requirements to verify adequate implementation to ensure public and worker safety.

Interviews:

Interview operators and supervisors to assess their understanding of procedures and the implementation of the safety, health, and environmental protection requirements in procedures and operator round sheets. Verify an understanding of radiological controls requirements.

Shift Performance:

Observe evolutions to assess the understanding and significance operators and supervisors place on ensuring facility operations meet environmental protection requirements and are within the established safety envelope.

Assess procedure compliance when conducting evolutions and responding to abnormal conditions.
In conjunction with other functional area activities in the facilities, verify adequate implementation of radiological controls in accordance with site level procedures that are in effect, not those identified in the Radiological Control Upgrades Implementation Plan, which are scheduled for future completion.

Objective

MG-5 (CO-29) A program is established to promote a site-wide safety culture. (Cr-14)

Criteria

Personnel attended the site-wide conduct of operations awareness sessions that were presented by senior management shortly after the September 22, 1994, incident.

The safety messages communicated during the awareness sessions is understood by personnel involved in the subject operations.

Approach

Record Review:

Verify that affected personnel attended the site-wide conduct of operations awareness sessions.

Interviews:

Interview selected personnel to determine their understanding of site-wide safety programs.

Shift Performance:

In conjunction with other functional area activities, verify an awareness and practice of safe operational practices.

OPERATIONS (OP)

Objective

OP-1 (CO-18) There are sufficient numbers of qualified personnel to support safe operations. (Cr-13)

Criteria

Minimum staffing and qualification requirements have been established for operations personnel and supervisors involved in low-hazard processes. These staffing and qualification criteria are met and are consistent with the safety basis documentation requirements and assumptions. (Facility policy and procedures, 5480.20, para 9)

Sufficient numbers of qualified operations personnel, including temporary and back-up personnel, and supervisors, are available to carry out low-hazard process operations. Staffing levels are consistent with the facility policies and procedures. (Facility policy and procedures, 5480.20, para 9)

Entry-level requirements are established for low-hazard process positions and include as applicable the minimum education, experience, technical, and medical requirements. (5480.20, para 9, Ch. 1 and 4)

Approach

Record Review:

Review selected DU safety basis documentation and operating procedures to determine staffing and qualifications requirements. Compare with personnel records to assess the ability of the facility to field the required personnel.

Review the procedures or policies that describe the personnel selection and entry-level requirements to ensure they address the minimum physical attributes a trainee must possess, as well as the minimum educational, technical, and experience requirements necessary for the employee to meet job requirements.

Review a sample of personnel records to ensure personnel meet entry-level and training requirements.

Interviews:

Interview selected operators and supervisors to ensure they understand the minimum staffing and qualification requirements for all phases of facility operations.

Shift Performance:

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

Objective

OP-2 (CO-19) The implementation status for DOE 5480.19, Conduct of Operations Requirements for DOE Facilities, is adequate for operations. (Cr-12) The scope of this RA is limited to the assessment of the following chapters of DOE 5480.19:

Chapter I.	Operations Organization And Administration
Chapter II.	Shift Routines And Operating Practices
Chapter V.	Control Of On-The-Job Training
Chapter VI.	Investigation Of Abnormal Events
Chapter VIII.	Control Of Equipment And System Status
Chapter XIV.	Required Reading
Chapter XV.	Timely Orders To Operators
Chapter XVI.	Operating Procedures
Chapter XVII.	Operator Aid Postings

Criteria

A Request for Approval has been submitted to DOE including an implementation plan for elements of Conduct of Operations for each facility within DU and Support Functions.

The status of the Implementation of Conduct of Operations within each facility within the scope of the RA is in accordance with the submitted facility specific Implementation Plan as well as any site-wide commitments that are applicable. Compensatory measures specified in the Implementation plans are in place and effective.

Program requirements have been developed and issued consistent with the implementation plans for the topics addressed in the Order. (5480.19) Operations personnel demonstrate the principles of the conduct of operations requirements during the shift performance period. Adequate performance will be demonstrated in applicable areas of the order, including:

- Shift routines and operating practices (log-keeping, communications),
- Equipment and system control,
- Procedures and training (control of on-shift training, procedure use, operator aids, required reading, timely orders to operators, categorization of procedures (Reis to La Grone, Nov. 8, 1994)
- Housekeeping, including adequate control of hazardous materials, transient combustibles, and ignition sources. (5480.19, para 4.)
- Investigation of abnormal events

Approach

Record Review:

Review the applicable Implementation Plans for Conduct of Operations and any status reporting to determine that implementation status is in accordance with the submitted Implementation Plans.

Interviews:

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

Interview managers and supervisors to assess their understanding and commitment to Conduct of Operations Implementation Plans as the plans apply to the individual managers areas of responsibility.

Shift Performance:

While observing routine evolutions, determine if the facility is effectively implementing the conduct of operations requirements. Attend incident critiques and pre-job briefings. Observe operator rounds, panel walk downs, procedure use, communications, response to alarms, control of system status, and lockout/tagout activities. In instances where these evaluations do not occur during the period of this assessment, interviews will be substituted for observation. Review recently completed operations logs and shift turnover documents to assess compliance with conduct of operations principles.

PROCEDURES (PR)

Objective

PR-1 (CO-7) There are adequate and correct procedures for operating systems and utility systems. (Cr-1)

Criteria

Risks to the environment, or to the health or safety of employees, associated with low hazard processes are identified and utilized to develop appropriate Safety and Health requirements.

Low hazard process procedures identified in Appendix II are technically accurate and incorporate appropriate Safety and Health requirements.

A viable process exists for the control and issuance of procedure revisions by the field.

Approach

Record Review:

Review documentation that identifies risks associated with low hazard processes.

Review procedures for technical accuracy and incorporation of Safety and Health requirements.

Verify process for control and issuance of procedures in the field.

Interviews:

Interview operators and supervisors to assess their understanding of the process for control and issuance of procedures in the field.

Interview support staff personnel to assess their understanding of Safety and Health requirements and the process used to ensure the procedures are technically accurate.

Shift Performance:

Assess the content and accuracy of a process procedure by performing a process simulation using the latest revision of the associated procedure. If temporary procedure changes are necessary, verify and assess the process for control and issuance of procedure revisions by the field.

Objective

PR-2 (CO-16) Training has been performed to the latest revision of procedures. (Cr-18)

Criteria

Applicable personnel designated to perform specific low hazard process tasks are identified.

Management controls exist to ensure applicable personnel have been trained on the latest revision of the low hazard process procedures prior to execution of the operating procedures.

Approach

Record Review:

Verify that management records identify personnel designated to perform specific low hazard process tasks. Review management controls that ensure applicable personnel have been trained on the latest revision of the procedure prior to execution of the operating procedure.

Interviews:

Interview line supervision and operators to assess their understanding and compliance with required documentation and training on the latest revisions of the operating procedures.

Shift Performance:

During observation of operations or simulated operations involving procedures with revisions verify management controls exist to ensure applicable personnel are trained and documented on the latest revision of the procedure.

SYSTEMS VERIFICATION (SV)

Objective

SV-1 (CO-28) An adequate start-up or restart test program has been developed that includes adequate plans for graded operations testing to simultaneously confirm operability of equipment, the viability of procedures, and the training of operators. (Cr-10)

Criteria

Support equipment required for associated low hazard processes are identified.

Functional requirements will be identified for low hazard process and support equipment to ensure that mission operations does not result in unacceptable risk to the environment, or to the health or safety of employees.

A restart test program has been developed that will ensure low hazard processes and support equipment that once restarted will be capable of safely performing their intended function when restart testing is complete.

The restart test program will include adequate controls to ensure calibrations, corrective maintenance, and leak checks have been completed prior to operation of the low hazard processes.

The restart test program will require documentation of the operability of the associated equipment, the adequacy of the training for operation of the associated equipment, and the viability of procedures for operation of the associated equipment that has been in the stand-down mode.

Calibration and surveillances, where required by the Uranium Chip Oxidation Facility (UCOF) facility safety authorization basis, will be verified to have been completed prior to operation of the process.

Approach

Record Review:

Review the restart test program documentation for low hazard processes to ensure criteria are met.

Interviews:

Interview the process managers, first-line supervisors, and operators to determine their understanding of the purpose and the status of the restart test program.

Shift Performance:

N/A

TRAINING AND QUALIFICATION (TR)

Objective

TR-1 (CO-13) Training and Qualification programs for operations personnel have been established, documented, and implemented that cover the range of duties required to be performed. (Cr-2)

NOTE: Evaluation of the training functional area must recognize the state of implementation of the Training Implementation Matrix (TIM). Where requirements are not scheduled for implementation, compensatory measures in accordance with the TIM should be assessed. Training should be evaluated in accordance with the requirements of LMES policies and procedures currently in affect. In the event those procedures are not in accordance with the TIM, the situation should be identified.

Evaluation of the training functional area must recognize the graded approach as described in the approved POA.

Criteria

The status of the implementation is current with the Training Implementation Matrix (TIM).

Training and qualification of personnel is at a level sufficient to support resumption.

Approach

Record Review:

Review the Y-12 Training Implementation Matrix to ensure the schedule is current.

Review training and qualification records for selected operators and supervisors to ensure the training program is being formally administered and controlled.

Verify that training records for selected personnel document completion of all training and qualification required for their assigned positions.

Interviews:

Interview selected operators and supervisors to determine training effectiveness.

Shift Performance:

Observe operator and/or supervisor performance in-the-field to verify training effectiveness.

APPENDIX 3

FINDING CLASSIFICATION CRITERIA

Appendix 3: Finding Classification Criteria

This checklist will be used by the RA team to determine whether a deficiency must be corrected prior to startup.

A. Initial Screening

1. Does this issue involve a safety system?

2. Does this issue involve processes, functions or components identified in the Technical Safety Requirements/Operational Safety Requirements or nuclear safety control procedures?

3. Does this issue involve potential adverse environmental impact exceeding regulatory or site specific release limits?

4. Does this issue impact non-safety processes, functions or components which could adversely impact safety related processes, functions or components?

5. Is this issue non-compliant with a Energy Systems approved startup document?

6. Does this issue indicate a lack of adequate procedures or administrative systems?

7. Does this issue indicate operational or administrative non-compliance with procedures or policy?

8. Has this issue occurred with a frequency that indicates past corrective actions have been lacking or ineffective?

9. Does this issue require operator training not specified in existing facility training requirements?

10. Does the issue involve a previously unknown risk to worker or public safety and health or a previously unknown threat of environmental insult or release.

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

B. Issue Impact

1. Does the loss of operability of the item prevent safe shutdown, or cause the loss of essential monitoring?

2. Does the loss of operability of the item require operator action in less than ten (10) minutes to prevent or mitigate the consequences of events described in the Safety Analysis?

3. Does the loss of operability of the item cause operation outside the TSR/OSRs or Safety Analysis?

4. Does the loss of operability of the item result in a reduction of the margin of safety as described in the Safety Analysis?

5. Does the issue indicate a lack of control which can have a near term impact on the operability or functionality of safety related systems?

6. Does the issue involve a violation or potential violation of worker safety or environmental protection regulatory requirements which poses a significant danger to workers, the public, or of environmental insult or release?

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

APPENDIX 4

RA ASSESSMENT AND DEFICIENCY FORMS

RA ASSESSMENT FORM

Functional Area:	CRA Number/Title:	Date:

Method of Appraisal (short narrative description):

Personnel contacted/position:

Records & other documents reviewed:

Evolutions/operations witnessed:

Spaces visited:

Discussion:

Conclusion:

Inspected by:	Approved by:_____ RA Team Manager Date:

Form 1

RA DEFICIENCY FORM

Functional Area:	CRA Number/Title:	Date: ID #:

Requirement:

Reference(s) (specific as to section):

Issue: Finding_____ Observation: _____

Discussion:

Finding Designation: Prestart_____ Post-Start_____	Inspector:_____
Group Leader:_____ Date:	Approved by:_____ RA Team Manager Date:

Form 2

APPENDIX B

Assessment Forms
(Form 1)

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FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

MG-1 (CO-24) Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and effectively implemented with line management responsible for control of safety. (Cr-11)

Criteria

A clear management structure is established, approved, and in place to define the organization from the first-line supervisor to the Nuclear Operations Manager and Waste Management Manager. Relationships between the Waste Management Manager and Nuclear Operations Manager are formally defined. This structure is implemented and is understood by the operators and operations support personnel. (5480.19, Ch. I and III)

Determine which facilities or activities will be restarted with and without mentors. For those facilities restarting without mentors, determine that the operational proficiency of the work force and other conditions within the facility supports having no mentors. For those mentors that are in place, verify that line management has documented who the mentors are, their qualifications and experience, and their responsibilities. Verify that line management has also identified the conditions under which mentors can be removed. (Letter, Reis to La Grone of November 8, 1994)

Approach

Record Review:

- Review documentation that defines the functions, assignments, responsibilities, and reporting relationships of operators and supervisors within the scope of the RA.
- Verify that facility procedures implement the requirements.
- Ensure that the requirements are consistent with required operational relationships.
- Documentation specific to mentors should be reviewed to ensure the criteria are met.

Interviews:

Interview selected operators and supervisors to verify their understanding of the functions, assignments, responsibilities, and reporting relationships. Verify their view of the adequacy of the implementation of the requirements.

NOTE: The interviews to assess this area may be conducted concurrently with other interviews.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95

Interview mentors and managers to verify their understanding of individual and mutual responsibilities, requirements, and limitations.

Shift Performance:

While observing evolutions, verify that the specified functions, assignments, responsibilities, and reporting relationships are properly implemented.

Personnel contacted/position:

F. P. Gustavson, Vice President, Defense and Manufacturing
M. K. Morrow, Deputy Vice President, Defense and Manufacturing
T. R. Butts, Y-12 Plant Manager
P. Lyon, Mentor for Y-12 Plant Manager
R. K. Roosa, Director, Nuclear Operations
D. P. Bryant, Depleted Uranium Operations (DUO) Manager
D. R. Walker, Building 9201-5N Operations Manager & DUO Machining Unit Manager
M. L. Sheffler, Building 9201-5N Technical Support
T. C. Tindell, DUO Arc Melting/Pressing Unit Manager
W. K. McElmurray, DUO Plating Unit Manager
T. R. Shope, DUO Resumption Manager/DUO Self-Assessments Issues Manager
A. K. Zava, Y-12 Quality Manager
L. Bohn, DUO Mentor
D. Cleckner, DUO Mentor
W. Wolansky, DUO Mentor
S. H. Eldridge, DUO Arc Melt Unit Chemical Operator
C. P. Vowell, DUO Arc Melt Unit Chemical Operator
D. L. Daniels, DUO Casting Unit Manager
W. L. Willis, DUO Casting Unit Line Supervisor
Five (5) DUO Casting Unit Chemical Operators
J. H. Rose, DUO Weapons Materials Management Unit Line Supervisor
Three (3) DUO Weapons Materials Management Material Clerks
J. E. Heiskell Jr., Director, Y-12 Waste Management Organization
J. K. Prazniak, Waste Processing Department Manager
D. L. Bird, Uranium Chip Oxidation Facility (UCOF) Supervisor
Five (5) UCOF Chemical Operators
S. E. Browning, UCOF and Waste Processing Compliance Engineer
W. F. Lambdin, UCOF and Waste Processing Maintenance/Training/CONOPs Coordinator
J. T. Hill, Y-12 Quality Organization DUO Program Manager
G. L. Evans, DUO Machining Unit Procedure/Tape Coordinator

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95

T. W. Fields, DUO Machining Unit Line Supervisor
J. C. Lay, DUO Machining Unit Machinist
R. R. Taylor, DUO Machining Unit Machinist
R. T. Abner, DUO Machining Unit Machine Cleaner
J. S. Ward, DUO Machining Unit Machine Cleaner
J. R. Frost, Jr., DUO Pressing Unit Line Supervisor
E. C. Lane, DUO Pressing Unit Production Boilermaker
S. L. Johnson, DUO Pressing Unit Machine Cleaner
M. L. Eskeridge, DUO Arc Melting unit Line Supervisor
R. L. Stooksbury, DUO Arc Melting, Chemical Operator
J. T. Lowrey, Jr., DUO Rolling & Forming Unit Acting Manager/Supervisor
J. Allen, DUO Rolling & Forming Unit Line Supervisor
R. W. Norwood, DUO Rolling & Forming Unit Machinist
W. J. Mitchell, DUO Rolling & Forming Unit Machinist
D. G. Schrimpsher, DUO Rolling & Forming Unit Machinist
M. E. Underwood, DUO Rolling & Forming Unit Machine Cleaner
P. R. Wasilko, Manger, Disassembly & Storage Organization (DSO)
C. E. Tilley, Jr., DSO Nuclear Materials Management Manager
R. G. Graham, Y-12 Quality Dimension Metrology Manager
Ed St Clair, Manager Y-12 Facility Engineering
Ted Burger, Y-12 Facility Engineering - DUO
Doug Woodall, DUO Process Engineering
Gary Ward, DUO Casting/Foundry Process Engineer
Yolanda Weaver, UCOF Process Engineer
A. Moore, DUO Casting Facility Operations Manager (9215 complex)

Records & other documents reviewed:

- Evidence Files:

CA 09.04	CA 09.05	CA 07.05	CA 09.06
CO 09.04	CO 09.05	CA 07.07	CO 09.06
ST 09.04	ST 09.05		DI 09.06
DI 09.04	DI 09.05		ST 09.06

- Nuclear Operations Conduct of Operations Manual, issued June 13, 1995, with four appendices
- Various Y-12 Organization Charts
- Building 9201-5N Landlord/Tenant Agreement, dated September 5, 1995
- Notebook containing sign-off sheets for administrative and technical quality reviews of Depleted Uranium Operations closure activity evidence documentation

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95

Evolutions/operations witnessed:

- Building 9215 morning rounds
- Building 9201-5N morning rounds
- Building 9204-4 morning rounds
- Building 9201-5 morning rounds
- DUO Machining Unit safety meeting
- Building 9201-5N Operations Manager's daily Plan-of-the-Day meeting at Building 9119
- Director, Nuclear Operations bi-weekly DUO resumption Plan-of-the-Day meetings
- DUO Machining Unit Line Supervisor's daily morning briefing/safety meeting with assigned personnel
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning rounds
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning briefing and safety meeting with assigned personnel
- Daily POD meeting for Uranium Chip Oxidation Facility
- Building 9623 (UCOF) morning rounds

Spaces visited:

- Building 9201-5 Arc Melt Areas
- Building 9201-5 Depleted Uranium Plating Operations Areas
- Building 9215 Rolling and Forming Areas
- Building 9204-4 Pressing Areas
- Building 9201-5N Machine Shop Areas
- Building 9201-5N Conference Room (for Plan-of-the-Day meeting)
- Building 9119 "War Room" (for NO Bi-Weekly DUO Resumption Plant-of-the Day Meeting)
- Building 9201-5N Conference Room (for DUO Machining Unit Line, Supervisor's morning briefing/safety meeting with assigned personnel and follow-on group interview with selected personnel)
- Building 9201-5N Machine Shop Areas (for hands-off walkthrough with DUO Machining Unit Line Supervisor)
- Building 9204-4 Pressing Areas (for hands-off walkthrough with DUO Press Unit Line Supervisor)
- Building 9201-5 Arc Melting Areas (for hands-off walkthrough with DUO Arc Melt Line Supervisor)
- Building 9201-5 Conference Room (for group interview with DUO Press Unit and DUO Arc Melt Unit selected personnel
- Building 9624 PMT Management/Status Conference Room (for review of Y-12 Energy Systems Waste Management Operations PMT status)

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95

- Building 9215 "P" Wing and "O" Wing Areas (for hands-off walkthrough with DUO Rolling and Pressing Unit Acting Line Supervisor, while line supervisor conducted daily building rounds)
- Building 9215 "P" Wing break/conference room (for DUO Rolling and Pressing Unit Acting Line Supervisor's daily morning briefing/with assigned personnel and follow-on group interview with assigned personnel)
- Building 9201-5N Y-12 Quality Department Dimensional Inspection Laboratory

Discussion:

Interviews and observations of personnel during operations and daily activities, as listed above were principally used to assess the objective of this functional area. Reviews of organization charts were also used, as was review of records and documents cited above. Evolutions and operations witnessed indicated that operational relationships present were consistent with requirements.

Throughout the review process it was evident that the Y-12 organization has made significant and beneficial organizational changes since September 1994. An organizational management structure with clear lines of management responsibility has been put in place. Creation of the facility Operations Manager position is evidence of this. A Nuclear Operations (NO) Conduct of Operations (COO) manual has been developed and implemented, and personnel are being trained on its principles and processes. Numerous new processes to enhance communication and coordination between operations and support personnel, such as the Plan-of-the Day process, have been recently implemented and are working effectively. In short, the Y-12 DUO organization has effectively modified its structure and focus, and numerous other beneficial organization line management changes are in progress.

All personnel contacted understood their roles and responsibilities and believe safety is their responsibility. Relationships are generally very clear, but some Y-12 and EM&EF support personnel continue to bypass the access control concept and perform tasks that are not on an authorized list.

Three mentors are assigned and are working across all DUO areas. They are almost universally seen as providing needed vision for conduct of operations implementation. These mentors are being used in a staff augmentation category and, as such, are not considered a compensatory action. The mentors indicated they have seen considerable improvement and believe DU operations are ready to continue with resumption activities. Operational proficiency in conduct of operations will continue to improve with the continuation of resumption activities. These activities include, but are not limited to, operator rounds, safety meetings, PODs, safety inspections, procedure validations, and completion of the comprehensive restart test program.

A good practice noted during the conduct of this assessment as contained in the evidence files was the Y-12 Safety Organization's facility walkdowns and interviews with all assigned personnel (with 15 item

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95

check lists) that were used to verify that line management had acknowledged and accepted responsibility for control of safety.

On two occasions support personnel entered facilities to perform work without obtaining the necessary authorization. Although the requirement to control access has been well established, there are still some support personnel who fail to obtain the necessary approvals. During interviews with operations personnel, these unauthorized entries are becoming less frequent. Machinists at Building 9215 Rolling and Forming said they challenge people in their building if they are not certain they have been approved for entry.

The Nuclear Operations Conduct of Operations Manual Chapter 1, Paragraph IV.B.1.g specifies that the Operations Manager controls access to the controlled area. During interviews it was observed that some people still use the old titles, such as shift supervisor, facility operator, facility manager, etc. The concept of the Operations Manager is well understood and accepted. Reference to older titles will pass with the recognized role of the Operations Manager. The concept and title of Operations Manager should be considered in all DUO related facilities and in the Balance of Plant to reduce the confusion created by using numerous names for the same organization role.

The PODs are used to approve planned access and work activities. Even though this administrative control is working well, additional attention is still needed to preclude the infrequent unauthorized access by support personnel.

The Plan of Action, Section IV.B, discusses that no facility modifications have been made since the shutdown. Therefore, there is no change to the currently approved safety authorization basis. This condition was validated for both DUO and UCOF through interviews with process and facility engineers.

The daily rounds sheets were usually properly completed, but issues not specifically called out on those logs may be missed even though they may be important. An example occurred in UCOF where two pressure gauges were not reading in the expected range, but since they were not called out on the log, the operator did not appear to notice the condition. The log sheets would be more useful if they asked for the operator to note all unusual or unexpected situations.

The reporting relationships, and also conduct of operation/maintenance rigor, may be unclear for the K-25 technicians performing maintenance, calibrating and sampling [illegible] radiation monitoring systems. They need to comply fully with LO/TO, entry, Plan-of-the-Day [illegible] etc.

Another good practice noted was the initiative taken to develop a landlord/tenant agreement for Building 9201-5N, which clearly delineated agreement on specific roles and responsibilities. It is recommended that this initiative be reviewed for desirability of application to other buildings that house DUO operations.

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95

The consistent opinion of all persons interviewed and observed during this assessment was that the Y-12 Plant is ready to continue resumption activities leading to DUO operations, and has also demonstrated such in two special operations conducted to date.

Conclusion:

The Conduct of Operations Manual Chapter I has clearly established organizational roles and responsibilities. These roles and responsibilities have been further translated into working, effective organizations as depicted in organization charts. The mentors assigned to DU operations are very well accepted, and they are being used effectively to facilitate changes; they are not required as a compensatory action. The criteria of this core objective have been satisfied, and DUO resumption activities should continue.

Inspected by: R. E. Fenstermaker C. A. Hall J. B. Richard	Approved by: J P Flynn RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-2 (CO-25)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

MG-2 (CO-25) A 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. (Cr-6)

Criteria

A system for identifying, reviewing, cataloging, and resolving deficiencies and recommendations is adequately implemented. (5480.19, Ch. VI and VIII; 5700.6C, para 9.b.(1)(c), 9.b.(3)(a), and Attachment I, para II.A.3.)

Outstanding open deficiencies have been assessed by management to ensure that the affect of any individual deficiency or the aggregate affect of several deficiencies will not preclude safe resumption of operations.

Operations management has reevaluated all findings from internal and external assessments which have occurred since October 1993 to ensure the adequacy and effectiveness of corrective actions. (Y/AD-623)

The order compliance self-assessment program is an ongoing and viable program that supports the needs of line management.

Managers understand and use data generated from review, evaluation, and resolution of deficiencies.

Approach

Record Review:

Review the Energy Systems Action Management System (ESAMS), selecting representative issues (Action Items) and assessing the adequacy of the program.

Assess the backlog and prioritization system for reducing it. Review the record of the management review of open deficiencies.

Review the record of the review of the past assessments.

Review the order compliance self-assessment program for adequacy to support line management requirements.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-2 (CO-25)	Date: 9/21/95

Interviews:

Interview management personnel to establish their qualification and understanding of the program, including how they use data generated from the program.

Interview managers to assess their understanding and effective utilization of the system.

Interview managers to assess their understanding of the purpose and use of the issues management system.

Shift Performance:

Evaluate the Issue Management Programs' effectiveness in ensuring that corrective actions are being completed and tracked to closure through the system.

Personnel contacted/position:

F. P. Gustavson, Vice President, Defense and Manufacturing
M. K. Morrow, Deputy Vice President, Defense and Manufacturing
T. R. Butts, Y-12 Plant Manager
R. K. Roosa, Director, Nuclear Operations
D. P. Bryant, Depleted Uranium Operations (DUO) Manager
D. R. Walker, Building 9201-5N Operations Manager & DUO Machining Unit Manager
M. L. Sheffler, Building 9201-5N Technical Support Superintendent
T. C. Tindell, DUO Arc Melting/Pressing Unit Manager
W. K. McElmurray, DUO Plating Unit Manager
T. R. Shope, DUO Resumption Manager/DUO Self Assessments & Issues Manager
A. K. Zava, Y-12 Quality Manager
L. Bohn, DUO Mentor
D. Cleckner, DUO Mentor
W. Wolansky, DUO Mentor
S. H. Eldridge, DUO Arc Melt Unit Chemical Operator
C. P. Vowell, DUO Arc Melt Unit Chemical Operator
A. L. Jenkins, DUO Equipment Services Unit Staff
S. G. Bays, DUO Corrective Action, Occurrence Reporting, and ESAMS Staff Member
D. L. Daniels, DUO Casting Unit Manager
W. L. Willis, DUO Casting Unit Line Supervisor
J. H. Rose, DUO Weapons Materials Management Operations Manager/Unit Manager
J. E. Heiskell, Jr., Director, Y-12 Waste Management Organization
J. K. Prazniak, Waste Processing Department Manager
S. E. Browning, UCOF and Waste Processing Compliance Engineer

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-2 (CO-25)	Date: 9/21/95

W. F. Lambdin, UCOF and Waste Processing Maintenance/Training/CONOPs Coordinator
J. T. Hill, Manager, Y-12 Quality Organization DUO Program Manager
M. Wagoner, Mentor for Y-12 Quality Manager
R. J. Graham, Y-12 Quality Dimensional Metrology Manager
S. L. Cook, Y-12 Quality Dimensional Inspection Operations 9201-5N and 5W Unit Manager
P. R. Wasilko, Manager, Disassembly & Storage Organization (DSO)
C. E. Tilley, Jr., DSO Nuclear Materials Management Manager

Records & other documents reviewed:

Evaluations of Corrective Actions from Internal and External Assessments - Quality Organization files DI 10.01, DI 10.02, DI 10.03, DI 10.04, DI 10.04A, DI 10.05, DI 10.06

Depleted Uranium Operations and Support Functions ST 10.01, ST 10.02, ST 10.03, ST 10.04, ST 10.04A, ST 10.05, ST 10.06, CA 10.01 through CA 10.06, and CO 10.01 through CO 10.06

Evolutions/operations witnessed:

- Building 9201-5N Operations Manager's daily Plan-of-the-Day meeting
- Director, Nuclear Operations bi-weekly DUO resumption Plan-of-the-Day meetings at Building 9119
- DUO Machining Unit Line Supervisor's daily morning briefing/safety meeting with assigned personnel
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning rounds
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning briefing and safety meeting with assigned personnel

Spaces visited:

- Building 9201-5N Conference Room (for Plan-of-the-Day meeting)
- Building 9119 "War Room" (for NO Bi-Weekly DUO Resumption Plant-of-the Day Meeting)
- Building 9201-5N Conference Room (for DUO Machining Unit Line Supervisor's morning briefing/safety meeting with assigned personnel and follow-on group interview with selected personnel)
- Building 9201-5N Machine Shop Areas (for hands-off walkthrough with DUO Machining Unit Line Supervisor)
- Building 9204-4 Pressing Areas (for hands-off walkthrough with DUO Press Unit Line Supervisor)
- Building 9201-5 Arc Melting Areas (for hands-off walkthrough with DUO Arc Melt Line Supervisor)

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-2 (CO-25)	Date: 9/21/95

- Building 9624 PMT Management/Status Conference Room (for review of Y-12 Waste Management Operations PMT status)
- Building 9215 "P" Wing and "O" Wing Areas (for hands-off walkthrough with DUO Rolling and Pressing Unit Acting Line Supervisor, while line supervisor conducted daily building rounds
- Building 9201-5N Y-12 Quality Department Dimensional Inspection Laboratory Areas

Discussion:

Interviews and observations of personnel during daily activities, as listed above, were principally used to assess the objective of this functional area.

Interviews with the DUO Resumption Manager/DUO Self Assessment & Issues Manager, and the DUO Corrective Action, Occurrence Reporting, and ESAMS staff member indicated a thorough knowledge of all the processes and procedures.

Separate interviews with line managers indicate awareness and cognizance of the corrective action process. Some managers were not completely familiar with the details of the corrective action process and ESAMS; however, they fully supported the process and kept up with their outstanding corrective actions. All the managers knew who they would go to for help in keeping current with corrective actions and evidence files.

A number of individuals identified the change request process of the corrective action process was overly cumbersome and needed some simplification.

Evaluations of previously identified issues were conducted using the Resumption Issue Categorization Process. The process provided for a determination of one of the following categories: Pre-start, post-restart, or not resumption related. Actions by the appropriate organization were initiated after categorization.

In addition to responding to ESAMS corrective actions, the DU organization reviewed the LMES RSS RA report and the DOE RSS report for applicability to DU operations. Improvements were initiated as a result of this review.

ESAMS is being used for all system-wide issues at waste treatment. Waste Information Tracking System (WITS) is also used for local level issues.

DUO is adequately using ESAMS at senior management levels, but some supervisors (below the manager level) have not read or are not familiar with some items.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-2 (CO-25)	Date: 9/21/95

Review of Closure Documentation Summaries from other reviews of Y-12 Resumption Activities for Depleted Uranium Operations as of September 20, 1995, revealed:

Source	Total	Categorized As Pre-start	Closed	Open
Y-12 MSA Observations	44	42	44	0
Y-12 MSA Findings	29	19	19	10
DOE-ORO YSORT Routine Assessment	41	21	4	37

Continuing evaluations of DUO will generate new deficiencies and resulting corrective actions. Some actions may be identified as pre-start issues. However, the RA Management Team believes there are adequate controls and tracking mechanisms to assure appropriate attention is applied to these new issues and to preclude unacceptable consequences.

An existing start-up plan (developed for use after a strike-related shutdown) is being revised to identify those elements needed to be completed prior to resumption of operations in the generally accepted hazard facilities. This action is not required by the Plan of Action, but is consistent with DUO's commitment to have conduct of operations in all facilities. Modification of existing plans is considered adequate for these processes.

Conclusion:

The process in use for identifying, evaluating, and tracking deficiencies is comprehensive and effectively managed. The criteria of this core objective have been satisfied, and DUO resumption activities should continue.

Continuing actions will be needed to institutionalize the issues/actions management documentation and closure process.

Inspected by: R. E. Fenstermaker C. A. Hall J. B. Richard	Approved by: _____ RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-3 (CO-27)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

MG-3 (CO-27) Nonconformances to applicable DOE orders have been identified, and schedules for gaining compliance have been justified in writing and formally approved. (Cr-7)

Criteria

All noncompliances identified by the Y-12 Plant compliance assessments of the 51 DOE Orders of interest to the DNFSB have approved schedules for gaining compliance. (Y/AD-623)

Actions described in the Request for Approvals (RFA) have been adequately addressed for the facility/activity. This includes both the site-level programmatic and the facility-level programmatic and adherence-based assessments. (Y/AD-623)

Operations managers have reviewed the compensatory and corrective actions taken to address the identified nonconformances and have verified that they remain in place. (Y/AD-623)

Approach

Record Review:

Review the records of the order compliance reviews to verify the existence of approved schedules for gaining compliance. Verify that actions described in the RFAs have been adequately addressed.

Review the record of the managers' reviews that all compensatory measures and corrective actions remain in place.

Review the criteria for removal of compensatory measures.

Interviews:

Interview personnel responsible for coordination of the order compliance program to identify all non-compliances, RFAs, corrective actions, and compensatory measures.

Interview facility managers to verify the review of compensatory measures and corrective actions.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-3 (CO-27)	Date: 9/21/95

Shift Performance:

Incident to observation of evolutions, verify selected corrective actions and compensatory measures that resulted from the order compliance review process.

Personnel contacted/position:

F. P. Gustavson, Vice President, Defense and Manufacturing
M. K. Morrow, Deputy Vice President, Defense and Manufacturing
T. R. Butz, Y-12 Plant Manager
R. K. Roosa, Director, Nuclear Operations
D. P. Bryant, Depleted Uranium Operations (DUO) Manager
D. R. Walker, Building 9201-5N Operations Manager/DUO Machining Unit Manager
T. C. Tindell, DUO Arc Melting/Pressing Unit Manager
W. K. McElmurray, DUO Plating Unit Manager
J. T. Lowrey, Jr., DUO Rolling and Forming Unit Acting Manager
T. R. Shope, DUO Resumption Manager/DUO Self-Assessments & Issues Manager
A. K. Zava, Y-12 Quality Manager
L. Bohn, DUO Mentor
D. Cleckner, DUO Mentor
L. Wolansky, DUO Mentor
C. E. Tilley, DSO Nuclear Materials Management Manager
R. G. Graham, Y-12 Dimensional Metrology Manager
J. E. Heiskell, Jr., Director, Y-12 Waste Management Organization

Records & other documents reviewed:

- ORO Y-12 Site Manager letter, dated August 29, 1995, to LMES Vice President, Defense and Manufacturing, subject: "Concurrence with Definition of Action Required by Y-12 Order Compliance Prior to Restart"
- LMES Vice President, Defense and Manufacturing letter, dated August 23, 1995, to ORO Y-12 Site Manager, subject: "Clear Definition of Actions Required in Y-12 Order Compliance Program Requests for Approval (RFAs) Prior to Resumption"
- Y-12 DUO Resumption Activity Evidence Files relating to area MG-3, objective CO-27, prerequisite PR-11:

CA 11.01	DU 11.05	DI 11.06	DI 11.07	CA 11.08
DI 11.01		DU 11.06	DU 11.07	DI 11.08
ST 11.01				ST 11.08
CO 11.01				CO 11.08

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

TR-1 (CO-13) Training and Qualification programs for operations personnel have been established, documented, and implemented that cover the range of duties required to be performed. (Cr-2)

NOTE: Evaluation of the training functional area must recognize the state of implementation of the Training Implementation Matrix (TIM). Where requirements are not scheduled for implementation, compensatory measures in accordance with the TIM should be assessed. Training should be evaluated in accordance with the requirements of LMES policies and procedures currently in affect. In the event those procedures are not in accordance with the TIM, the situation should be identified.

Evaluation of the training functional area must recognize the graded approach as described in the approved POA.

Criteria

The status of the implementation is current with the TIM.

Training and qualification of personnel is at a level sufficient to support resumption.

Approach

Record Review:

Review the Y-12 TIM to ensure the schedule is current.

Review training and qualification records for selected operators and supervisors to ensure the training program is being formally administered and controlled.

Verify that training records for selected personnel document completion of all training and qualification required for their assigned positions.

Interviews:

Interview selected operators and supervisors to determine training effectiveness.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Systems Verification (SV)	CRA Number/Title: SV-1 (CO-28)	Date: 9/21/95

DUO procedures and administrative controls. Exercising these administrative controls will be necessary to successfully complete the restart test programs.

As identified in the discussions with DUO personnel, the support equipment necessary to have the low-hazard processes safely perform their intended functions have not been identified in the restart test programs. The intended function cannot be met without the necessary support, such as the operation of essential building cranes and ventilation systems. Other examples of specific support equipment not included in the programs are listed in the deficiency forms. Upon incorporating the necessary support equipment into the restart test programs, additional calibrations, ET&I certifications, and corrective maintenance may be necessary.

It is determined that criteria six is being met through the activities by Waste Management personnel at the Chip Oxidation Facility and relevant documentation. Activities include daily and monthly rounds, tracking of outstanding work orders, and weekly status notes of the waste processing operations, which address compliance and compensatory measures, equipment status, and temporary modifications. Emphasis is placed on systems and components identified in the facility safety authorization basis by use of a weekly prioritization system. Other support equipment is also identified and tracked during weekly meetings with support organizations. The activities underway at the Chip Oxidation Facility are focused on maintaining operability of functional equipment.

Conclusion:

When Finding DUO-RA-SV1-01 is closed, the restart test program will be adequate to ensure low-hazard processes will be capable of safely performing their intended functions.

Inspected by: R. N. Cothron M. S. Taylor	Approved by: _____ RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Systems Verification (SV)	CRA Number/Title: SV-1 (CO-28)	Date: 9/21/95

- DUO Evidence files regarding Core Objective 28:
  - AM 12.01 CO 12.02 AM SAF01
  - CA 12.01 CA SAF01
  - PL 12.01 PL SAF01
- Y/ENG/ASA 74, UCOF Facility Auditable Safety Analysis

Spaces visited:

- Building 9119
- Building 9215A
- Building 9201-5
- Uranium Chip Oxidation Facility
- Building 9624

Discussion:

Fourteen personnel were interviewed regarding the restart test program. Typical questions asked included the following:

- Do you have a restart test program?
- What is your understanding of the function of the restart test program?
- What is the current status of the restart program?
- What support equipment is required for the specific low-hazard process equipment you operate?

The managers, process engineering, and line supervisors were cognizant of the restart test program. Not all interviewees could state the scope of the restart test program which includes personnel training/qualification, procedures, and equipment operability.

Discussions with managers revealed that the equipment scope of the restart program focused on the low-hazard process components essential to avoiding low-hazards scenarios identified in the hazard screening information as interpreted by current DOE Standards and Orders. The functionality of these specified components is essential to meeting criteria two with respect to identified low-hazard scenarios.

Three restart test programs were reviewed against the first five criteria identified above. With exception of the equipment scope identified in the programs, the restart test programs generally meet the five criteria. The measures to assure calibrations, corrective maintenance, and leak check requirements are identified in the restart programs as specified in criteria four. Criteria five is met through the existing plant and

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Systems Verification (SV)	CRA Number/Title: SV-1 (CO-28)	Date: 9/21/95

Shift Performance:

N/A

Personnel contacted/position:

D. L. Daniels, Casting Unit Manager
G. L. Ward, Casting Process Engineer
W. L. Willis, Casting Line Supervisor
S. R. Ellis, Casting Chemical Operator
E. Goins, Casting Chemical Operator
T. C. Tindell, Arc Melting/Pressing Unit Manager
A. D. Wood, Arc Melting Process Engineer
M. L. Eskridge, Arc Melting Line Supervisor
D. L. Bird, Uranium Chip Oxidation Facility Line Supervisor
J. K. Prazniak, Waste Processing Department Manager
W. F. Lambdin, Maintenance/Training/Con. Ops. Supervisor
H. J. Foster, Plating Operations Supervisor
A. E. Aldridge, Electroplater
J. F. Dye, Electroplater
Art Mitchell, Plating Process Engineer
Yolanda Weaver, UCOF Facility Process Engineer
Ronnie Norris, Waste Management Maintenance Supervisor
Roy Brewster, Electrician
Randy Winningham, Waste Management Process Engineer
B. K. Williams, Technical Programs Service - Y-12 Service Manager

Records & other documents reviewed:

- DUO 10" Lectromelt VAR Furnace B-3001 Restart Test Program
- DUO Gold Recovery Using Potassium Cyanide Restart Test Program
- DUO 3N, 4N, 5N, and 6N Casting Furnaces Restart Test Program
- Equipment List H-1 Foundry Building 9998
- Hazard Screening 9998 H-1 Foundry Operations HS/18/F/8/Jan. 25, 1991
- Waste Operations Status Notes Week of 9/11/95
- Listing of UCOF Outstanding Work Orders
- UCOF Monthly Roundsheet UCOF form 3 Reference to procedure Y50-41-WP-07.06
- DUO MSA Findings and Observations: SV-1, SV-2, SV-3

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Systems Verification (SV)	CRA Number/Title: SV-1 (CO-28)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

SV-1 (CO-28) An adequate start-up or restart test program has been developed that includes adequate plans for graded operations testing to simultaneously confirm operability of equipment, the viability of procedures, and the training of operators. (Cr-10)

Criteria

Support equipment required for associated low-hazard processes are identified.

Functional requirements will be identified for low-hazard process and support equipment to ensure that mission operations does not result in unacceptable risk to the environment, or to the health or safety of employees.

A restart test program has been developed that will ensure low-hazard processes and support equipment will be capable of safely performing their intended function when restart testing is complete.

The restart test program will include adequate controls to ensure calibrations, corrective maintenance, and leak checks have been completed prior to operation of the low-hazard processes.

The restart test program will require documentation of the operability of the associated equipment, the adequacy of the training for operation of the associated equipment, and the viability of procedures for operation of the associated equipment that has been in the standdown mode.

Calibration and surveillances, where required by the Uranium Chip Oxidation Facility (UCOF) facility safety authorization basis, will be verified to have been completed prior to operation of the process.

Approach

Record Review:

Review the restart test program documentation for low-hazard processes to ensure criteria are met.

Interviews:

Interview the process managers, first-line supervisors, and operators to determine their understanding of the purpose and the status of the restart test program.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

General Observations

Housekeeping in the facilities visited ranged from outstanding to fair. No unsafe conditions were noted; however, it is important to note that the facilities with outstanding housekeeping were also the best facilities with regard to implementation of the other COO attributes. Several of the facilities have taken advantage of the standdown to demonstrate their commitment to ownership of the facilities and implementation of the COO principles. This commitment is obvious by the condition of the facilities.

Also noteworthy is the difference in the level of COO implementation between the facilities. Although the facilities all meet the minimum standards for COO implementation, some of the facilities have more mature processes and programs. A management self-assessment program is not yet in place to ascertain where improvements in COO are needed and/or desired. The self-assessment program has been identified as a post-restart Management Self Assessment (MSA) finding; therefore, it will not be repeated in this assessment.

Conclusion:

Upon completion of the restart test programs for the low-hazard facilities, including incorporation of the support equipment necessary for operations (DUO-RA-SV1-01), the DUO and support functions have adequately implemented COO to safely operate the facilities reviewed. In many instances, the COO implementation has not matured and will require continued attention by managers, supervisors, and workers to cultivate a mature program.

The status of COO would not be adequate for a high hazard or medium hazard facility; however, it is adequate for safe operation of the DUO and support functions. The basic elements are in place.

Inspected by: J. E. Lee	Approved by: _____ RA Team Manager Date: 9/21/95

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FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

Systems Verification CO-7, Finding DUO-RA-SV1-01 states that the support equipment necessary to resume operations has not been identified for all operations.

Chapter XIV - Required Reading

Required reading was reviewed in every DUO facility, in the UCOF, and the Dimensional Inspection facility of Building 9201-5N. Each facility has a program that meets the intent of Chapter XIV, and only minor anomalies were found. An example is that the UCOF completed required reading file contained completed signature sheets on which the individual had not entered the date on which he/she read the item. A supervisor had reviewed the sheet prior to the closure date and certified that all assigned personnel had completed the reading.

Although the COO manual does not limit the content of required reading, most of the required reading observed did not relate to conduct of operations of the facilities. It is not clear why such items as "consolidation of benefit plans" should be part of the COO required reading program. Much of the required reading is specified by Y-12 plant management and is not directly applicable to operation of the specific facilities.

Chapter XV - Timely Orders to Operators

Every facility had a system for both daily and standing orders. All facilities had standing orders, but some did not have daily orders. It would be expected that daily orders will increase as actual operations commence.

Chapter XVI - Operating Procedures

Chapter XVI was assessed by the procedures assessment team as part of CO-7 and CO-16.

Chapter XVII - Operator Aid Postings

Operator aids were reviewed in each facility. Each has a system that meets Chapter XVII, although some of the facilities currently have no operator aids. Only one unauthorized operator aid was identified.

All operator aids were appropriately identified and approved, were current, and were in good condition. Some of the operator aids could have been issued as procedures, but were of sufficient brevity to be implemented as operator aids. In several of the facilities, all operator aids were removed and incorporated into new or existing procedures.

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RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

Chapter V - Control of On-the-Job Training

This chapter was assessed by the training assessment team under CO-13.

Chapter VI - Investigation of Abnormal Events

The number of recent abnormal events within DUO and support organization falling within the scope of Chapter VI is very small; therefore, a review of actual event reports, critiques, and investigations was not feasible. The unit managers of each of the low-hazard operations and of selected generally-accepted hazard operations were interviewed to determine how they would handle investigating, reporting, and learning lessons from abnormal events.

Each stated that the Y-12 Plant Shift Superintendent (PSS) is contacted when an event occurs, and that management of all aspects of the occurrence, including investigation of the event, is performed by that office. The PSS provides experienced incident investigators, including event critique facilitators. The response of each of the unit managers was consistent; therefore, no further assessment of this chapter was performed. The handling of abnormal event investigation is identical to that for the Receipt, Storage, and Shipment of Special Nuclear Material, which has been certified as ready to resume operations.

Chapter VIII - Control of Equipment and System Status

The DUO appendix (Appendix III) to the COO manual specifies that Chapter VIII is applied on a graded approach. The justification of grading specifies that Chapter VIII does not apply to the DUO facilities because there are no related Operational Safety Requirements, Technical Safety Appraisals, or safety systems. Each facility further specifies that it will identify systems and equipment subject to the requirements of all other sections of Chapter VIII of the COO manual.

All of the low-hazard facilities produced documents that state they have evaluated their operations and have no equipment for which Chapter VIII is applicable. The UCOF of the waste operations organization does have equipment for which it implements Chapter VIII. Several of the facilities visited implement good management practices, such as status boards. Some of the facilities have placed administrative control tags on all out-of-service equipment, regardless of the reason for it being out of service.

Two of the three procedures simulated for this assessment utilized valve and breaker check lists, although in one instance, the operators were unsure of how they were to be implemented. All facilities utilized the deficient equipment tagging system and the administrative control tagging system, but most of the facilities did not have the current status of the equipment effectively removed from service by the Equipment Testing and Inspection (ET&I) program.

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RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

This section addresses each of the nine applicable chapters of the COO order, DOE 5480.19. In some cases the COO chapter was assessed in another core objective, and in those cases the appropriate objective is referenced.

Chapter I - Operations Organization and Administration

This chapter was assessed by the management assessment team in core objectives 20, 24, 25, 27, and 29.

Chapter II - Shift Routines and Operating Practices

This chapter was assessed as applicable to all facilities with the exception of shift turnover and operating bases. All facilities are currently on shift operations and operate in a batch processing mode.

None of the facilities visited was in operation; therefore, it was difficult to assess operating practices. Several activities were simulated with questions posed as to what actions would be taken in instances when expected responses were not obtained. The operators/electroplaters responded correctly in each instance.

Each of the operations visited was able to identify those personnel who will be qualified to perform operations upon completion of the respective restart test programs. Unit managers produced the necessary lists of qualified personnel when asked.

Each of the DU facilities utilized a very standardized supervisor/operator morning meeting format. The QA morning meeting was not observed. Each supervisor performed a morning facility safety/housekeeping survey. Housekeeping in many of the facilities was not as good as could be expected in staffed facilities given no current operational mission, but no unsafe conditions were observed.

In the low-hazard facilities and the UCOF, all personnel protection equipment requirements and procedures were followed. In the arc melt and casting areas, the Radiological Work Permit (RWP) contained supplemental instructions, but the block on the front page had not been checked indicating that fact. The facility operators used the correct protective clothing and properly donned and doffed the same.

Some inattention to detail was observed in the rounds or round sheet completion as noted in the deficiency reports for this assessment (DUO-RA-OP2-01 and -02). Most operators reviewed the round sheets and correctly identified out-of-tolerance (OOT) situations. Once an OOT condition was identified, it was reported to the supervisor. In a sample of four indications of OOT equipment, appropriate corrective action was taken by the line supervisor.

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RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

Evolutions/operations witnessed:

- Operator rounds at 9998 Casting, Arc Melting Facility 9201-5, Plating Facility at 9201-5N, and Uranium Chip Oxidation Facility
- Procedure simulation, 9998 Casting
- Procedure simulation, Arc Melt 9201-5

Spaces visited:

- H-1 Foundry 9998, Arc Melting Facility 9201-5
- Plating Facility 9201-5N
- Building 9119 Document Center
- Building 9215 Rolling and Forming Facility
- Building 9201-N Machining Facility
- Building 9201-N Dimensional Inspection Facility
- Waste Management Central Pollution Central Facility
- Uranium Chip Oxidation Facility

Discussion:

While only one assessor was assigned to evaluate the nine chapters of Conduct of Operations (COO) specified in the objective statement, all team members were asked to observe related activities and provide information found in their observations for objective CO-19. Information provided from each of the other assessment team members is incorporated in the following discussion.

The assessment of CO-19 began with a review of the Y-12 Nuclear Operations Conduct of Operations Manual and the Request for Approval (RFA), which specifies the required status of COO for the Depleted Uranium Operations and support organizations. The Management Self Assessment findings and observations were reviewed to determine which areas were deficient during that assessment. An assessment plan was then developed to ensure that all applicable areas were covered for the low-hazard facilities, and operations classified as being generally accepted hazards were assessed on a selected basis.

All DUO and support facilities have implemented the COO manual chapters covered by this assessment. Appendix III to the manual explains grading used where applicable for the DUO facilities. The Quality Organization and Depleted Uranium Storage status is documented in the Request for Approval for MMES/Y-12-DOE-5480.19-CSA-147B. Waste Operations is to be in compliance with 5480.19 prior to resumption of DUO and support functions, per the Organizational Implementation Matrix.

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RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

C. P. Vowell, Chemical Operator
J. L. Scruggs, Chemical Operator
T. R. Shope, Resumption Manager
D. R. Walker, Machining Unit Manager
T. W. Fields, Machining Line Supervisor
R. Liles, Machinist
Lee Wolansky, Mentor
J. T. Lowery, Acting Rolling and Forming Unit Manager
J. Allen, Rolling and Forming Supervisor
D. G. Schrimpsher, Machinist
S. L. Cook, 9201-5N Dimensional Inspection Supervisor
J. K. Prazniak, UCOF Unit Manager

Records & other documents reviewed:

- Lockheed Martin Energy Systems, Inc. Readiness Assessment for the Resumption of Receipt, Storage, and Shipment of Special Nuclear Material at the Y-12 Plant
- Management Self Assessment for Resumption of Depleted Uranium Operations and Support Facilities
- Request for Approval of the Compliance Schedule Approval for the Depleted Uranium Operations Mission Area, Conduct of Operations Implementation Deficiencies
- Procedures:
  Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnace"
  Y50-24-33-001, "Gold Recovery Using Potassium Cyanide
  Y50-24-81-005, "Operation of the Lectromelt Arc Melt Furnace B-30001"
- Depleted Uranium Operations and Support Functions Evidence Files: PL 03.06, CA 03.06, AM 03.06, CA 06.01, AM 06.01, PL 06.01, RF 06.01, PR 06.01, MA 06.01, and NM 06.01
- Narrative log, required reading, deficient material condition logs and tags, operator aids, and the administrative control tags and logs for the H-1 Foundry
- Narrative log, required reading, deficient material condition logs and tags, operator aids, and the administrative control tags and logs for the 9201-5N Plating Facility
- Narrative log, required reading, deficient material condition logs and tags, operator aids, and the administrative control tags and logs for the 9201-5 Arc Melt Facility
- Narrative log, required reading, deficient material condition logs and tags, operator aids, and the administrative control tags and logs for the 9201-5N Machining Operation
- Narrative log, required reading, deficient material condition logs and tags, operator aids, and the administrative control tags and logs for the Rolling and Forming Facility
- Narrative log and required reading for the 9201-5N Dimensional Inspection Facility
- Narrative log, Administrative Control Tag Log, Required Reading for the Uranium Chip Oxidation Facility

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

Approach

Record Review:

Review the applicable Implementation Plans for Conduct of Operations and any status reporting to determine that implementation status is in accordance with the submitted Implementation Plans.

Interviews:

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

Interview managers and supervisors to assess their understanding and commitment to Conduct of Operations Implementation Plans as the plans apply to the individual managers areas of responsibility.

Shift Performance:

While observing routine evolutions, determine if the facility is effectively implementing the conduct of operations requirements. Attend incident critiques and pre-job briefings. Observe operator rounds, panel walkdowns, procedure use, communications, response to alarms, control of system status, and lockout/tagout activities. In instances where these evaluations do not occur during the period of this assessment, interviews will be substituted for observation. Review recently completed operations logs and shift turnover documents to assess compliance with conduct of operations principles.

Personnel contacted/position:

D. L. Daniels, Casting Unit Manager
W. L. Willis, Supervisor H-1 Foundry
J. W. Breazeale, Chemical Operator
S. R. Ellis, Chemical Operator
W. S. Hensley, Chemical Operator
E. Goins, Chemical Operator
J. B. Davis, Chemical Operator
W. K. McElmurray, Plating Unit Manager
H. J. Foster, Jr., Plating Supervisor
A. E. Aldridge, Electroplater
J. F. Dye, Electroplater
C. M. Terry, Electroplater
T. C. Tindell, Arc Melting/Pressing Unit Manager
M. L. Eskridge, Arc Melt Supervisor

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

OP-2 (CO-19) The implementation status for DOE 5480.19, Conduct of Operations Requirements for DOE Facilities, is adequate for operations. (Cr-12) The scope of this RA is limited to the assessment of the following chapters of DOE 5480.19:

Chapter I. Operations Organization and Administration
Chapter II. Shift Routines and Operating Practices
Chapter V. Control of On-the-Job Training
Chapter VI. Investigation of Abnormal Events
Chapter VIII. Control of Equipment and System Status
Chapter XIV. Required Reading
Chapter XV. Timely Orders to Operators
Chapter XVI. Operating Procedures
Chapter XVII. Operator Aid Postings

Criteria

A Request for Approval has been submitted to DOE including an implementation plan for elements of Conduct of Operations for each facility within DUO and Support Functions.

The status of the Implementation of Conduct of Operations within each facility within the scope of the RA is in accordance with the submitted facility specific Implementation Plan as well as any site-wide commitments that are applicable. Compensatory measures specified in the Implementation Plans are in place and effective.

Program requirements have been developed and issued consistent with the implementation plans for the topics addressed in the Order 5480.19. Operations personnel demonstrate the principles of the conduct of operations requirements during the shift performance period. Adequate performance will be demonstrated in applicable areas of the order, including:

- Shift routines and operating practices (log-keeping, communications),
- Equipment and system control,
- Procedures and training (control of on-shift training, procedure use, operator aids, required reading, timely orders to operators, categorization of procedures (Reis to La Grone, Nov. 8, 1994)
- Housekeeping, including adequate control of hazardous materials, transient combustibles, and ignition sources. (5480.19, para 4.)
- Investigation of abnormal events

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-1 (CO-18)	Date: 9/21/95

The Depleted Uranium Operations Job Qualification Requirements document defines the minimum "physical/medical, skills, knowledge, and abilities" for performing each of the low-hazard operations. Based on review of the procedures for the low-hazard facilities, the training and qualifications are adequate. A review of the training documentation in the evidence files compared with stated requirements for a sample of two operators and two supervisors was completed. All training deficiencies were identified by DUO management; however, all training was not complete.

Each of the approved restart test programs for the low-hazard facilities includes a requirement that training and qualification be up to date prior to restart; however, the training assessment team has issued a finding (DUO-RA-TR1-06) that indicates training methods are inadequate. By definition, upon completion of the restart test program and closure of finding DUO-RA-TR1-06, OP-1 (CO-18) will be met, assuming that the current staff size is maintained.

Conclusion:

There are sufficient numbers of personnel to support safe operations of the low-hazard facilities. Upon successful completion of the restart test program for the eight low-hazard operations and closure of finding DUO-RA-TR1-06, the qualifications of the operators and supervisors will be adequate to support safe operations.

Inspected by: J. E. Lee	Approved by: J P Flynn RA Team Manager Date: 9/21/95

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FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-1 (CO-18)	Date: 9/21/95

- Procedure simulation, Gold Deplating 9201-5N
- Performance Document Checksheet evaluation, 9998 Casting

Spaces visited:

- H-1 Foundry 9998
- Arc Melting Facility 9201-5
- Plating Facility 9201-5N
- Building 9119 Document Center

Discussion:

The minimum staffing and qualification requirements of supervisors and operators were determined by review of the low-hazard procedures, review of the Depleted Uranium Operations Job Qualification Requirements document, interview of personnel from each of the low-hazard facilities, and direct observation of actual and simulated activities.

One operator, the line supervisor, and unit manager of each low-hazard facility was interviewed to assess their knowledge and understanding of the staffing and qualification requirements. In addition, the records were reviewed for these individuals using the DUO evidence files CA 03.06, AM 03.06, and PL 03.06. The restart plans for each of the eight low-hazard operations were reviewed to verify that training and qualification requirements were adequately specified.

Two provisionally qualified operators were observed during procedure simulation of the 9998 Casting Furnace. They demonstrated a good understanding of the procedure and operation of the equipment. There was an evident commitment on the part of these operators to adhere to the principles of conduct of operations (COO). On three occasions, they stopped to check with the supervisor when process conditions were not consistent with the procedure. Both operators informed the evaluator (assessor) they had not been trained to the latest revision to the procedure. Both understood they were provisionally qualified and were able to articulate the meaning of provisional qualifications.

Two provisionally qualified operators were observed during procedure simulation of the Lectromelt Arc Melt Furnace B-3001. They were very thorough and rigorous in their performance of the procedure. They demonstrated knowledge of the procedure, the process, and their role in operation of the facility.

During observation of a simulation of procedure Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," the two operators observed followed the procedure and all the safety requirements for the area. These operators were knowledgeable of the hazards involved with the gold-stripping operation and the importance of following procedures. Both operators were provisionally qualified on the procedure through Performance Documentation Checksheet simulation.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-1 (CO-18)	Date: 9/21/95

Shift Performance:

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

Personnel contacted/position:

D. L. Daniels, Casting Unit Manager
W. L. Willis, Casting Line Supervisor
J. W. Breazeale, Chemical Operator
S. R. Ellis, Chemical Operator
W. S. Hensley, Chemical Operator
E. Goins, Chemical Operator
J. B. Davis, Chemical Operator
W. K. McElmurray, Plating Unit Manager
H. J. Foster, Jr., Plating Supervisor
A. E. Aldridge, Electroplater
J. F. Dye, Electroplater
C. M. Terry, Electroplater
T. C. Tindell, Arc Melting/Pressing Unit Manager
M. L. Eskridge, Arc Melt Supervisor
C. P. Vowell, Chemical Operator
J. L. Scruggs, Chemical Operator

Records & other documents reviewed:

- Procedures:
  - Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnace"
  - Y50-24-33-001, "Gold Recovery Using Potassium Cyanide
  - Y50-24-81-005, "Operation of the Lectromelt Arc Melt Furnace B-3001"
- Depleted Uranium Operations and Support Functions Evidence Files PL 03.06, CA 03.06, and AM 03.06
- Depleted Uranium Operations Job Qualification Requirements, approved 8/28/95
- Restart Test Plans for All Low-Hazard DU Operations

Evolutions/operations witnessed:

- Operator rounds at 9998, Arc Melting Facility 9201-5, and Plating Facility at 9201-5N
- Procedure simulation, 9998 Casting
- Procedure simulation, Arc Melt 9201-5

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-1 (CO-18)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

OP-1 (CO-18) There are sufficient numbers of qualified personnel to support safe operations. (Cr-13)

Criteria

Minimum staffing and qualification requirements have been established for operations personnel and supervisors involved in low-hazard processes. These staffing and qualification criteria are met and are consistent with the safety basis documentation requirements and assumptions. (Facility policy and procedures, 5480.20, para 9)

Sufficient numbers of qualified operations personnel, including temporary and back-up personnel, and supervisors, are available to carry out low-hazard process operations. Staffing levels are consistent with the facility policies and procedures. (Facility policy and procedures, 5480.20, para 9)

Entry-level requirements are established for low-hazard process positions and include as applicable the minimum education, experience, technical, and medical requirements. (5480.20, para 9, Ch. 1 and 4)

Approach

Record Review:

Review selected DUO safety basis documentation and operating procedures to determine staffing and qualification requirements. Compare with personnel records to assess the ability of the facility to field the required personnel.

Review the procedures or policies that describe the personnel selection and entry-level requirements to ensure they address the minimum physical attributes a trainee must possess, as well as the minimum educational, technical, and experience requirements necessary for the employee to meet job requirements.

Review a sample of personnel records to ensure personnel meet entry-level and training requirements.

Interviews:

Interview selected operators and supervisors to ensure they understand the minimum staffing and qualification requirements for all phases of facility operations.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/21/95

Interviews indicated significant attention is being focused on operating safely. Workers stated they would promptly stop work and report to supervision if questions came up during work activities.

- As a good practice, an extensive Employee Interview check list was used by the Y-12 Safety Organization to determine to what extent safety policies, procedures, and practices were understood and accepted. Results of the survey indicated an adequate level of safety culture being implemented. One item identified in the surveys was that the quarterly safety inspections required per Y70-001 were not being conducted. A subsequent check by the assessment team found that quarterly inspections are just now being implemented with one already completed.

- The POD meeting for Building 9201-5N, conducted by D. R. Walker, covered several topics with an emphasis on safety. Topics included: surveillances, inspections, maintenance, construction, training, support services, and non-routine activities.

- Numerous workers interviewed indicated that they felt comfortable about presenting suggestions to management. Several workers stated management seemed more interested in their opinion, particularly how the process works. All the workers interviewed expressed satisfaction in being able to prepare, comment, review, and validate procedures in their areas.

It must also be recognized by Y-12 management that culture change is a continuing process. While actions taken to date to infuse the culture throughout the Y-12 plant are assessed as adequate to support continuation of resumption of DUO operations, continued reinforcement of these important areas will be required as operations proceed.

Conclusion:

A significant shift in understanding and acceptance of a new safety culture has occurred. The criteria of this core objective has been satisfied, and DUO resumption activities should continue.

Inspected by: R. E. Fenstermaker C. A. Hall J. B. Richard	Approved by: _____ RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/21/95

- Building 9201-5N Machine Shop Areas (for hands-off walkthrough with DUO Machining Unit Line Supervisor)
- Building 9204-4 Pressing Areas (for hands-off walkthrough with DUO Press Unit Line Supervisor)
- Building 9201-5 Arc Melting Areas (for hands-off walkthrough with DUO Arc Melt Line Supervisor)
- Building 9201-5 Conference Room (for group interview with DUO Press Unit and DUO Arc Melt Unit selected personnel)
- Building 9624 PMT Management/Status Conference Room (for review of Y-12 Waste Management Operations PMT status)
- Building 9215 "P" Wing and "O" Wing Areas (for hands-off walkthrough with DUO Rolling and Pressing Unit Acting Line Supervisor, while line supervisor conducted daily building rounds)
- Building 9215 "P" Wing break/conference room (for DUO Rolling and Pressing Unit Acting Line Supervisor's daily morning briefing/with assigned personnel and follow-on group interview with assigned personnel)
- Building 9201-5N Y-12 Quality Department Dimensional Inspection Laboratory areas

Discussion:

Interviews and observations of personnel during operations and daily activities, as listed above, were principally used to assess the objective of this functional area. Purposely, a vertical segment of the Y-12 organization responsible for Depleted Uranium Operations (DUO) activities was selected for assessment. This segment came down from the Vice President, Defense and Manufacturing, to the DUO hourly worker (machinists, casters/forgers, chemical operators, machine cleaners, etc.) level. Through this process, the "string was pulled" to focus on understanding, willingness, and commitment of personnel at all levels to a site-wide safety culture. Uniformly, at all levels of the five principal organizations involved with depleted uranium operations at Y-12 (DUO, DSO, EUO, Quality Organization, and Y-12 Waste Management Organization) good understanding of and willingness to adhere to the culture was evident. At all levels, a commitment to the culture of making safety paramount and willingly identifying and correcting safety deficiencies was evident.

Additional specific observations were:

- Documentation of attendance at site-wide conduct of operations awareness sessions in the fall/winter of 1994 was spot verified during interviews with managers and supervisors. An understanding of the safety message was also verified by interviews with the hourly workers.

- Evidence File - DU 07.01 contains Y-12 Procedure Y70-001 dated 8/20/92. This procedure identifies the responsibilities for Plant Manager, Division Manager, Department Manager, Supervisor, and Employee for the implementation of a Plant Safety and Health Program.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/21/95

Records & other documents reviewed:

Evidence Files:

DU 07.01	ST 07.02	ST 07.05	ST 07.07	ST 09.06
	DI 07.02	DI 07.05	DI 07.07	SI 09.06
	CA 07.02	CA 07.05	CA 07.07	CA 09.06
	CO 07.02	CO 07.05	CO 07.07	CO 09.06

Evolutions/operations witnessed:

- Building 9215 morning rounds
- Building 9201-5N morning rounds
- Building 9204-4 morning rounds
- Building 9623 morning rounds
- Building 9201-5 morning rounds
- Machining Unit safety meeting
- Building 9201-5N Operations Manager's daily Plan-of-the-Day meeting
- Director, Nuclear Operations bi-weekly DUO resumption Plan-of-the-Day meetings in Building 9119
- DUO Machining Unit Line Supervisor's daily morning briefing/safety meeting with assigned personnel in Building 9201-5N
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning rounds
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning briefing and safety meeting with assigned personnel
- Planned evolution conducting a procedure walkdown in Casting Operations

Spaces visited:

- Building 9623, Uranium Chip Oxidation Facility
- Building 9201-5 Arc Melt Area
- Building 9201-5N Depleted Uranium Plating Operations Areas
- Building 9215 Rolling and Forming Areas
- Building 9204-4 Pressing Area
- Building 9201-5N Machine Shop Areas
- Building 9201-5N Conference Room (for Plan-of-the-Day meeting)
- Building 9720-3 Materials Management Operations
- Building 9119 "War Room" (for NO Bi-Weekly DUO Resumption Plant-of-the Day Meeting)
- Building 9201-5N Conference Room (for DUO Machining Unit Line, Supervisor's morning briefing/safety meeting with assigned personnel and follow-on group interview with selected personnel)

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/21/95

W. K. McElmurray, DUO Plating Unit Manager
T. R. Shope, DUO Resumption Manager/DUO Self Assessment & Issues Manager
L. Bohn, DUO Mentor
D. Cleckner, DUO Mentor
W. Wolansky, DUO Mentor
S. H. Eldridge, DUO Arc Melt Unit Chemical Operator
C. P. Vowell, DUO Arc Melt Unit Chemical Operator
H. J. Foster, DUO Plating Unit Supervisor
A. E. Aldridge, DUO Plating Unit Electroplater
G. L. Evans, DUO Machining Unit Procedure/Tape Coordinator
T. W. Fields, DUO Machining Unit Line Supervisor
J. C. Lay, DUO Machining Unit Machinist
R. R. Taylor, DUO Machining Unit Machinist
R. T. Abner, DUO Machining Unit Machine Cleaner
J. S. Ward, DUO Machining Unit Machine Cleaner
J. R. Frost, Jr., DUO Pressing Unit Line Supervisor
E. C. Lane, DUO Pressing Unit Production Boilermaker
S. L. Johnson, DUO Pressing Unit Machine Cleaner
M. L. Eskeridge, DUO Arc Melting Unit Line Supervisor
R. L. Stooksbury, DUO Arc Melting Unit, Chemical Operator
J. T. Lowrey, Jr., DUO Rolling & Forming Unit Acting Manager/Supervisor
J. Allen, DUO Rolling & Forming Unit Line Supervisor
R. W. Norwood, DUO Rolling & Forming Unit Machinist
W. J. Mitchell, DUO Rolling & Forming Unit Machinist
D. G. Schrimpsher, DUO Rolling & Forming Unit Machinist
M. E. Underwood, DUO Rolling & Forming Unit Machine Cleaner
W. L. Willis, DUO Casting Unit Line Supervisor
Five (5) DUO Casting Unit Chemical Operators
J. H. Rose, DUO Weapons Materials Management Unit Line Supervisor
Three (3) DUO Weapons Materials Management Unit Material Clerks
P. Wasilko, Manager, Disassembly & Storage Organization (DSO) Manager
C. E. Tilley, Jr., DSO Nuclear Materials Management Manager
A. K. Zava, Y-12 Quality Manager
R. J. Graham, Y-12 Quality Dimensional Metrology Manager
S. L. Cook, Y-12 Quality Building 9201-5N and 9201-5W Dimensional Inspection Operations Supervisor
J. E. Heiskell, Jr., Director, Y-12 Waste Management Organization
D. L. Bird, Uranium Chip Oxidation Facility (UCOF) Supervisor
Five (5) UCOF Chemical Operators
S. E. Browning, UCOF and Waste Processing Compliance Engineer
W. F. Lambdin, UCOF and Waste Processing Maintenance/Training/CONOPs Coordinator

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

MG-5 (CO-29) A program is established to promote a site-wide safety culture. (Cr-14)

Criteria

Personnel attended the site-wide conduct of operations awareness sessions that were presented by senior management shortly after the September 22, 1994, incident.

The safety messages communicated during the awareness sessions is understood by personnel involved in the subject operations.

Approach

Record Review:

Verify that affected personnel attended the site-wide conduct of operations awareness sessions.

Interviews:

Interview selected personnel to determine their understanding of site-wide safety programs.

Shift Performance:

In conjunction with other functional area activities, verify an awareness and practice of safe operational practices.

Personnel contacted/position:

F. P. Gustavson, Vice President, Defense and Manufacturing
M. K. Morrow, Deputy Vice President, Defense and Manufacturing
T. R. Butz, Y-12 Plant Manager
P. Lyon, Mentor for Y-12 Plant Manager
R. K. Roosa, Director, Nuclear Operations
D. P. Bryant, Depleted Uranium Operations (DUO) Manager
D. R. Walker, Building 9201-5N Operations Manager and DUO Machining Unit Manager
M. L. Sheffler, Building 9201-5N Technical Support Manager
T. C. Tindell, DUO Arc Melting/Pressing Unit Manager

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95

and compliance much easier. Ownership of their process procedures has greatly facilitated the acceptance of procedural compliance.

- During walkdowns when operations personnel had questions, they stopped and contacted their supervisor. There is sufficient evidence to conclude operations personnel are comfortable about stopping operations when in doubt and contacting their supervisor. This was observed in low-hazard facilities where Class II procedures are used.

All of principal spaces for the DU functional areas were visited. Operations personnel, from unit managers to operators, were knowledgeable of safety, environmental protection, and radiological control requirements and understood how they were implemented. Each area visited conducted routine safety meetings and operator rounds. Each area had slightly different approaches but, collectively, adequate safety practices were evident.

The DU machining unit areas in Building 9201-5N and the Dimensional Inspection Laboratory areas in Building 9201-5N were noteworthy for their exceptional appearance and the rigor in which they were implementing COO requirements.

The RA validated that no process changes have been made, thereby leaving the safety basis intact.

Conclusion:

The criteria of this core objective have been satisfied, and DUO resumption activities should continue.

Inspected by: R. E. Fenstermaker C. A. Hall J. B. Richard	Approved by: _____ RA Team Manager Date: 9/21/95

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95

Discussion:

Interviews with and observations of personnel during daily activities, as listed above, were principally used to assess the objective of this functional area. Purposely, a vertical segment of personnel in the Y-12 organization responsible for Depleted Uranium Operations (DUO) was selected for assessment. This segment ran down the organization from the Vice President, Defense and Manufacturing, to the DUO hourly workers (machinists, caster/forgers, chemical operators, machine cleaners, etc.) level. Throughout this process, the "string was pulled" to focus on understanding, commitment, and willingness of personnel at all levels to adhere to the intent of Conduct of Operations (COO) principles, to utilize and adhere to procedures, and to place safety paramount over other objectives. Uniformly, all levels of the five organizations involved in the depleted uranium operations at Y-12 (DUO, DSO, EUO, Quality Organization, and Y-12 Waste Management Organization) exhibited good understanding, visible willingness, and strong commitment to these operating concepts.

Additional specific observations were:

- Numerous entries into and exits from radiological control areas were observed. Use of RWPs was evident. Personnel demonstrated an awareness and implementation of radiological controls practices. To attain the desired level of proficiency in the implementation of radiological control practices, additional observations by health physics personnel should be initiated. These observations could be helpful in identifying poor practices and preventing the establishment of bad habits.

- Rounds are in place but need some further attention and training. Out-of-tolerance conditions or out-of-place materials, etc. can easily be missed if the rounds are only used to "fill out the required blanks."

- Operations personnel are willingly accepting the requirements to comply with procedures and appear committed to follow them in low-hazard facilities.

- Operations personnel are well aware of necessary ES&H requirements.

- A planned procedure walkthrough evolution at casting was done very well, with the operator stopping at each unusual condition to obtain supervisor assistance. The procedure had been written with help from operations personnel, and operators were able to follow it step by step.

- Operations personnel communicated and demonstrated a clear understanding of the importance of procedural compliance. As a result of the operations personnel getting involved in the preparation, review, and comment cycle of their own process procedures, they find implementation

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95

- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning rounds
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning briefing and safety meeting with assigned personnel
- Procedure walkthrough at DUO Casting Operations
- Building 9623 UCOF morning rounds

Spaces visited:

- Building 9204-5N Plating Areas
- Building 9204-1 Arc Melt Areas
- Building 9204-4 Depleted Uranium Press Areas
- Building 9888 Depleted Uranium Casting Areas
- Buildings 9215 and 9811-2 Rolling and Forming Areas
- Building 9201-5N Conference Room (for Plan-of-the-Day meeting)
- Building 9623 Uranium Chip Oxidation Facility
- Building 9720-3 Materials Management Operations
- Building 9119 "War Room" (for NO Bi-Weekly DUO Resumption Plant-of-the Day Meeting)
- Building 9201-5N Conference Room (for DUO Machining Unit Line, Supervisor's morning briefing/safety meeting with assigned personnel and follow-on group interview with selected personnel)
- Building 9201-5N Machine Shop Areas (for hands-off walkthrough with DUO Machining Unit Line Supervisor)
- Building 9204-4 Pressing Areas (for hands-off walkthrough with DUO Press Unit Line Supervisor)
- Building 9201-5 Arc Melting Areas (for hands-off walkthrough with DUO Arc Melt Line Supervisor)
- Building 9201-5 Conference Room (for group interview with DUO Press Unit and DUO Arc Melt Unit selected personnel
- Building 9624 PMT Management/Status Conference Room (for review of Y-12 Waste Management Operations PMT status)
- Building 9215 "P" Wing and "O" Wing Areas (for hands-off walkthrough with DUO Rolling and Pressing Unit Acting Line Supervisor, while line supervisor conducted daily building rounds
- Building 9215 "P" Wing break/conference room (for DUO Rolling and Pressing Unit Acting Line Supervisor's daily morning briefing/with assigned personnel and follow-on group interview with assigned personnel
- Building 9201-5N Y-12 Quality Department Dimensional Inspection Laboratory Areas

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95

Five (5) UCOF Chemical Operators
S. E. Browning, UCOF and Waste Processing Compliance Engineer
W. F. Lambdin, UCOF and Waste Processing Maintenance/Training/CONOPs Coordinator
G. L. Evans, DUO Machining Unit Procedure/Tape Coordinator
T. W. Fields, DUO Machining Unit Line Supervisor
J. C. Lay, DUO Machining Unit Machinist
R. R. Taylor, DUO Machining Unit Machinist
R. T. Abner, DUO Machining Unit Machine Cleaner
J. S. Ward, DUO Machining Unit Machine Cleaner
J. R. Frost, Jr., DUO Pressing Unit Line Supervisor
E. C. Lane, DUO Pressing Unit Production Boilermaker
S. L. Johnson, DUO Pressing Unit Machine Cleaner
M. L. Eskeridge, DUO Arc Melting Unit Line Supervisor
R. L. Stooksbury, DUO Arc Melting, Chemical Operator
J. T. Lowrey, Jr., DUO Rolling & Forming Unit Acting Manager/Supervisor
J. Allen, DUO Rolling & Forming Unit Line Supervisor
R. W. Norwood, DUO Rolling & Forming Unit Machinist
W. J. Mitchell, DUO Rolling & Forming Unit Machinist
D. G. Schrimpsher, DUO Rolling & Forming Unit Machinist
M. E. Underwood, DUO Rolling & Forming Unit Machine Cleaner
P. Wasilko, Manager, Disassembly & Storage Organization (DSO)
C. E. Tilley, Jr., DSO Nuclear Materials Management Manager
A. K. Zava, Y-12 Quality Manager
J. T. Hill, Y-12 Quality Organization DUO Program Manager
R. J. Graham, Y-12 Quality Dimensional Metrology Manager
S. L. Cook, Y-12 Quality Dimensional Inspection Operations Manager
A. Moore, DUO Casting/Foundry Unit Operations Manager (9215 complex)

Records & other documents reviewed:

Evidence Files:

07.03, 07.04, 07.05, 07.07, 07.08, RAD.01, RAD.02, RAD.03, RAD.04, RAD.05, RAD.06
CO 18.01, CA 18.01, ST 18.01, DA 17.01, CI GRP.01, CO GRP.01, ST GRP.01

Evolutions/operations witnessed:

- Building 9201-5N Operations Manager's Plan-of-the-Day daily meeting
- Director, Nuclear Operations DUO resumption Plan-of-the-Day bi-weekly meeting
- DUO Machining Unit Line Supervisor's daily morning briefing/safety meeting with assigned personnel

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95

Shift Performance:

Observe evolutions to assess the understanding and significance operators and supervisors place on ensuring facility operations meet environmental protection requirements and are within the established safety envelope.

Assess procedure compliance when conducting evolutions and responding to abnormal conditions.
In conjunction with other functional area activities in the facilities, verify adequate implementation of radiological controls in accordance with site level procedures that are in effect, not including those identified in the Radiological Control Upgrades Implementation Plan, which are scheduled for future completion.

Personnel contacted/position:

F. P. Gustavson, Vice President, Defense and Manufacturing
M. K. Morrow, Deputy Vice President, Defense and Manufacturing
T. R. Butz, Y-12 Plant Manager
P. Lyon, Mentor for Y-12 Plant Manager
R. K. Roosa, Director, Nuclear Operations
D. P. Bryant, Depleted Uranium Operations (DUO) Manager
D. R. Walker, Operations Manager 9201-5N Operations Manager/DUO Machining Unit Manager
M. L. Sheffler, Building 9201-5N Technical Support Manager
T. C. Tindell, DUO Arc Melting/Pressing Unit Manager
W. K. McElmurray, DUO Plating Unit Manager
T. R. Shope, DUO Resumption Manager/DUO Self-Assessment & Issues Manager
L. Bohn, DUO Mentor
D. Cleckner, DUO Mentor
L. Wolanksy, DUO Mentor
S. H. Eldridge, DUO Arc Melt Chemical Operator
C. P. Vowell, DUO Arc Melt Chemical Operator
H. J. Foster, DUO Plating Unit Line Supervisor
A. E. Aldridge, DUO Plating Unit Electroplater
D. L. Daniels, DUO Casting Unit Manager
W. L. Willis, DUO Casting Unit Line Supervisor
Five (5) DUO Casting Unit Chemical Operators
J. H. Rose, DUO Weapons Materials Management Unit Line Supervisor
Three (3) DUO Weapons Materials Management Unit Material Clerks
J. E. Heiskell, Jr., Director, Y-12 Waste Management Organization
J. K. Prazniak, Waste Processing Department Manager
D. L. Bird, Uranium Chip Oxidation Facility (UCOF) Supervisor

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

MG-4 (CO-20) 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-14)

Criteria

Operations personnel, including operators and supervisors, are knowledgeable of safety, environmental protection, and radiological controls requirements and understand how they are implemented. (5480.19, Ch. II)

Operations personnel, including operators and supervisors, understand the importance of procedural compliance and adhere to the policy. (5480.19, Ch. I and XVI)

Approach

Record Review:

Review the training records that indicate that operations personnel have received instruction on safety, radiological controls, and environmental protection requirements and their implementation, and the procedure compliance policy.

Review the procedure compliance policy to verify it conforms to 5480.19 guidance.

Review implementation procedures for radiological controls requirements to verify adequate implementation to ensure public and worker safety.

Interviews:

Interview operators and supervisors to assess their understanding of procedures and the implementation of the safety, health, and environmental protection requirements in procedures and operator round sheets. Verify an understanding of radiological controls requirements.

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-3 (CO-27)	Date: 9/21/95

During the conduct of this assessment, it also was evident, through interviews with personnel, that a strong individual commitment to order compliance was present. No compensatory actions were identified by the assessment team.

Conclusion:

The criteria of this core objective have been satisfied, and DUO resumption activities should continue.

Inspected by: R. E. Fenstermaker C. A. Hall J. B. Richard	Approved by: _____ RA Team Manager Date: 9/21/95

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RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-3 (CO-27)	Date: 9/21/95

Evolutions/operations witnessed:

- Building 9201-5N Operations Manager's Plan-of-the-Day daily meeting
- Director, Nuclear Operations DUO resumption Plan-of-the-Day bi-weekly meeting
- DUO Machining Unit Line Supervisor's daily morning briefing/safety meeting with assigned personnel
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning rounds
- Building 9215 DUO Rolling and Pressing Unit Line Supervisor's daily morning briefing and safety meeting with assigned personnel

Spaces visited:

- Building 9201-5N Conference Room (for Plan-of-the-Day meeting)
- Building 9119 "War Room" (for NO Bi-Weekly DUO Resumption Plant-of-the Day Meetings) Building 9201-5N Conference Room (for DUO Machining Unit Line, Supervisor's morning briefing/safety meeting with assigned personnel and follow-on group interview with selected personnel)
- Building 9201-5N Machine Shop Areas (for hands-off walkthrough with DUO Machining Unit Line Supervisor)
- Building 9204-4 Pressing Areas (for hands-off walkthrough with DUO Press Unit Line Supervisor)
- Building 9201-5 Arc Melting Areas (for hands-off walkthrough with DUO Arc Melt Line Supervisor)
- Building 9624 PMT Management/Status Conference Room (for review of Y-12 Waste Management Operations PMT status)
- Building 9215 "P" Wing and "O" Wing Areas (for hands-off walkthrough with DUO Rolling and Pressing Unit Acting Line Supervisor, while line supervisor conducted daily building rounds)
- Building 9201-5N Y-12 Quality Department Dimensional Inspection Laboratory Areas

Discussion:

Interviews with personnel, observations in spaces visited, observations in evolutions witnessed, and reviews of documents have indicated that the Standards/Requirements Identification Document (S/RID) process to assess compliance with the 51 DOE orders of interest has been completed, requests for approvals (RFA) have been developed for deficiencies, and actions to implement the deficiencies are ongoing. While some RFAs and revisions to RFAs have not yet been reviewed and completely approved by DOE/ORO, recent correspondence on this subject has resulted in DOE acceptance of the actions proposed for completion prior to resumption which relate to the Y-12 Order Compliance Program RFAs.

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RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95

Shift Performance:

Observe operator and/or supervisor performance in-the-field to verify training effectiveness.

Personnel contacted/position:

D. P. Bryant, DUO Manager
T. R. Shope, DUO Resumption Manager
J. E. Heiskell Jr., Y-12 ESWMO Director
R. Harding, Y-12 Nuclear Operations Program Support Manager
A. K. Zava, Y-12 Quality Director
R. J. Lanphear, DUO Training System analyst
D. Martin, Y-12 Training Records, Building 9709
A. L. Jenkins, Technical Support Engineer
S. R. Ellis, Operator, 9998 Casting
E. Goins, Operator, 9998 Casting
W. L. Willis, Front-Line Supervisor, 9998 Casting
T. C. Tindell, Arc Melting/Pressing Unit Manager
R. L. Stooksbury, Operator, 9201-5 Arc Melt
J. Scruggs, Operator, 9201-5 Arc Melt
B. J. Stout, Operator, 9201-5 Art Melt
A. E. Aldridge, Operator, 9201-5 Gold Stripping
C. M. Terry, Operator, 9201-5 Gold Stripping
H. J. Foster, Supervisor, 9201-5 Gold Stripping
D. R. Walker, Unit Supervisor, 9201-5N
D. Daniels, Unit Supervisor 9998 Casting
J. B. Davis, Operator 9998 Casting
L. Wolansky, DUO Mentor
J. T. Lowery, Supervisor 9215 Rolling
J. Rose, Supervisor WMM
M. Groves, DUO Training Analyst
L. E. Bryant, DUO Support
V. E. Gordon, Y-12 TIM Project Manager
M. E. Martin, Institute Leader, LMES Center for Continuing Education

Records & other documents reviewed:

- Y/NA-1800C, "Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant"

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Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95

- Y/GA-66/R4, "Y-12 Plant Training Implementation Matrix"
- Training Management System (TMS) records
- Y-12 Plant Procedures:
  - Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces"
  - Y50-24-18-149, "Operation of 10N Casting Furnace"
  - Y50-24-81-005, "Operation of Lectromelt Arc Melt Furnace B-3001"
  - Y50-24-33-001, "Gold Recovery Using Potassium Cyanide"
- Performance Documentation Checksheets:
  - Y50-24-18-153, "Operation of 11S and 12S Casting Furnaces"
  - Y50-24-22-001, "Gold Recovery Using Potassium Cyanide"
  - Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces"
- Y/AD-630, "Readiness Assessment for the Resumption of Receipt, Storage, and Shipment of Special Nuclear Materials at the Oak Ridge Y-12 Plant"
- DUO Evidence file submission forms:

AM 03.02	CA 03.02	DI 03.02	MA 03.02	CA 03.06
MM 03.02	PL 03.02	PR 03.02	PT 03.02	PL 03.06
RF 03.02	ST 03.02	DP 03.02	AM 03.06	

Evolutions/operations witnessed:

- Procedure simulation, 9998 Casting
- Procedure simulation, Gold Stripping 9201-5
- PDC simulation, 9998 Casting

Spaces visited:

- Building 9119 Document Center
- Building 9998 Casting
- Building 9201-5 Arc-Melting
- Building 9201-5N Gold Recovery
- Building 9709 Training Records

Discussion:

Interviews, observations of procedure simulations, and document reviews in DUO and the support functions as listed above were used primarily to assess this objective.

The earliest incremental TIM milestone commitment for DUO is January 1996. The DUO organization is well ahead of schedule on TIM commitments. As previously identified during the DUO Management Self Assessment, the Disassembly and Storage and Quality organizations are behind schedule with the

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RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95

approved Y-12 Plant TIM. The current TIM is being revised to be consistent with Y-12 Resumption Plans of Action and to include requirements of DOE Order 5480.20A, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities."

Two provisionally qualified operators were observed during procedure simulation of one of the 9998 Casting Furnaces. They demonstrated a good understanding of the procedure and operation of the equipment. There was an evident commitment on the part of these operators to adhere to the principles of conduct of operations (COO). On three occasions, they stopped the simulation to check with the supervisor when process conditions were not consistent with the procedure. Both operators informed the evaluator (assessor) they had not been trained to the latest revision to the procedure. Both understood they were provisionally qualified and were able to articulate the meaning of provisional qualifications. The floor supervisor was interviewed after completion of the simulation. He voiced a strong commitment to safety and a willingness to apply the rigor and formality set forth in COO principles.

Three operators from the 9201-5 Arc Melting operation were interviewed to obtain a perception of the level of their understanding of COO principles and their knowledge of procedures and commitment to safety. The following are typical questions asked of these operators:

- How have you prepared for resumption?
- Why is it important to follow procedures?
- Why is it important to have good procedures?
- In terms of your work, what is COO?
- What are the hazards in your work area?
- How are hazards controlled?

These operators were very knowledgeable and personally involved with development of procedures for their area. They had been provisionally qualified on these procedures through Performance Documentation Checksheet simulation. All voiced a commitment to following rules, procedures, and doing their job right. They are all aware of their stop-work authority and the procedure change process. One operator said he now has a better appreciation for having good procedures.

During observation of a simulation of procedure Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," the two operators followed the procedure and all the safety requirements for the area. These operators were knowledgeable of the hazards involved with the gold-stripping operation and the importance of following procedures. Both operators were provisionally qualified on the procedure through

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RA ASSESSMENT FORM

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Performance Documentation Checksheet simulation. After completion of the simulation, an operator was interviewed to determine his level of commitment to, and knowledge of the COO principles. He expressed a good understanding of the intent and benefits of COO and a strong desire to improve performance in his area of responsibility.

A Performance Documentation Checksheet (PDC) evaluation for operation of the 3N, 4N, 5N, and 6N casting furnaces was observed. An incumbent operator from the 9998 casting area performed the required procedure simulation. Although the PDC was not conducted in accordance with the requirements of organizational provisional qualification instructions, the operator demonstrated a good understanding of the procedure and equipment, and was able to correctly identify responses to selected abnormal conditions without referring to the procedure. The instructions state that the operator will simulate actual performance of each task at the equipment by pointing out proper switches, gauges, buttons, etc. and explaining what they are used for and what they would do in actual operation. Contrary to the instructions, many of the tasks were discussed and not simulated. While on top of the furnace at the second floor level, the operator discussed tasks to be performed on ground-floor equipment without leaving the second-floor area. The supervisor gave the operator a satisfactory rating on these task simulations. (See DUO-RA-TR1-04.)

A front-line supervisor and a DUO mentor from the 9215 Rolling/Pressing operation were interviewed to determine their understanding of and commitment to requirements significant to safety and conduct of operations. The DUO mentor is leading a procedure upgrade effort that focuses on involving the workers in developing operating procedures. The supervisor and the mentor indicated a commitment to producing quality procedures by direct involvement of the workers who use them. The supervisor explained their approach as follows:

1. The affected work group is assembled at the work location on the operating floor.

2. The work group, working together diagrams the work process.

3. The mentor/supervisor records each step of the work process (rough procedure).

4. The rough procedure is submitted to the formalized procedure process for formatting.

5. Workers verify accuracy of procedures through tabletop discussions and procedure walkdown.

This process will ensure technical accuracy of procedures and help foster a sense of ownership among the workers.

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RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95

Training and qualification records were reviewed for selected DUO and support function operators and supervisors with a focus on the formality and completeness of training record management. During the review of these records, the following observations were made:

- Tabletop Job Task Analyses (JTA) were used to initially establish training and qualification requirements to support resumption of DU operations. Since the original list of requirements was developed, multiple revisions have been made based on informal communication rather than on any documented JTA. (See DUO-RA-TR1-05.)

- Training and qualification records are not being updated to reflect current conditions in a timely manner. PDC evaluation results were not filed in training records even though two months had elapsed since the PDCs were conducted. (See DUO-RA-TR1-01, -02.)

- Current TMS printouts include a requirement for provisional qualification on Class III procedures even though supervisors said this was no longer necessary. The same set of printouts did not reflect completion of some provisional qualifications completed six weeks earlier. One supervisor's TMS printout did not include any provisional qualification requirements. (See DUO-RA-TR1-02, -03.)

- The DUO organization has required PDC evaluators to complete training Module 4069, "Conduct of On-the-Job Training and Evaluation." However, those required to complete this training are not formally documented, and the training module is not listed as a training requirement on TMS. (See DUO-RA-TR1-02.)

- Some PDC training records indicated an inattention to detail. Examples include:

  - Inconsistent changes made to PDC steps without explanation
  - Incorrect assignment of number of questions answered correctly on PDCs
  - A PDC for an operator was missing page 1, which indicates an operator's readiness to be evaluated. (See DUO-RA-TR1-01.)
  - Some copies of PDCs for provisional qualification were not marked "Provisional."
  - Some blanks on PDCs were not filled in.

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RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95

Conclusion:

Based on a review of records and personnel interviews, the training and qualification programs for DU operations and support personnel are at a level sufficient to support resumption. However, some improvements are necessary prior to commencing operations in order to meet the formality and rigor necessary for nuclear operations. (See Finding DUO-RA-TR1-06.)

Inspected by: G. A. Gregory M. W. Kohring	Approved by: _____ RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-1 (CO-14)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

LK-1 (CO-14) Technical qualifications of contractor personnel, responsible for facility operations, are adequate. (Cr-19)

Criteria

Training and qualification of personnel responsible for facility operations are at a level sufficient to support resumption.

Personnel not meeting the current qualification requirements for a low-hazard process shall have a qualified individual with them while performing that particular operation.

Entry-level requirements are established for each operations position and include, as applicable, the minimum education, experience, technical, and medical requirements. (5480.20, para 9, Ch. 1 and 4)

NOTE: The evaluation should occur in coordination with CO-13 to assess the adequacy of the technical training and qualification requirements including development of those requirements to be responsive to the needs of the DUO and support functions facilities.

Approach

Record Review:

Coordinate with the record reviews of CO-13 to determine the adequacy of the technical training and qualification requirements.

Verify procedures are in place that require a non-qualified operator to be escorted while performing the particular operation.

Review the procedures or policies that describe the personnel selection and entry-level requirements to ensure they address the minimum physical attributes a trainee must possess, and the minimum educational, technical, and experience requirements necessary for the employee to meet job requirements.

Review records of selected operators to ensure they meet entry-level requirements.

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RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-1 (CO-14)	Date: 9/21/95

Interviews:

Interview operators and supervisors to verify they understand the need to have qualified operators with non-qualified operators while performing low-hazard processes.

Shift Performance:

Observe a selected operator walkthrough of a selected low-hazard process procedure to assess conformance to DUO procedures.

Personnel contacted/position:

D. P. Bryant, DUO Manager
T. R. Shope, DUO Resumption Manager
T. C. Tindell, Arc Melting/Pressing Unit Manager
W. K. McElmurray, Plating Manager
D. L. Daniels, Casting/Consolidation Unit Manager
W. L. Willis, Front-line Supervisor, 9998 Casting
J. E. Heiskell, Y-12 WMO Director
J. K. Prazniak, Y-12 WMO Waste Processing Department Head
A. K. Zava, Y-12 Quality Director
R. Harding, Y-12 Nuclear Operations Program Support Manager
J. B. Davis, H-1 Chemical Operator
D. Martin, Y-12 Training Records
D. M. Lewis, DUO Staff Engineer
R. J. Lanphear, DUO Training Analyst
S. R. Ellis, Chemical Operator
E. Goins, Chemical Operator

Records & other documents reviewed:

- DUO Evidence file submission forms:

AM 03.03	CA 03.04	CA 03.08	CA 03.11	CA 03.12	CA 07.08
CA 03.03	CO 03.04	CO 03.08	CO 03.11	CO 03.12	
PL 03.03	DI 03.04	DI 03.08	DI 03.11	DI 03.12	
	ST 03.04	ST 03.08	ST 03.11	ST 03.12	

- Training Management System Requirement/Qualification Status printouts for DUO personnel
- Y-12 Nuclear Operations Conduct of Operations Manual, Chapter 2.2, "Shift Operating Practices"
- Depleted Uranium Operations Training Guide, Section 3.0, Personnel Selection Criteria
- Training Records of DUO personnel

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-1 (CO-14)	Date: 9/21/95

- Y/NA-1800C, "Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant"

Evolutions/operations witnessed:

- PDC evaluation of Y50-24-18-143 at H-1 Foundry

Spaces visited:

- Y-12 Training Records, Building 9709
- H-1 Foundry, Building 9998 and 9215

Discussion:

The following requirements are stated in Chapter 2.2 of the Y-12 Nuclear Operations Conduct of Operations Manual:

Manager Responsibilities: "Ensure that only qualified personnel are assigned to work areas"

Personnel Responsibilities: "Maintain qualification on assigned areas"

DUO employees have attended a training course on this manual. The DUO Manager said each unit supervisor is held accountable for ensuring that only qualified personnel are assigned to work.

Two provisionally qualified operators were observed during procedure simulation of the 9998 Casting Furnace. When asked if any operator could perform the simulation, the supervisor said that only a qualified operator could perform the procedure. He further said that if a non-qualified operator performed a low-hazard procedure, a qualified operator had to accompany the non-qualified operator. The operators demonstrated a good understanding of the procedure and operation of the equipment. There was an evident commitment on the part of these operators to adhere to the principles of conduct of operations (COO). On three occasions, they stopped the simulation to check with the supervisor when process conditions were not consistent with the procedure. Both operators informed the evaluator (assessor) they had not been trained to the latest revision to the procedure. Both understood they were provisionally qualified and were able to articulate the meaning of provisional qualifications. The floor supervisor was interviewed after completion of the simulation. He voiced a strong commitment to safety and a willingness to apply the rigor and formality set forth in COO principles.

A review of procedures, records, and evidence files indicate that DUO and support function personnel meet established entry-level requirements.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-1 (CO-14)	Date: 9/21/95

Conclusion:

Based on a review of records, personnel interviews, and an observation of a procedure simulation, training and qualification programs for DU operations and support personnel are at a level sufficient to support resumption.

Inspected by: G. A. Gregory M. W. Kohring	Approved by: _____ RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-2 (CO-17)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

LK-2 (CO-17) Level of knowledge of operations personnel is adequate based on reviews of examinations, exam results, selected interviews, and observation of work performance. (Cr-3)

Criteria

The required level of knowledge for each operational and supervisory position has been determined and promulgated consistent with discussion of POA V.C.2.

The facility-specific knowledge required by operations personnel is evaluated by examinations, observations of the performance of simulations, or by oral interviews of the operating personnel.

Approach

Record Review:

Review documents that specify training, qualification, and knowledge requirements for each operational and supervisory position within the scope of the RA.

Review examinations and oral interview questions against the Y-12 Plant Training Implementation Matrix (TIM) and training requirements defined by the applicable operations manager to determine if they adequately test the operators' understanding of technical fundamentals, facility systems, operating procedures, and procedure use.

Interviews:

Interview personnel who conduct oral interviews and observe process simulations to determine the adequacy of the qualification process.

Shift Performance:

Observe a staged oral interview and staged observation of a process simulation to determine the adequacy of the qualification process.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-2 (CO-17)	Date: 9/21/95

Personnel contacted/position:

D. P. Bryant, DUO Manager
T. R. Shope, DUO Resumption Manager
R. J. Lanphear, DUO Training Systems Analyst
M. Groves, DUO Training Systems Analyst
T. C. Tindell, Arc Melting/Pressing Unit Manager
J. E. Heiskell, Jr., Y-12 WMO Director
J. K. Prazniak, WMO Waste Processing Department Head
A. K. Zava, Y-12 Quality Director
W. K. McElmurray, Plating Manager
D. L. Daniels, Casting/Consolidation Unit Manager
W. L. Willis, Front-Line Supervisor, 9998 Casting
J. B. Davis, H-1 Chemical Operator

Records & other documents reviewed:

- DUO Evidence file submission forms:
  AM 05.01 CA 05.01 CO 05.01 DI 05.01
  MA 05.01 MM 05.01 PL 05.01 PR 05.01
  RF 05.01 ST 05.01
- Performance Document Checksheet (PDC) for On-The-Job Training for the following procedures:
  Y50-24-81-005, "Operation of the Lectromelt Arc Melt Furnace B-3001"
  Y50-24-81-009, "Verson 3000 Ton Crushing Press Operations"
  Y50-24-33-001, "Gold Recovery Using Potassium Cyanide"
  Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces"
  Y50-24-18-146, "Operation of 13S, 14S, and 15S Casting Furnaces"
  Y50-24-18-149, "Operation of 10N Casting Furnace"
  Y50-24-18-153, "Operation of 11S and 12S Casting Furnaces"
  Y50-24-18-003, "House and Thermex Vacuum System Operations"
  Y50-24-18-010, "Oxide Burner Bag Filter House Operation"
- Training Management System Requirement/Qualification Status forms for DUO personnel
- DUO Manager Instruction, "Provisional Qualification," August 30, 1995
- Y/GA-66/R4, "Y-12 Plant Training Implementation Matrix"

Evolutions/operations witnessed:

PDC evaluation of Y50-24-18-143 at H-1 Foundry

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-2 (CO-17)	Date: 9/21/95

Spaces visited:

H-1 Foundry, Building 9998

Discussion:

Training Management System (TMS) documentation was reviewed for DUO and support functions to ensure that requirements had been defined for each operational and supervisory position and that the required level of knowledge was specified for each position. It was discovered that, in some cases, the requirements listed in TMS did not match the requirements that supervisory personnel believed to be necessary to support resumption of work. (See DUO-RA-TR1-02.)
In order to support resumption of DUO and to ensure a sufficient number of qualified personnel are trained on the most recent revision of low-hazard process procedures, a provisional qualification process was instituted. One manager, five first-line supervisors, and 13 operators were identified to be provisionally qualified on eight low-hazard procedures. This provisional qualification is documented through a Performance Documentation Checksheet (PDC) and demonstrates the employee's level of knowledge and skills necessary to perform the tasks required in the procedure. PDC evaluations were conducted for 19 DUO personnel on six approved procedures between July 8 and August 3, 1995. A typical evaluation consists of a qualified evaluator observing the trainee performing or simulating the steps of the procedure and asking knowledge questions to ensure understanding of the procedural steps. The procedures may be used by the operator as a reference during the performance evaluation. Procedural steps marked "P/S" in the PDC must be performed or simulated in order for the trainee to successfully pass.

A PDC evaluation for operation of a casting furnace was observed with an operator and supervisor who had both been provisionally qualified on the previous revision of the procedure in July. The operator demonstrated a thorough understanding of the procedure, the equipment and the knowledge questions asked by the evaluator. However, contrary to the DUO Manager's instructions for conducting provisional qualification, many of the tasks were discussed rather than simulated. (See DUO-RA-TR1-04.)

Training records for PDC evaluations and oral examinations conducted during the July-August 1995 time frame were reviewed, and the following observations were made:

- On five occasions it was noted that following completion of a PDC, the trainee and the evaluator reversed roles and conducted a second PDC on the same procedure. This practice is contrary to the Y-12 Nuclear Operations Conduct of Operations Manual philosophy that states that an evaluator is to be qualified on the process to be evaluated and should not evaluate an operator that he/she trained.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-2 (CO-17)	Date: 9/21/95

- Some completed PDCs were not marked "Provisional" on all record copies.

- TMS entries indicate that operators are provisionally qualified, but that supervisors are qualified based on the simulation PDCs conducted in the July through August time frame, even though the supervisor's PDCs were marked "Provisional."

Discussions with supervisors and operators revealed a confidence that most operators could answer a satisfactory percentage of the PDC knowledge questions without referencing the procedure. However, the methodology of conducting the PDC allowed the use of the procedure, which explains the fact that each trainee evaluated answered 100 percent of the questions correctly. Thirty-three oral awareness evaluations, which consist of questions that test the operator's/supervisor's understanding of technical fundamentals, facility systems, operating procedures, and procedure use, were reviewed. Only one of the individuals examined did not achieve a perfect score.

Conclusion:

Based on interviews and discussions with supervisors and operators, it is readily apparent that the level of knowledge of DU operations and support functions personnel is adequate to support resumption. However, improvements need to be made to the process of evaluating the knowledge of these personnel through the use of examinations and PDCs prior to commencing operations. (See Finding DUO-RA-TR1-06.)

Inspected by: G. A. Gregory M. W. Kohring	Approved by: J P Flynn RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-3 (CO-23)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

LK-3 (CO-23) Managerial qualifications of contractor personnel, responsible for facility operations, are adequate. (Cr-19)

Criteria

The managerial qualifications of the Y-12 managers up to and including the Manager, Nuclear Operations, and the Manager, Waste Management, meet the requirements specified in LMES policy statements, position descriptions, and performance appraisal criteria. A record of the verification of managers meeting the specified requirements is maintained.

Managerial personnel understand and effectively promote awareness of requirements for safe operation as defined in appropriate policies and procedures.

Approach

Record Review:

Review LMES policy statements concerning managerial qualifications, position descriptions, and performance criteria. Compare with selected personnel records to assess whether the managers up to and including the Nuclear Operations Manager and Waste Management Manager meet the specified requirements. (First-line supervisors are not considered managers.)

Interviews:

Interview selected managerial personnel at all levels to determine their understanding of the qualification requirements as well as to demonstrate the necessary knowledge and understanding of the requirements significant to safety including appropriate policies and procedures.

Interview selected managers to determine how they promote awareness of requirements for safe operation.

Interview selected operators to determine whether managers effectively promote the awareness of requirements for safe operations.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-3 (CO-23)	Date: 9/21/95

Shift Performance:

If the opportunity is afforded, assess managerial awareness and performance while observing routine evolutions to determine if they adequately promote and require necessary administrative and safety-basis requirements.

Personnel contacted/position:

D. P. Bryant, DUO Manager
T. R. Shope, DUO Resumption Manager
J. E. Heiskell, Y-12 WMO Director
R. Harding, Y-12 Nuclear Operations Program Support Manager
A. K. Zava, Y-12 Quality Director
T. C. Tindell, Arc Melting/Pressing Unit Manager
W. K. McElmurray, Plating Manager
D. L. Daniels, Casting/Consolidation Unit Manager
R. J. Lanphear, DUO Training System Analyst
D. Martin, 9709 Training Records
A. L. Jenkins, Technical Support Engineer
S. R. Ellis, Operator, 9998 Casting
E. Goins, Operator, 9998 Casting
W. L. Willis, Front-Line Supervisor, 9998 Casting
R. L. Stooksbury, Operator, 9201-5 Arc Melt
J. Scruggs, Operator, 9201-5 Arc Melt
B. J. Stout, Operator, 9201-5 Art Melt
A. E. Aldridge, Operator, 9201-5 Gold Stripping
C. M. Terry, Operator, 9201-5 Gold Stripping
H. J. Foster, Supervisor, 9201-5 Gold Stripping
D. R. Walker, Unit Supervisor, 9201-5N

Records & other documents reviewed:

- DUO Evidence file submission forms:

CA 09.01	CA 09.02	CA 09.08	AM 03.06
CO 09.01	CO 09.02	CO 09.08	CA 03.06
DI 09.01	DI 09.02	DI 09.08	PL 03.06
ST 09.01	ST 09.02	ST 09.08	

- Y/GA-66/R4, "Y-12 Plant Training Implementation Matrix (TIM)"
- Energy Systems TMS Records

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-3 (CO-23)	Date: 9/21/95

- Y-12 Plant Procedures:
  - Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces"
  - Y50-24-18-149, "Operation of 10N Casting Furnace"
  - Y50-24-81-005, "Operation of Lectromelt Arc Melt Furnace B-3001"
  - Y50-24-33-001, "Gold Recovery Using Potassium Cyanide"
- Performance Documentation Checksheets for on-the-job training for the following:
  - Y50-24-18-153, "Operation of 11S and 12S Casting Furnaces"
  - Y50-24-22-001, "Gold Recovery Using Potassium Cyanide"
  - Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces"
- Y/AD-630, "Readiness Assessment Report for the Resumption of Receipt, Storage, and Shipment of Special Nuclear Materials at the Oak Ridge Y-12 Plant"
- Training records for DUO personnel

Evolutions/operations witnessed:

- Procedure simulation, 9998 Casting
- Procedure simulation, Gold Stripping 9201-5

Spaces visited:

- Building 9119 Document Center
- Building 9998 Casting
- Building 9201-5 Arc-Melting
- Building 9201-5N Gold Recovery
- Building 9709 Training Records

Discussion:

Selected DUO and support function managers were interviewed to determine their understanding and knowledge of requirements significant to safety and conduct of operations. Operators were then interviewed and/or observed during procedure simulations to determine if managers are effective in communicating these requirements and expectations to the work force.

The interviews with the managers confirmed that they have a good understanding of the requirements for safe operation and are committed to ensure that their staff are adequately trained and kept continually aware of these requirements through a number of communication vehicles. Typical questions that were used during interviews with managers included the following:

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-3 (CO-23)	Date: 9/21/95

- How confident are you that managers and operators within your organization meet the requirements to properly perform their assigned responsibilities?
- How confident are you that managers and operators within your organization are adequately trained to a level sufficient to support resumption?
- How will you ensure that managers and operators within your organization will complete all training and qualification requirements before beginning system operation?
- What is your involvement in the qualification process?
- How do you promote an awareness of the requirements for safe operation within your organization?
- What communication tools do you use to promote this awareness?
- How do you measure the effectiveness of that communication?

Each manager interviewed displayed a high level of confidence that the members of his organization had been adequately trained to support resumption of DU operations. They strongly expressed a belief that their particular organizations had taken significant steps to promote conduct of operations principles as a tool to improve safety and efficiency of operations. It was readily apparent that managers felt the operators had been actively included in resumption efforts through the revision of procedures, the definition of training and qualification requirements, and the implementation of conduct of operations (COO) practices within their particular job areas.

Two provisionally qualified operators were observed during procedure simulation of the 9998 Casting Furnace. When asked if anyone could perform the simulation, the supervisor said that only a qualified operator could perform the procedure. He further said that if a non-qualified operator performed a low-hazard procedure, a qualified operator had to accompany the non-qualified operator. The operators demonstrated a good understanding of the procedure and operation of the equipment. There was an evident commitment on the part of these operators to adhere to the principles of COO. On three occasions, they stopped the simulation to check with the supervisor when process conditions were not consistent with the procedure. Both operators informed the evaluator (assessor) they had not been trained to the latest revision to the procedure. Both understood they were provisionally qualified and were able to articulate the meaning of provisional qualifications. The floor supervisor was interviewed after completion of the simulation. He voiced a strong commitment to safety and a willingness to apply the rigor and formality set forth in COO principles.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-3 (CO-23)	Date: 9/21/95

Three operators from the 9201-5 arc melting operation were interviewed to obtain a perception of the level of their understanding of COO principles and their knowledge of procedures and commitment to safety. Typical questions asked of these operators were as follows:

- How have you prepared for resumption?
- Why is it important to follow procedures?
- Why is it important to have good procedures?
- In terms of your work, what is conduct of operations?
- What are the hazards in your work area?
- How are hazards controlled?

These operators were very knowledgeable and personally involved with development of the Class II procedures for their area. They have been provisionally qualified on these procedures through Performance Documentation Checksheet simulation. All voiced a commitment to following rules, procedures, and doing their job right. They are all aware of their stop-work authority and the procedure change process. One operator said he now has a better appreciation for having good procedures and stated, "The plant must follow COO and procedures or we will not stay in operation."

During observation of a simulated operation of procedure Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," the two operators followed the procedure and all the safety requirements for the area. These operators were knowledgeable of the hazards involved with the gold-stripping operation and the importance of following procedures. After completion of the simulation, one operator was interviewed to determine his level of commitment to and knowledge of the COO principles. He expressed a good understanding of the intent and benefits of COO and a strong desire to improve performance in his area of responsibility. Both operators were provisionally qualified on the procedure through Performance Documentation Checksheet simulation.

A review of policy statements, records, and evidence files indicate that DUO and support function managers meet established managerial qualifications.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-3 (CO-23)	Date: 9/21/95

Conclusion:

Managers responsible for DUO and support organization functions are adequately qualified, and they effectively promote an awareness for safe operations within their organization. Based on interviews and discussion with supervisors and operators, it is readily apparent that the level of knowledge of DU operations and support functions personnel is adequate to support resumption.

Inspected by: G. A. Gregory M. W. Kohring	Approved by: _____ RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

PR-1 (CO-7) There are adequate and correct procedures for operating systems and utility systems. (Cr-1)

Criteria

Risks to the environment, or to the health or safety of employees, associated with low-hazard processes are identified and utilized to develop appropriate Safety and Health requirements.

Low-hazard process procedures identified in Appendix II are technically accurate and incorporate appropriate Safety and Health requirements.

A viable process exists for the control and issuance of procedure revisions by the field.

Approach

Record Review:

Review documentation that identifies risks associated with low-hazard processes.

Review procedures for technical accuracy and incorporation of safety and health requirements.

Verify process for control and issuance of procedures in the field.

Interviews:

Interview operators and supervisors to assess their understanding of the process for control and issuance of procedures in the field.

Interview support staff personnel to assess their understanding of safety and health requirements and the process used to ensure the procedures are technically accurate.

Shift Performance:

Assess the content and accuracy of a process procedure by performing a process simulation using the latest revision of the associated procedure. If temporary procedure changes are necessary, verify and assess the process for control and issuance of procedure revisions by the field.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/21/95

Personnel contacted/position:

W. K. McElmurray, Plating Unit Manager
D. L. Daniels, Casting Unit Manager
T. C. Tindell, Arc Melting/Pressing Unit Manager
W. L. Willis, Casting Line Supervisor
S. R. Ellis, Casting Chemical Operator
E. Goins, Casting Chemical Operator
H. J. Foster, DU Plating Line Supervisor
C. M. Terry, Electroplater
J. F. Dye, Electroplater
A. E. Aldridge, Electroplater
Art Mitchell, Plating Process Engineer
G. L. Ward, Casting Process Engineer
A. D. Wood, Arc Melt Process Engineer
M. L. Eskridge, Arc Melt Line Supervisor
R. L. Stooksbury, Arc Melt Chemical Operator
Bob Lanphear, Training System Analyst
Darlene Wimbley, DUO Document Control Manager
N. D. Woodall, Acting Division Procedures Manager
R. T. Ford, Industrial Hygiene Department Manager

Records & other documents reviewed:

- DUO Resumption Activity Evidence packages:

AM 01.01	AM 01.02	AM 01.03	AM 01.04	AM 01.08	AM 01.10
CA 01.01	CA 01.02	CA 01.03	CA 01.04	CA 01.08	CA 01.10
PL 01.01	PL 01.02	PL 01.03	PL 01.04	PL 01.08	PL 01.10
				CA 01.09	CA 01.11

- Procedures:
  - Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces," dated 8/24/95
  - Y50-24-18-146, "Operation of 13S, 14S, and 15S Casting Furnaces," dated 9/08/95
  - Y50-24-18-149, "Operation of 10N Casting Furnace," dated 9/05/95
  - Y50-24-18-153, "Operation of 11S and 12S Casting Furnaces," dated 9/07/95
  - Y50-24-81-005, "Operation of the Lectromelt Arc Melt Furnace B-3001," dated 9/06/95
  - Y50-24-81-007, "Operation of the Skull Caster Furnace B-3002," DRAFT dated 9/08/95
  - Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," dated 8/21/95
  - Y10-102, "Operating Procedure Development, Revision, and Control," dated 6/25/91
  - Y10-102, "Technical Procedure Process Control" dated 7/21/95
  - Y10-103, "Writer's Guide for Y-12 Plant Operating Procedures," dated 6/25/91

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/21/95

70-37-DU-001, "Employee Hand Protection and Control of Contaminants"
Y70-24-002, "Respiratory Protection Program," dated 9/02/94
Y70-527, "Energy Isolation and Control (Lockout/Tagout)"

- Internal Correspondence: Procedure Control Guidelines for Depleted Uranium Operations (DUO) Revised dated 6/26/95 from D. P. Bryant
- DU Casting Controlled Copy Procedure File
- DU Plating Controlled Copy Procedure File
- DU Arc melt Controlled Copy Procedure File
- TMS Requirement/Qualification Status, 9/11/95
- Y/AD-630, Readiness Assessment for RSS
- Performance Documentation Checksheets P143, P001, and P005
- DUO MSA Findings and Observations: PRE-1, PRE-2, PRE-3, PR-1, PR-2, OP-33

Evolutions/operations witnessed:

- Procedure simulation Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces"
- Procedure simulation Y50-24-81-005, "Operation of Lectromelt Arc Melt Furnace B-3001"
- Procedure simulation Y50-24-33-001, "Gold Recovery Using Potassium Cyanide"

Spaces visited:

- Building 9119 Document Center
- Building 9998 Casting
- Building 9201-5 Arc Melting
- Building 9101-5N Gold Recovery
- Building 9215A Office Area

Discussion:

Y-12 Plant procedure Y10-102, "Technical Procedure Process Control," is the basis for development, control, and revision of the DUO low-hazard process procedures. The latest revision of Y10-102 became effective September 1, 1995. Development and writing of the procedure includes line management, process engineering and craft personnel. None of the DUO line management or process engineers have been trained on Y10-102. The acting division procedures manager and the division procedures coordinator are the only two DUO personnel who have been trained on Y10-102.

The current status of the eight low-hazard process procedures identified in the POA is one of continual change and improvement. Only one of the latest revisions of the eight low-hazard process procedures were in the procedure master files. The procedure for the operation of the Retech Vacuum Arc Remelt Furnace has not been developed as identified in the DUO Management Self Assessment finding PRE-03.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/21/95

The personnel involved with the development and use of the procedures were personally committed to achieving compliance and excellence.

Operators, line supervisors, process engineers, and other support personnel were interviewed to assess their knowledge of procedures and procedure control. Typical questions included:

- What process do you use to assure your procedures are technically accurate?
- What is the process for control and issuance of procedure revisions by the field?
- What do you see as hazards of your work assignment relating to safety, health, and the environment?
- How are the hazards identified in your procedures?

Interviews with the line personnel produced answers that demonstrated they knew the hazards of their work assignments. The verification and validation process was understood but not stated as a formal process in all cases. The responsibility for the process of incorporating safety and health requirements, revisions, and the mechanics of control and issuance were deferred to line supervision and predominantly the process engineer.

Simulated operations for three low-hazard process procedures were observed. For each simulation, two provisionally qualified operators were assigned to perform the operations. The procedures were operation of casting furnaces, arc melt operation, and gold recovery process.

In general, the health and safety requirements specified in the low-hazard process procedures are developed from environmental, health, and safety risks. These risks are identified in the hazard screening document and other references including, for example, air sampling data and Material Safety Data Sheets for the establishment of respirator protection. However, in the low-hazard gold recovery process procedure, the development of the respiratory requirements could not be linked back to the referenced procedure Y70-24-002, "Respiratory Protection Program." Procedure Y70-24-002, revision 9/1/94, states that the gold recovery area in Building 9201-5N requires no respiratory protection.

The casting procedure simulation produced some operator errors. The operators said the errors occurred due to the confusing way the procedure was written. Additionally, the Casting Unit Manager said one operator had not been able to provisionally qualify on the procedure due to the way it was written. During the simulation of gold recovery, the operators identified some deficiencies and omissions in the procedure.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/21/95

In general, appropriate health and safety requirements are incorporated into low-hazard process procedures. Many operation-specific health and safety requirements are provided in the Reference and Required Information sections of the procedures. In addition, DUO and plant standard health and safety requirements are referenced.

During the performed simulations, each of the operators demonstrated a good understanding of procedure use, control, and operation of their equipment. The operators are aware of the process for control and revision of procedures and rely on the supervisor and the process engineer to get revisions incorporated.

The procedure control mechanism, including obtaining controlled copies from the supervisor, was not observed. Casting and Arc Melt Unit Managers, at the beginning of two of the simulations, said they would prefer to simulate the operation using the latest approved procedure revisions, even though the revised versions were not yet incorporated into the procedure master files. The operators performed the operations using procedures stamped "Uncontrolled Copy" they had obtained from the procedure writer. While in the field for the arc melt simulation, one operator identified that the procedure he had was not the latest revision. There were two different versions of the same procedure in the field.

DUO procedure revisions are controlled by Y-12 Plant Procedure Y10-102, "Technical Procedure Process Control." In review of this procedure and discussion with DUO personnel, the following inadequacies were identified:

- The procedure requires the initiator to perform specific tasks, such as completing the form "Procedure Modification Request Worksheet." However, the procedure does not define initiator responsibilities or provide guidance as to who can initiate a procedure revision.

- Instructions for the Procedure Review/Concurrence Sheet stated that resolution acceptance is not required for General comments. The instructions require that comments be indicated as either General or Mandatory, but provide no guidance for categorizing. Additionally, Section B of WHAT TO DO does not distinguish between General and Mandatory and states that, if necessary, escalate comments for resolution to higher levels of management if necessary.

- Form "Procedure Review/Concurrence Sheet" provides a note "(Comments not signed by the reviewer will be considered unofficial and not subject to resolution.)" No guidance is provided to the reviewer in the instructions for where or when to sign the form. When the DUO procedure coordinator was asked to explain this note on the form, he said he did not know what it meant. He also could not identify where the reviewer should sign the form to assure his comments were considered.

- The WHAT TO DO Section C, Procedure Intent and Immediate Modifications, specifies that the verification and validation (V&V) actions for immediate modifications of procedures only requires

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/21/95

V&V of the revised action steps. No guidance is provided to personnel involved to assure that no other action steps require revision as a result of the initially proposed changes, and thus maintain technical accuracy.

- The WHAT TO DO section provides three basic options for conducting a procedure modification, New and Revised Procedure Modification, Procedure Intent and Immediate Modifications, and Procedure Non-intent Modifications. However, the Procedure Modification Request Worksheet requires the modification to be categorized into one of the five areas: a revision, intent change, immediate change, non-intent change, or a new procedure.

- The procedure verification action to determine if the procedure is functional occurs after the parallel review of support organizations. The review of unverified procedures introduces the possibility that additional parallel review will be required.

Conclusion:

When finding DUO-RA-PR1-05 is closed, a viable process will exist to ensure control and issuance of procedure revisions by the field, thus providing adequate and correct procedures for operating and utility systems.

Inspected by: R. N. Cothron M. S. Taylor	Approved by: J P Flynn RA Team Manager Date: 9/21/95

Form 1

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-2 (CO-16)	Date: 9/21/95

Method of Appraisal (short narrative description):

Objective

PR-2 (CO-16) Training has been performed to the latest revision of procedures. (Cr-18)

Criteria

Applicable personnel designated to perform specific low-hazard process tasks are identified.

Management controls exist to ensure applicable personnel have been trained on the latest revision of the low-hazard process procedures prior to execution of the operating procedures.

Approach

Record Review:

Verify that management records identify personnel designated to perform specific low-hazard process tasks. Review management controls that ensure applicable personnel have been trained on the latest revision of the procedure prior to execution of the operating procedure.

Interviews:

Interview line supervision and operators to assess their understanding and compliance with required documentation and training on the latest revisions of the operating procedures.

Shift Performance:

During observation of operations or simulated operations involving procedures with revisions verify management controls exist to ensure applicable personnel are trained and documented on the latest revision of the procedure.

Personnel contacted/position:

W. K. McElmurray, Plating Unit Manager
D. L. Daniels, Casting Unit Manager

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-2 (CO-16)	Date: 9/21/95

T. C. Tindell, Arc Melting/Pressing Unit Manager
W. L. Willis, Casting Line Supervisor
S. R. Ellis, Casting Chemical Operator
E. Goins, Casting Chemical Operator
H. J. Foster, DU Plating Line Supervisor
C. M. Terry, Electroplater
J. F. Dye, Electroplater
A. E. Aldridge, Electroplater
G. L. Ward, Casting Process Engineer
M. L. Eskridge, Arc Melt Line Supervisor
R. L. Stooksbury, Arc Melt Chemical Operator
R. L. Lanphear, Training System Analyst
D. Wimbley, DUO Document Control Manager

Records & other documents reviewed:

- Procedures:
  Y50-24-18-143, "Operation of 3N, 3N, 5N, and 6N Casting Furnaces," dated 8/24/95
  Y50-24-81-005, "Operation of Lectromelt Arc Melt Furnace B-3001," dated 9/26/95
  Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," dated 8/21/95
- DUO Resumption Activity Evidence packages:
  AM 04.01A AM 04.01B CA 04.01C
  CA 04.01A CA 04.01B CA 04.02
  PL 04.01A PL 04.01B CO 04.02
- Y10-102, "Technical Procedure Process Control," dated 7/21/95
- Y10-103, "Operating Procedure Development, Revision, and Control," dated 6/25/91
- Internal Correspondence: Change Directive 10-102-5 dated 5/10/95 from R. K. Roosa
- TMS Requirement/Qualification Status 9/11/95
- Performance Document Checksheet files for operators Aldridge, Terry, Ellis, Goins, Stooksbury, Stout, and Scruggs
- Y/AD-630, "Readiness Assessment for RSS"

Evolutions/operations witnessed:

- Procedure simulation Y50-24-18-143, "Operation of 3N, 4N, 5N, and 6N Casting Furnaces"
- Procedure simulation Y50-24-81-005, "Operation of Lectromelt Arc Melt Furnace B-3001"
- Procedure simulation Y50-24-33-001, "Gold Recovery Using Potassium Cyanide"

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-2 (CO-16)	Date: 9/21/95

Spaces visited:

- Building 9119 Document Center
- Building 9998 Casting
- Building 9201-5 Arc Melting
- Building 9101-5N Gold Recovery
- Building 9215A Office Area

Discussion:

The DUO training manager, operators, and line supervisors were interviewed to assess their understanding of training to the latest revision of low-hazard process procedures. Typical questions asked of the operators included the following:

- What specific tasks and procedures are you designated to perform?

- How do you know you have been trained on the latest revision of the procedures?

The operators said they depend on the supervisor to assign work activities. In general, the operators said they rely on the supervisor to determine if additional or revised training is necessary.

Typical questions asked of the line supervisors and support personnel included the following:

- Who in your work group is assigned to perform specific low-hazard process tasks?

- What records do you maintain to identify who is designated to perform specific tasks?

- How do you ensure the people that report to you are trained on the latest version of their job-specific procedure?

The line supervisors said they use the weekly TMS status report provided to them by the unit manager to determine who is qualified to perform specific tasks. This weekly status report is sent to the unit managers via electronic mail and is either forwarded to the line supervisors via electronic mail or a hard copy is provided to them. One unit manager had established a notebook in his office for ready access to this information.

Simulated operations for three low-hazard process procedures were observed. For each simulation, two provisionally qualified operators were assigned to perform the operations. The procedures were operation of casting furnaces, arc melt operation, and the gold recovery process.

FIELD NOTES

RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-2 (CO-16)	Date: 9/21/95

In response to the first criteria, the TMS weekly status report is the mechanism provided to line supervision to determine if craft personnel are trained and qualified to the latest procedure revision. The line supervision utilize this mechanism. The TMS weekly status report provides the required training for low-hazard process tasks by listing the training module and its title, which usually includes the procedure number. The status (complete, deficient, expired, or exception) is provided for each personnel. The TMS status report also provides an alternate training module number, if applicable, and the date at which the personnel need to be requalified.

The TMS status report has some drawbacks in that it does not provide the revision date of the procedure, which is how revisions are tracked. This deficiency was pointed out to the appropriate support personnel, and they are working on a solution. The most recent proposed solution includes creating a new training module number for each new procedure revision, whether or not retraining and requalification is required. The alternate status mentioned above will be used to link the old training module to the new module number if retraining is not required. The solution will provide the line supervisors with the necessary information; however, it creates potential record keeping problems by making new module numbers when retraining is not required.

In review of the management controls that ensure applicable personnel have been trained on the latest procedure revision, it was identified that no formal process or requirements have been established for identifying if requalification is necessary when a procedure is revised. Unit managers said they had no formal guidance or requirement to review a revised procedure or how to review a revised procedure to determine if requalification was necessary. The unit managers did say they were reviewing revised procedures to determine if requalification was necessary. The unit managers that were interviewed on this matter said they compared the current PDC with the new procedure revision to determine if a new PDC was required; however, one unit manager was utilizing craft personnel to perform this comparison and another unit manager said he would perform the comparison himself.

Conclusion:

When Finding DUO-RA-PR2-02 is closed, management control will be adequate to ensure personnel have been trained on the latest revision of procedures.

Inspected by: R. N. Cothron M. S. Taylor	Approved by: J P Flynn RA Team Manager Date: 9/21/95

Form 1

APPENDIX C

Deficiency Forms
(Form 2)

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RA DEFICIENCY FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/13/95 ID #: DUO-RA-MG1-01

Requirement:

Functions, assignments, responsibilities, and reporting relationships are adequately defined, understood, and effectively implemented.

Reference(s) (specific as to section):

CO-24

Issue: Finding_____ Observation: ____X____

The individuals who control access to Y-12 facilities have numerous titles.

Discussion:

The Nuclear Operations Conduct of Operations Manual Chapter I, Paragraph IV.B.1.g specifies that the Operations Manager controls access to the operations area. However, various facilities at Y-12 use different names to designate the person who controls access to an area. Titles used at different facilities include the following: Shift Supervisor, Facility Operator, Facility Manager, and Operations Manager.

Finding Designation: Prestart_____ Post-Start_____	Inspector:
Group Leader: Date: 9/15/95	Approved by: RA Team Manager Date: 9/15/95

Form 2

RA DEFICIENCY FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/14/95 ID #: DUO-RA-MG1-02

Requirement:

Functions, assignments, responsibilities, and reporting relationships are adequately defined, understood, and effectively implemented.

Reference(s) (specific as to section):

CO-24

Issue: Finding_____ Observation: ____X____

Maintenance activities are being performed without prior approval of designated operations personnel.

Discussion:

Support personnel belonging to Y-12 and EM&EF are entering facilities without their work being placed on the Plan of Day or obtaining verbal approval of responsible operations managers. Problems have occurred in the Interim Mercury Treatment Unit in Building 9201-2 and the Uranium Chip Oxidizer Facility. In one case, maintenance was performed on pumps. In another instance, a stack radiation monitoring panel was taken out of service.

Finding Designation: Prestart_____ Post-Start_____	Inspector: [signature]
Group Leader: [signature] Date: 9/19/95	Approved by: [signature] RA Team Manager Date: 9/20/95

Form 2

RA DEFICIENCY FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/13/95 ID #: DUO-RA-MG5-01

Requirement:

A program is established to promote a site-wide safety culture.

Reference(s) (specific as to section):

CO-29

Issue: Finding_____ Observation: ___X___

Radiological boundary control station design does not ensure the spread of contamination is controlled.

Discussion:

A radiological boundary control station in Building 9201-5N plating area transitions from a high contamination area to a buffer area without a means of monitoring personnel or hand-carried items. A person must doff anti-contamination clothing and walk through a buffer area prior to monitoring himself or the equipment carried. A similar situation exists in Buildings 9998 and 9201-5. The potential exists for transferring contamination to the buffer area where others are donning contamination control clothing. Personal clothing and shoes are allowed in the buffer area.

Finding Designation: Prestart_____ Post-Start_____	Inspector: Randy Cothron
Group Leader: [signature] Date: 9/18/95	Approved by: [signature] RA Team Manager Date: 9/18/95

Form 2

RA DEFICIENCY FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/12/95 ID #: DUO-RA-OP2-01

Requirement:

DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities," Chapter II, Shift Routines and Operating Practices

Reference(s) (specific as to section):

CO-19

Issue: Finding_____ Observation: ____X____

Operators and supervisors do not always identify and correct problems.

Discussion:

Operator rounds were observed for the arc melt operation. The following problems were noted:

1. Air flow meter H16GA33 was observed to be outside the flow limits indicated on the face of the gauge. The gauge was not on the check sheet; however, when asked, the operator stated that he would notify his supervisor. He did not.

2. The operator correctly entered "0.03" as the Delta Phase II differential pressure. The stated limits on the check sheet were 0.1 to 1.0. The operator did not circle the reading as out of specification. The supervisor reviewed the check sheet and also did not indicate the reading as out of specification. The value was also 0.03 the previous day and not identified as out of specification.

3. An operator noted on the daily safety and housekeeping check list that the area of smoking/eating/drinking/chewing in "RAD" areas "needs attention." When asked, the supervisor reviewed the Safety and Housekeeping Walkthrough book but did not take any action on the area identified as needing attention.

Finding Designation: Prestart_____ Post-Start_____	Inspector: J E Lee
Group Leader: J E Lee Date: 9/19/95	Approved by: [signature] RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/14/95 ID #: DUO-RA-OP2-02

Requirement:

DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities," Chapter II Shift Routines and Operating Practices

Reference(s) (specific as to section):

CO-19

Issue: Finding_____ Observation: ____X____

Round sheets are not always completed properly.

Discussion:

While accompanying two operators on daily rounds in the 9201-5N plating area, the following problems were noted:

1. The round sheet required the sump level to be recorded in inches with a high level limit "4 inches below grating." The operator entered "SAT." There is no installed method for measuring level. The water level was well within specification.

2. The round sheet required the value indicated on the cyanide monitor to be recorded. There was one blank on the sheet, and the monitor had two readouts. When asked, the operator said he would record the highest value of the two. A second operator said that both indicators have always read zero. The unit supervisor agreed that clarification on the round sheet is appropriate.

Completed 9215 Rolling and Forming Area Weekly Roundsheets were reviewed for accuracy and completeness. The following was observed:

Line 19 "Oxygen monitor for basement" required an entry with units of "%." The actual entry was "SAT." When questioned, the supervisor stated that the monitor was out of service and compensatory measures were in place to ensure an adequate oxygen level prior to entering the basement.

RA DEFICIENCY FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/14/95 ID #: DUO-RA-OP2-02

Operator rounds for the Uranium Chip Oxidizer Facility were observed. The following problem was noted:

The operator was required to verify that a water supply valve was in the closed position. He correctly verified that the valve was closed. A gauge immediately upstream of the valve was indicating an over-ranged high condition, and a gauge downstream of the valve should have read near zero, but read approximately 60 psig. When asked, the operator explained the gauge was reading 60 psig because the valve he closed was leaking; however, neither anomaly was identified by the operator during his rounds. Neither gauge is specifically listed on the roundsheet, but both the leaking valve and the upstream gauge should have been identified and corrective action taken.

Finding Designation: Prestart_____ Post-Start_____	Inspector: J E Lee
Group Leader: J E Lee Date: 9/19/95	Approved by: J P Flynn RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Systems Verification (SV)	CRA Number/Title: SV-1 (CO-28)	Date: 9/13/95 ID #: DUO-RA-SV1-01

Requirement:

A restart test program has been developed that will ensure low hazard process and support equipment are identified and capable of safely performing their intended functions when the restart testing is complete.

Reference(s) (specific as to section):

CO-7

Issue: Finding X Observation: _____

The restart test programs for all three low-hazard facilities do not identify all necessary support equipment associated with and integral to the low-hazard processes.

Discussion:

The DU casting restart test program for furnaces 3N, 4N, 5N, and 6N does not include all support equipment required to operate the furnaces. The process engineer stated that power supplies, house vacuum system, furnace vacuum pumps, furnace ram hydraulic systems, and the elevator were necessary support equipment to operate the DU casting furnaces. None of the support equipment is identified in the scope of the restart test program for furnaces 3N, 4N, 5N, and 6N. In addition, the restart test program scope includes system components such as cooling water flow switches and temperature gauges, but it does not include the systems themselves, e.g. cooling water system.

The restart test program for the 10" Lectromelt VAR Furnace B-3001 does not include all support equipment required to operate the arc melter. The process engineer stated that the crucible rebuild facility, crucible cleaning facility, new crucible argon drying system, acid transfer system, and power supply were necessary to operate the arc melter. None of these systems are in the restart test program scope. In addition, the arc melter restart test program includes system components such as cooling water flow switches, but it does not include the systems themselves, e.g. cooling water system.

RA DEFICIENCY FORM

Functional Area: Systems Verification (SV)	CRA Number/Title: SV-1 (CO-28)	Date: 9/13/95 ID #: DUO-RA-SV1-01

The gold recovery restart test program does not include all support equipment required to operate. The following items are not included in the program: DC power supplies, heater and controls, circulating pump and filter, and the process scale as applicable to Y50-24-33-001, "Gold Recovery Using Potassium Cyanide." In discussion with the process engineer, these items were identified as necessary to perform gold recovery operations in the F-5700-9 solution tank.

Finding Designation: Prestart____ Post-Start X	Inspector: Randy Cochran
Group Leader: Randy Cochran Date: 9/19/95	Approved by: J P Flynn RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Training (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/11/95 ID #: DUO-RA-TR1-01

Requirement:

Training and qualification of personnel is at a level sufficient to support resumption.

Reference(s) (specific as to section):

CO-13

Issue: Finding_____ Observation: ___X___

Training records for some personnel are not complete.

Discussion:

Thirty-two Performance Documentation Checksheets (PDC) for Depleted Uranium Operations low hazards processes were not filed in the training records of facility operators, even though they had been completed two months earlier. Division training personnel stated that copies of completed PDC cover sheets had been forwarded to Y-12 Training Records. However, upon inspection of the training records, the entries were missing.

The Performance Documentation Checksheet (PDC) for chemical operator Elmo Goins was missing page 1. Page 1 is where the individual to be evaluated indicates that he is ready to be evaluated on the procedure. The PDC was for Module #14529, "Provisional Qualification of 3N, 4N, 5N, and 6N Casting Furnaces."

Finding Designation: Prestart_____ Post-Start_____	Inspector:
Group Leader: George A. Gregory Date:	Approved by: J P Flynn RA Team Manager Date: 9/12/95

Form 2

RA DEFICIENCY FORM

Functional Area: Training and Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/11/95 ID #: DUO-RA-TR1-02

Requirement:

Training and qualification of personnel is at a level sufficient to support resumption.

Reference(s) (specific as to section):

CO-13

Issue: Finding_____ Observation: ____X____

The Training Management System (TMS) does not adequately document training requirements or the status of completed training.

Discussion:

The TMS contains a module that lists training requirements for each individual. TMS printouts for operators and supervisors in the H-1 Foundry include a requirement for provisional qualification on two procedures that have been downgraded to Class III procedures and do not include a requirement for provisional qualification on the four Class II procedures for the floor supervisor. Both items are contrary to requirements as stated by the unit supervisor. Two operators had completed provisional qualification on three procedures in early August 1995; however, TMS printouts dated September 10, 1995, did not reflect this completion. The DUO organization has recognized a requirement for PDC evaluators to complete Module 4069, "Conduct of On-The-Job Training and Evaluation." This requirement is not listed in TMS.

Finding Designation: Prestart_____ Post-Start_____	Inspector: _____
Group Leader: George A. Gregory Date:	Approved by: _____ RA Team Manager Date: 9/18/95

Form 2

RA DEFICIENCY FORM

Functional Area: Training and Qualificiation (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/11/95 ID #: DUO-RA-TR1-03

Requirement:

Training and qualification of personnel is at a level sufficient to support resumption.

Reference(s) (specific as to section):

CO-13

Issue: Finding_____ Observation: ___X___

The training status in the TMS is not consistent with the file copies of training records.

Discussion:

The Performance Documentation Checksheets for two chemical operators (J. Davis and G. Russell) show they were provisionally qualified on Y50-24-18-146, "Operation of 13S, 14S, and 15S Casting Furnaces," on August 2, 1995. The TMS status, as of September 11, 1995, shows they are deficient. The supervisor said he uses the TMS system to ensure operator qualifications.

Finding Designation: Prestart_____ Post-Start_____	Inspector: Randy Cothron
Group Leader: Randy Cothron Date: 9/13/95	Approved by: J P Flynn RA Team Manager Date: 9/13/95

Form 2

RA DEFICIENCY FORM

Functional Area: Training (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/14/95 ID #: DUO-RA-TR1-04

Requirement:

Training and qualification of personnel is at a level sufficient to support resumption.

Reference(s) (specific as to section):

CO-13

Issue: Finding_____ Observation: ___X___

Performance Documentation Checksheet (PDC) evaluations are not conducted in a manner to adequately evaluate operator facility-specific knowledge.

Discussion:

PDC evaluations were conducted for DUO personnel on six of the eight low hazard process procedures between July 8, 1995, and August 3, 1995. PDCs are used in conjunction with the procedures that are used for reference or verification of proper performance by the OJT instructor and may be used by the participant to reference during performance evaluation. Procedural steps in the PDC marked "P/S" must either be performed or simulated in order for the trainee/incumbent to successfully pass the PDC.

A simulated Performance Documentation Checksheet (PDC) evaluation for operation of the 3N, 4N, 5N, and 6N casting furnaces was observed. An operator from the 9998 casting area performed the required procedure simulation. Although the operator demonstrated a good understanding of the procedure and equipment, the PDC was not conducted in accordance with the requirements of Provisional Qualification Instructions. The instructions state that the operator will simulate actual performance of each task at the equipment by pointing out proper switches, gauges, buttons, etc. and explaining what they are used for and what they would do in actual operation. Contrary to the instructions, many of the tasks were discussed and not simulated. While on top of the furnace at the second floor level, the operator discussed tasks to be performed on ground-floor equipment without leaving the second-floor area. The supervisor gave the operator a satisfactory rating on these task simulations.

Finding Designation: Prestart_____ Post-Start_____	Inspector: George A. Gregory
Group Leader: George A. Gregory Date: 9/19/95	Approved by: J P Flynn RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Training and Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/11/95 ID #: DUO-RA-TR1-05

Requirement:

Training and qualification of personnel is at a level sufficient to support resumption.

Reference(s) (specific as to section):

CO-13

Issue: Finding_____ Observation: ____X____

Revisions to training and qualification requirements are not being properly reviewed and approved.

Discussion:

A list of training requirements for each Depleted Uranium Operations (DUO) category of operator and supervisor was developed and approved by the organization manager to document the level of training and qualification sufficient to support DUO resumption. These requirements are contained in TMS. The original list was developed based on tabletop job task analysis (JTA) performed by a combination of line managers and training analysts. Since the original list was developed, multiple revisions of TMS have been made based on informal communication between organization line managers and the DUO training system analyst, rather than on any documented JTA.

Finding Designation: Prestart_____ Post-Start_____	Inspector:
Group Leader: George A. Gregory Date:	Approved by: RA Team Manager Date: 9/18/95

Form 2

RA DEFICIENCY FORM

Functional Area: Training and Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/15/95 ID #: DUO-RA-TR1-06

Requirement:

Training and qualification of personnel is at a level sufficient to support resumption.

Reference(s) (specific as to section):

CO-13

Issue: Finding X Observation: _____

Training requirements are not always adequately identified, and training is not always properly conducted or documented.

Discussion:

Problems were identified in the following training areas:

1. The list of required training is not complete. (See DUO-RA-TR1-02.)
2. Revisions to the list of required training are not formally reviewed and approved. (See DUO-RA-TR1-05)
3. Performance Documentation Checksheet evaluations are not being properly conducted. (See DUO-RA-TR1-04.)
4. Training records are not complete. (See DUO-RA-TR1-01, -02, -03.)

Finding Designation: Prestart _____ Post-Start X	Inspector: George a. Gregory
Group Leader: George a. Gregory Date: 9/19/95	Approved by: J P Lyon RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/12/95 ID #: DUO-RA-PR1-01

Requirement:

A viable process exists for the control and issuance of procedure revisions by the field.

Reference(s) (specific as to section):

CO-7

Issue: Finding_____ Observation: X

The controlled procedure file does not ensure the latest procedure revisions are made available to the operator.

Discussion:

Two operators performed a procedure simulation on September 11, 1995. They retrieved the latest approved revision of Y50-24-18-143, "Operation of 3N, 4N, 5N and 6N Casting Furnaces," dated August 24, 1995, from the procedure writer. The controlled procedure file contained the previous procedure revision dated May 30, 1995.

Finding Designation: Prestart_____ Post-Start_____	Inspector: Randy Cothron
Group Leader: Randy Cothron Date: 9/13/95	Approved by: Jeff Lynn RA Team Manager Date: 9/13/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/12/95 ID #: DUO-RA-PR1-02

Requirement:

Procedures are technically accurate and incorporate appropriate safety and health requirements.

Reference(s) (specific as to section):

CO-07

Issue: Finding_____ Observation: ____X____

Procedure Y50-24-18-143 is written in a manner that has caused problems for some operators.

Discussion:

Procedure Y50-24-18-143, "Operation of 3N, 4N, 5N and 6N Casting Furnaces," is written to operate all four furnaces and the two associated power and vacuum systems. As such, it has specific steps that are to be performed when operating only a specific furnace. During a simulation for RA team members, this resulted in the operator actuating a valve that was not to be actuated for operation of the furnace being "operated." Additionally, the casting unit manager said that one individual has not been able to qualify on the procedure because of the way it is written.

Experience in other industry has demonstrated that procedures written in this manner resulted in errors, necessitating the creation of separate procedures for each piece of equipment.

Finding Designation: Prestart_____ Post-Start_____	Inspector: [signature]
Group Leader: Randy Cochran Date: 9/13/95	Approved by: [signature] RA Team Manager Date: 9/13/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/13/95 ID #: DUO-RA-PR1-03

Requirement:

Low hazard process procedures are technically accurate and incorporate appropriate safety and health requirements.

Reference(s) (specific as to section):

CO-7

Issue: Finding_____ Observation: X

Procedure Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," contains a step that cannot be performed as written.

Discussion:

A walkdown of the gold recovery procedure was observed being performed by a qualified operator. Section VII B.k.4 required the operator to don goggles after he had donned a respirator. Goggles cannot be worn in conjunction with a respirator.

Finding Designation: Prestart_____ Post-Start_____	Inspector: Randy Cochran
Group Leader: Randy Cochran Date: 9/14/95	Approved by: RA Team Manager Date: 9/14/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/13/95 ID #: DUO-RA-PR1-04

Requirement:

A viable process exists for the control and issuance of procedure revisions by the field.

Reference(s) (specific as to section):

CO-7

Issue: Finding_____ Observation: ____X____

An improper procedure revision was made.

Discussion:

While in the field before the simulated operation of procedure Y50-24-81-005, "Operation of the Lectromelt Arc Melt Furnace B-3001," the performing operator said the procedure he had was not the latest version. The procedure was dated 9/6/95. The operator said that action steps F.12.a and b in the procedure he had were in the opposite order of those in the latest revision. In discussion with the line manager about this issue, he said that after all the approval signatures were obtained on this revision, the action steps were reversed. The manager also said no Procedure Change Directive was completed for the procedure change. A copy of the procedure obtained the next day had action steps in the order described by the supervisor, rather than in the order in the procedure used during the simulation. Simply stated, there are two different versions of the same revision of the procedure.

Finding Designation: Prestart_____ Post-Start_____	Inspector: [signature]
Group Leader: [signature] Date: 9/18/95	Approved by: [signature] RA Team Manager Date: 9/10/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/15/95 ID #: DUO-RA-PR1-05

Requirement:

A viable process exists for the control and issuance of procedure revisions by the field.

Reference(s) (specific as to section):

CO-07

Issue: Finding X Observation: _____

Adequate training on Y-12 Plant Procedure Y10-102, "Technical Procedure Process Control," Revision 7/21/95, has not been provided.

Discussion:

Plant procedure Y10-102 became effective September 1, 1995. Procedure Y10-102 identifies and requires specific actions from the initiator, procedure writer, responsible manager, validator (validation team), and parallel reviewers. In discussion with the procedure coordinator on September 15, 1995, only two personnel had attended the training (Module 14725) on this procedure, he and the DUO document control manager. Module 14726 is available for responsible managers.

Further discussions with the procedure coordinator revealed that Module 14726 is not a required module. The procedure coordinator said he was tasked with bringing the responsible managers up to date on the revised Y10-102 procedures.

When asked what was meant by the note "Comments not signed by the reviewer will be considered unofficial and not subject to resolution" on the Procedure Review/Concurrence Sheet in Appendix F of Y10-102, the coordinator said he did not know. When asked where the reviewer should sign this form, he again said he did not know.

Finding Designation: Prestart _____ Post-Start X	Inspector: [signature]
Group Leader: Randy Cothron Date: 9/19/95	Approved by: [signature] RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/18/95 ID #: DUO-RA-PR1-06

Requirement:

Low hazard process procedures are technically accurate and incorporate appropriate safety and health requirements.

Reference(s) (specific as to section):

CO-7

Issue: Finding_____ Observation: ____X____

Procedure Y50-24-33-001, "Gold Recovery Using Potassium Cyanide," does not incorporate respiratory protection guidelines.

Discussion:

Procedure Y50-24-33-001, section VII.B.k.3, required the operator to don a respirator for transferring cyanide. Section VI.A.1.e refers the user to procedure Y70-24-002, "Respiratory Protection Program," for requirements. Procedure Y70-24-002 identifies the gold recovery area as "no respirators required." As a result, no respirator type or cartridge requirements are provided to the operator in procedure Y50-24-33-001.

Finding Designation: Prestart_____ Post-Start_____	Inspector: Randy Cathcart
Group Leader: Randy Cathcart Date: 9/19/95	Approved by: _____ RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/18/95 ID #: DUO-RA-PR1-07

Requirement:

A viable process exists for control and issuance of procedure revisions by the field.

Reference(s) (specific as to section):

CO-7

Issue: Finding_____ Observation: _____X_____

The arc melting area procedure library does not follow procedure control guidelines.

Discussion:

Master copies of operating procedures in the procedure library in the arc melting area are stamped "controlled copy." This is in conflict with DUO procedure control guidelines stated in internal correspondence "Procedure Control Guidelines for Depleted Uranium Operations," dated 6/26/95. This guidance states in the definition section that "master copies" shall not be stamped so that they may be copied and marked in a specific manner." When discussed with the procedure library file officer, a note in the front of the notebook was provided stating "The master copies of procedures maintained in this manual were inadvertently stamped as "controlled" copies. When copies are requested, corrections are made at that time to reflect proper uncontrolled or controlled status." The unit manager said he was not aware of this violation and responded by stating new master copies would be ordered from central files.

Finding Designation: Prestart_____ Post-Start_____	Inspector: [signature]
Group Leader: Randy Cotherman Date: 9/19/95	Approved by: [signature] RA Team Manager Date: 9/19/95

Form 2

RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-2 (CO-16)	Date: 9/12/95 ID #: DUO-RA-PR2-02

Requirement:

Management controls exist to ensure personnel have been trained to the latest revision of procedures that govern low hazard operations.

Reference(s) (specific as to section):

CO-16

Issue: Finding X Observation: _____

Management controls do not exist to ensure that retraining is conducted on a revised procedure, when necessary.

Discussion:

Two line managers said there was no formal requirement or process for reviewing revised procedures to determine if retraining was applicable. One line manager said he had used the operators to compare the revised procedure to the Performance Documentation Checksheet (PDC) to determine if retraining was necessary. The other manager said he would do the procedure/PDC comparison himself.

Finding Designation: Prestart_____ Post-Start X	Inspector: [signature]
Group Leader: Randy Cochran Date: 9/19/95	Approved by: [signature] RA Team Manager Date: 9/19/95

Form 2

APPENDIX D

Readiness to Proceed Memo

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MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

Date: August 30, 1995

To: J. P. Flynn, Jr.

cc: D. P. Bryant, F. P. Gustavson, J. E. Heiskell, Jr., M. K. Morrow, T. R. Shope, J. E. Stone, P. R. Wasilko, A. K. Zava

From: R. K. Roosa, 9113, MS-8208, 4-3793 (RC)

Subject: **Readiness to Proceed - Lockheed Martin Energy Systems, Inc. (LMES), Readiness Assessment of Depleted Uranium Operations (DUO) and Support Functions**

In accordance with Prerequisite 18 of Document Y/NA-1800C, "Lockheed Martin Energy Systems, Inc., Readiness Assessment Plan of Action for the Resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant," this letter provides certification that the facilities and processes within the scope of the DUO and Support Functions readiness assessment have been verified to have achieved a satisfactory level of operational performance to resume operations.

The DUO and Support Functions Management Self-Assessment (MSA) was completed on August 14, 1995. The MSA identified 130 issues of which 37 were findings, 42 were observations, and 51 were evidence file deficiencies. Corrective action has been taken, documented, and verified to be adequate to close 20 of the 21 prestart findings, 39 of the 42 prestart observations, and the 51 evidence file deficiencies. The remaining one prestart finding and three prestart observations will be closed out on September 5, 1995. Corrective action plans have been written and approved for poststart issues. A summary of the MSA results is provided in the attachment.

Based on my review and as a result of the closure status of the MSA issues, I conclude that we are ready to proceed with the LMES readiness assessment of DUO and Support Functions on September 5, 1995.

If you have further questions, please contact D. P. Bryant at 6-3748.

RKR:bsw

Attachment: As Stated

Concur: _____ 9/2/95

F. P. Gustavson Date
Vice President
Defense and Manufacturing

Attachment to Memo
Roosa to Flynn
August 30, 1995

DUO_MSA TRACKING SUMMARY

9/1/95 1:18 PM

	TOTAL	DUO	QUALITY	STORAGE	UCOF
EVIDENCE	51	32	5	9	5
OPEN	0	0	0	0	0
RESOLVED	51	32	5	9	5
FINDING	29	15	11	2	1
SCREENED	29	15	11	2	1
PRE	18	11	6	0	1
OPEN	1	0	1	0	0
CLOSED	17	11	5	0	1
POST	11	4	5	2	0
OPEN	10	3	5	2	0
CLOSED	1	1	0	0	0
OBSERVATION	42	27	9	2	4
SCREENED	42	27	9	2	4
PRE	42	27	9	2	4
POST	0	0	0	0	0
OPEN	3	0	3	0	0
CLOSED	39	27	6	2	4
DOE YSORT FINDINGS	8	8			
PRE	3	3			
CC APPROVED	3	3			
CA COMPLETED	3	3			
ESAMS CLOSED	3	3			
POST	5	5			
CA PLANNED	5	5			
CA COMPLETED	3	3			
ESAMS CLOSED	3	3			