

United States Government

Department of Energy

Oak Ridge Operations Office

# memorandum

DATE: October 31, 1995

REPLY TO DP-81:Wall  
ATTN OF:

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



Mr. Thomas P. Seitz

-2-

October 31, 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 ENERGY SYSTEMS, INC.**POST OFFICE BOX 2009  
OAK RIDGE, TENNESSEE 37831

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.





**Attachment 2**

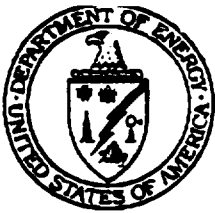
Memo, Spence to Seitz

Dated:

Memo Title:

**DNFSB Recommendation 94-4 October Deliverables**





Y-12 Site Office

## Department of Energy

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

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.



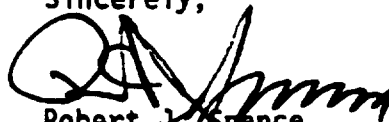
Mr. F. P. Gustavson

-2-

September 29, 1995

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**





United States Government

Department of Energy

Oak Ridge Operations Office

# memorandum

DATE: September 25, 1995  
REPLY TO DP-811:Christenson  
ATTN OF:  
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~~, Assistant Manager for Defense Programs, DP-80, ORO  
*RRN*

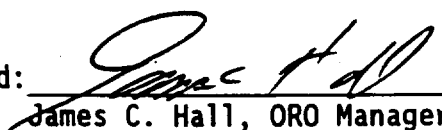
Mr. Joseph P. Flynn has been designated as the team leader of the Lockheed Martin Energy Systems, Inc. (LMES), Independent Readiness Assessment (RA) for the resumption of Depleted Uranium Operations and Support Functions at the Oak Ridge Y-12 Plant. Attached is the LMES letter that transmits the proposed 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, ORO Manager Date: 9-25-95



**Attachment 4**

Memo, Spence to Seitz

Dated:

Memo Title:

**DNFSB Recommendation 94-4 October Deliverables**



**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

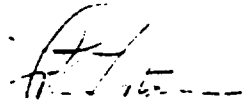
Dear Mr. Spence:

**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**



# 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





**Attachment 6**

Memo, Spence to Seitz

Dated:

Memo Title:

**DNFSB Recommendation 94-4 October Deliverables**



COPY

50651  
DNFSB

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**

**This document has been reviewed by the Y-12  
Classification Office, and has been determined to  
be**

**UNCLASSIFIED**

**This review does not constitute clearance for  
Public Release.**

Date 9/22/95

*R. Bayler Jr.*

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


**CENTRAL DNFSB & Y-12  
AUDIT RESPONSE CENTER**

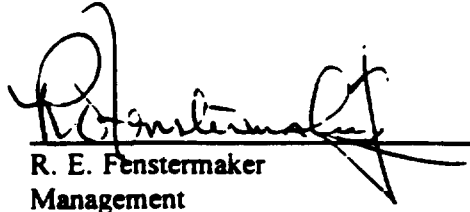
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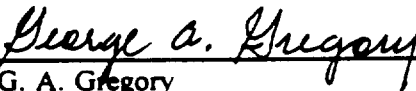
#### DISCLAIMER

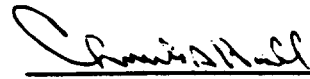
This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

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

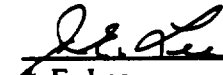
  
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R. N. Cothron  
Systems Verification and Procedures

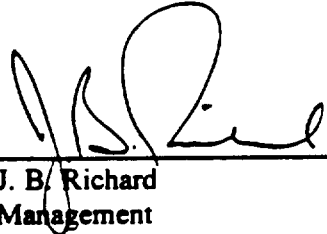
  
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R. E. Fenstermaker  
Management

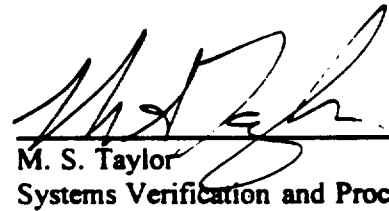
  
\_\_\_\_\_  
G. A. Gregory  
Training and Level of Knowledge

  
\_\_\_\_\_  
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:   
\_\_\_\_\_  
J. P. Flynn, RA Team Manager

DATE: 9/22/95

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## TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY .....	iii
I. INTRODUCTION .....	1
A. General .....	1
B. Y-12 Plant .....	1
C. Depleted Uranium Operations and Support Functions .....	2
D. Readiness Assessment Process .....	2
II. READINESS ASSESSMENT EVALUATION .....	5
A. Management .....	5
B. Operations .....	6
C. Systems Verification .....	8
D. Training and Qualification and Level of Knowledge .....	9
E. Procedures .....	11
III. LESSONS LEARNED .....	15
IV. ACRONYMS .....	17
APPENDICES	
A. Implementation Plan	
B. Assessment Forms (Form 1)	
C. Deficiency Forms (Form 2)	
D. Readiness to Proceed Memo	

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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 (NCSA) 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-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**

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


**September 8, 1995**





**Lockheed Martin Energy Systems, Inc.  
Readiness Assessment  
Implementation Plan  
for the  
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and Support Functions  
at the  
Oak Ridge Y-12 Plant**

APPROVED:

 9/8/95  
\_\_\_\_\_  
J. P. Flynn, RA Team Manager

September 8, 1995



## TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION .....	1
A. General .....	1
B. Y-12 Plant .....	1
C. DU Operations and Support Functions Activity .....	2
II. PURPOSE .....	2
III. SCOPE .....	3
A. Breadth of the Readiness Assessment .....	3
1. Basis for RA Breadth .....	3
2. List of Core Objectives .....	4
B. Basis for Readiness Assessment Depth .....	5
1. Conduct of Operations Discussion .....	6
2. Personnel Qualification and Training Discussion .....	7
IV. READINESS ASSESSMENT PREREQUISITES .....	8
Prerequisites Excluded from the Readiness Assessment Scope .....	11
V. OVERALL APPROACH .....	11
A. Y-12 Line Management Readiness-to-Proceed Certification .....	11
B. Readiness Assessment .....	11
C. Assessment Results Briefings .....	12
VI. RA TEAM PREPARATIONS .....	12
VII. ENERGY SYSTEMS RA PROCESS .....	13
VIII. ADMINISTRATION .....	13
IX. REPORTING AND RESOLUTIONS .....	13
A. Forms .....	13
B. Finding Classification .....	14
C. Lessons Learned .....	14
D. Final Report .....	14
X. SCHEDULE .....	15
APPENDICES .....	15
Appendix 1: Team Member Summaries of Qualification .....	1
Appendix 2: Criteria and Review Approach Documents (CRAD) .....	1
Appendix 3: Finding Classification Criteria .....	1
Appendix 4: RA Assessment and Deficiency Forms .....	1



## **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 I 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

<u>NAME</u>	<u>AREA(s)</u>
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* 4/7/95

## 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)

JPF Lynn 9/17/95

## 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 Flynn* 7/17/95

## 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 Receipt, 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 P Flynn 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) \_\_\_\_\_

*JPF* 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. Flynn 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)**

*JPF Lynn 2/7/95*



## 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<sub>6</sub> 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

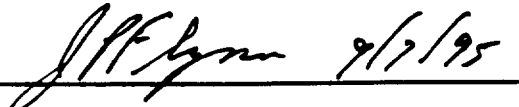
**SUMMARY OF FACILITY FAMILIARIZATION:**

- 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)

 9/7/95



**APPENDIX 2**

**CRITERIA AND REVIEW APPROACH DOCUMENTS (CRAD)**



**Depleted Uranium Operations  
Implementation Plan CRADs**

<u>Contents</u>	<u>Page</u>
<b>LEVEL OF KNOWLEDGE (LK) .....</b>	<b>1</b>
<b>MANAGEMENT (MG) .....</b>	<b>4</b>
<b>OPERATIONS (OP) .....</b>	<b>9</b>
<b>PROCEDURES (PR) .....</b>	<b>12</b>
<b>SYSTEMS VERIFICATION (SV) .....</b>	<b>14</b>
<b>TRAINING AND QUALIFICATION (TR) .....</b>	<b>15</b>



## **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 from 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**

<b>Functional Area:</b>	<b>CRA Number/Title:</b>	<b>Date:</b>
-------------------------	--------------------------	--------------

**Method of Appraisal (short narrative description):**

**Personnel contacted/position:**

**Records & other documents reviewed:**

**Evolutions/operations witnessed:**

**Spaces visited:**

**Discussion:**

**Conclusion:**

<b>Inspected by:</b>	<b>Approved by:</b> _____ <b>RA Team Manager</b>
	<b>Date:</b>

**RA DEFICIENCY FORM**

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

**Requirement:**

**Reference(s) (specific as to section):**

**Issue: Finding** \_\_\_\_\_

**Observation:** \_\_\_\_\_

**Discussion:**

<b>Finding Designation:</b> Prestart _____ Post-Start _____	<b>Inspector:</b> _____
<b>Group Leader:</b> _____ <b>Date:</b>	<b>Approved by:</b> _____ RA Team Manager <b>Date:</b>

**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
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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
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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
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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. Schrimpsner, 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
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### 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)

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95
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- 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
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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 the radiation monitoring systems. They need to comply fully with LO/TO, entry, Plan-of-the-Day entry, 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.

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/21/95
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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: <u>JPT Flynn</u> RA Team Manager Date: 9/21/95
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# FIELD NOTES

## RA ASSESSMENT FORM

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

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-2 (CO-25)	Date: 9/21/95
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- 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
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Review of Closure Documentation Summaries from other reviews of Y-12 Resumption Activities for Depleted Uranium Operations as of September 20, 1995, revealed:

<u>Source</u>	<u>Total</u>	<u>Categorized As Pre-start</u>	<u>Closed</u>	<u>Open</u>
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: <i>JPF</i> Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-3 (CO-27)	Date: 9/21/95
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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
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### 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
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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
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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:  Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Systems Verification (SV)	CRA Number/Title: SV-1 (CO-28)	Date: 9/21/95
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- 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
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### 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
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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
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### General Observations

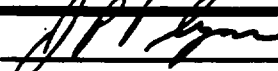
Housekeeping in the facilities visited ranged from outstanding to fair. No unsafe conditions were noted; however, it is important to note that the facilities with outstanding housekeeping were also the best facilities with regard to implementation of the other COO attributes. Several of the facilities have taken advantage of the shutdown 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

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95
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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.

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95
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### 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.

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95
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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 OCT 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.

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95
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### 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.



# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/21/95
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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. Schrimpsheer, 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
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### 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
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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
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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: <i>J.P. Flynn</i> RA Team Manager
	Date: 9/21/95

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-1 (CO-18)	Date: 9/21/95
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- 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
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### 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
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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
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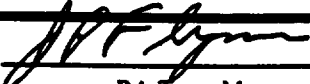
Interviews indicated significant attention is being focused on operating safely. Workers stated they would promptly stop work and report to supervision if questions came up during work activities.

- 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:  Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/21/95
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- 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
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### 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
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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. Schrimpsheer, 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
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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
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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:  Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95
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### 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

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95
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- 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

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95
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### 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. Schrimpsheer, 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



# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-4 (CO-20)	Date: 9/21/95
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### 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
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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.

# FIELD NOTES


## RA ASSESSMENT FORM

Functional Area: Management (MG)	CRA Number/Title: MG-3 (CO-27)	Date: 9/21/95
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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:  Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

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

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95
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### 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"

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95
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- 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

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95
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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 Checklist 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

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95
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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.



# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95
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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.**


# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Training & Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/21/95
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**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:  Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-1 (CO-14)	Date: 9/21/95
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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.

# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-1 (CO-14)	Date: 9/21/95
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### 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
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- 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
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**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:  Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-2 (CO-17)	Date: 9/21/95
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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
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### 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
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### 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
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- 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:  RA Team Manager Date: 9/21/95
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Level of Knowledge (LK)	CRA Number/Title: LK-3 (CO-23)	Date: 9/21/95
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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
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### 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
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- 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
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- 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
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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
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### 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:  Date: 9/21/95 RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/21/95
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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
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### 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
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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
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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
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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
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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: <i>J. P. Flynn</i> Date: <i>9/21/95</i> RA Team Manager
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# FIELD NOTES

## RA ASSESSMENT FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-2 (CO-16)	Date: 9/21/95
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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
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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
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### 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
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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:  Date: 9/21/95 RA Team Manager
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**APPENDIX C**

**Deficiency Forms  
(Form 2)**

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## RA DEFICIENCY FORM

<b>Functional Area:</b> Management (MG)	<b>CRA Number/Title:</b> MG-1 (CO-24)	<b>Date:</b> 9/13/95 <b>ID #:</b> DUO-RA-MG1-01
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**Requirement:**

Functions, assignments, responsibilities, and reporting relationships are adequately defined, understood, and effectively implemented.

**Reference(s) (specific as to section):**

CO-24

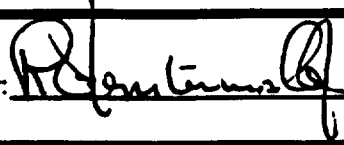
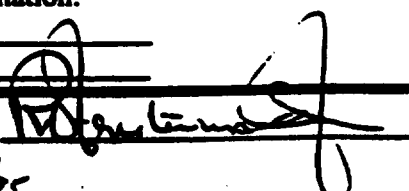

**Issue:** Finding \_\_\_\_\_

**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.

<b>Finding Designation:</b> Prestart _____ Post-Start _____	<b>Inspector:</b> 
<b>Group Leader:</b>  <b>Date:</b> 9/15/95	<b>Approved by:</b>  RA Team Manager <b>Date:</b> 9/15/95

**RA DEFICIENCY FORM**

Functional Area: Management (MG)	CRA Number/Title: MG-1 (CO-24)	Date: 9/14/95 ID #: DUO-RA-MG1-02
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**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: <u><i>Quinn A. Hall</i></u>
Group Leader: <u><i>[Signature]</i></u> Date: 9/19/95	Approved by: <u><i>[Signature]</i></u> RA Team Manager Date: 9/10/95

RA DEFICIENCY FORM

Functional Area: Management (MG)	CRA Number/Title: MG-5 (CO-29)	Date: 9/13/95 ID #: DUO-RA-MG5-01
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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: <u>Randy Cothran</u>
Group Leader: <u>R. J. [Signature]</u>	Approved by: <u>J. P. Flynn</u> RA Team Manager
Date: <u>9/18/95</u>	Date: <u>9/18/95</u>





## RA DEFICIENCY FORM

Functional Area: Operations (OP)	CRA Number/Title: OP-2 (CO-19)	Date: 9/14/95 ID #: DUO-RA-OP2-02
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**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

<b>Functional Area:</b> Operations (OP)	<b>CRA Number/Title:</b> OP-2 (CO-19)	<b>Date:</b> 9/14/95 <b>ID #:</b> DUO-RA-OP2-02
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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.

<b>Finding Designation:</b> Prestart _____ Post-Start _____	<b>Inspector:</b> <u>JE Lee</u>
<b>Group Leader:</b> <u>JE Lee</u> <b>Date:</b> 9/19/95	<b>Approved by:</b> <u>JPF Lyman</u> RA Team Manager <b>Date:</b> 9/19/95



### RA DEFICIENCY FORM

<b>Functional Area:</b> Systems Verification (SV)	<b>CRA Number/Title:</b> SV-1 (CO-28)	<b>Date:</b> 9/13/95 <b>ID #:</b> DUO-RA-SV1-01
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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.

<b>Finding Designation:</b> Prestart _____ Post-Start <u>  X  </u>	<b>Inspector:</b> <u>Randy Cochran</u>
<b>Group Leader:</b> <u>Randy Cochran</u> <b>Date:</b> <u>9/19/95</u>	<b>Approved by:</b> <u>JPT/lyn</u> RA Team Manager <b>Date:</b> <u>9/19/95</u>

**RA DEFICIENCY FORM**

Functional Area: Training (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/11/95 ID #: DUO-RA-TR1-01
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**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: <u><i>[Signature]</i></u>
Group Leader: <u><i>George A. Augoy</i></u>	Approved by: <u><i>J.P. Flynn</i></u> RA Team Manager
Date: _____	Date: <u><i>9/12/95</i></u>

**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
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**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: <u>[Signature]</u>
Group Leader: <u>George A. Gregory</u> Date: _____	Approved by: <u>[Signature]</u> RA Team Manager Date: <u>9/18/95</u>

**RA DEFICIENCY FORM**

Functional Area: Training and Qualification (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/11/95 ID #: DUO-RA-TR1-03
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**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: <u>Randy Cothran</u>
Group Leader: <u>Randy Cothran</u> Date: <u>9/13/95</u>	Approved by: <u>J.P. Lynn</u> RA Team Manager Date: <u>9/13/95</u>

**RA DEFICIENCY FORM**

Functional Area: Training (TR)	CRA Number/Title: TR-1 (CO-13)	Date: 9/14/95 ID #: DUO-RA-TR1-04
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**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: <u>George A. Gregory</u>
Group Leader: <u>George A. Gregory</u> Date: <u>9/19/95</u>	Approved by: <u>J.P. Flynn</u> RA Team Manager Date: <u>9/19/95</u>



**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
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**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: <u><i>[Signature]</i></u>
Group Leader: <u><i>George A. Gregory</i></u>	Approved by: <u><i>[Signature]</i></u> RA Team Manager
Date: _____	Date: <u><i>9/18/95</i></u>



### RA DEFICIENCY FORM

<b>Functional Area:</b> Procedures (PR)	<b>CRA Number/Title:</b> PR-1 (CO-7)	<b>Date:</b> 9/12/95 <b>ID #:</b> DUO-RA-PR1-01
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**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.

<b>Finding Designation:</b> Prestart _____ Post-Start _____	<b>Inspector:</b> <u>Randy Cothran</u>
<b>Group Leader:</b> <u>Randy Cothran</u> Date: <u>9/13/95</u>	<b>Approved by:</b> <u>JTF Lyon</u> RA Team Manager Date: <u>9/13/95</u>

### RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/12/95 ID #: DUO-RA-PR1-02
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**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: <u><i>[Signature]</i></u>
Group Leader: <u><i>Randy Cochran</i></u> Date: <u>9/13/95</u>	Approved by: <u><i>[Signature]</i></u> RA Team Manager Date: <u>9/13/95</u>

## RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/13/95 ID #: DUO-RA-PR1-03
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**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: <u>Randy Cochran</u>
Group Leader: <u>Randy Cochran</u> Date: <u>9/14/95</u>	Approved by: <u>[Signature]</u> <small>RA Team Manager</small> Date: <u>9/14/95</u>

**RA DEFICIENCY FORM**

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/13/95 ID #: DUO-RA-PR1-04
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**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: <u><i>MA Zehn</i></u>
Group Leader: <u><i>Randy Cothran</i></u> Date: <u><i>9/18/95</i></u>	Approved by: <u><i>JVF</i></u> RA Team Manager Date: <u><i>9/10/95</i></u>



### RA DEFICIENCY FORM

<b>Functional Area:</b> Procedures (PR)	<b>CRA Number/Title:</b> PR-1 (CO-7)	<b>Date:</b> 9/18/95 <b>ID #:</b> DUO-RA-PR1-06
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**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.

<b>Finding Designation:</b> Prestart _____ Post-Start _____	<b>Inspector:</b> <u>Randy Cathman</u>
<b>Group Leader:</b> <u>Randy Cathman</u>	<b>Approved by:</b> <u>JPK</u> RA Team Manager
<b>Date:</b> <u>9/19/95</u>	<b>Date:</b> <u>9/19/95</u>



### RA DEFICIENCY FORM

Functional Area: Procedures (PR)	CRA Number/Title: PR-1 (CO-7)	Date: 9/18/95 ID #: DUO-RA-PR1-07
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**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: <u><i>MA Fyfe</i></u>
Group Leader: <u><i>Randy Cottison</i></u> Date: <u><i>9/19/95</i></u>	Approved by: <u><i>J.P. [Signature]</i></u> RA Team Manager Date: <u><i>9/19/95</i></u>



**APPENDIX D**

**Readiness to Proceed Memo**

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**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: 

F. P. Gustavson  
Vice President  
Defense and Manufacturing

9/2/95

Date



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			