



Department of Energy
National Nuclear Security Administration
 Washington, DC 20585

September 17, 2004

OFFICE OF THE ADMINISTRATOR

The Honorable John T. Conway
 Chairman
 Defense Nuclear Facilities Safety Board
 625 Indiana Avenue, N.W.
 Suite 700
 Washington, D.C. 20004

Dear Mr. Chairman:

In your letter of August 6, 2004, you requested that within 45 days of receipt of the letter, NNSA provide the results of thorough, sitewide evaluations of the training and qualification programs at Los Alamos National Laboratory, Lawrence Livermore National Laboratory (LLNL), and the Nevada Test Site (NTS). Further, you requested that within 30 days of completion of these evaluations, NNSA representatives brief the Defense Nuclear Facilities Safety Board on the corrective action plans designed to address any findings.

In support of the Los Alamos Site Office, the NNSA Service Center completed a high-level Phase 1 review of the programmatic elements of LANL's nuclear facility personnel training and qualification program May 11-14, 2004. The review team found six systemic issues, noting weaknesses in training and qualification of Facility and Waste Operations personnel, outdated Training Implementation Matrices, incorrect exceptions to Departmental requirements without documented justification, reliance on expert-based processes rather than systems-based processes, weak trainer qualification programs, and weak or non-existent continuing training. The final Phase 1 report has been forwarded to your staff separately. *(Attached)* Within 90 days of the resumption of nuclear work at Los Alamos, the Los Alamos Site Office plans to conduct a more detailed, performance-based Phase 2 assessment at the nuclear facility level to evaluate the implementation of the program and its effectiveness.

The NNSA Service Center also completed an assessment of the LLNL training and qualification program on behalf of the Livermore Site Office July 12-16, 2004. The review team found two systemic issues regarding insufficient program documentation to assure consistent application of requirements, and weak or nonexistent continuing training programs for instructional staff. The final LLNL report has been forwarded to your staff separately. *(Attached)*

On September 3, 2004, the Nevada Site Office Manager reported that the nuclear facilities at NTS are in various stages of compliance with DOE Order 5480.20A. NSO conducted an assessment of the Device Assembly Facility training and qualification program during the week of September 13, 2004 in accordance with DOE Standard 1070-94, and a final

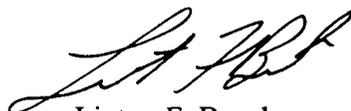


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assessment report will be completed by October 1, 2004. A copy of the NSO report will be forwarded to your staff separately. The NSO Manager reported that training and qualification reviews of LLNL and LANL subcritical experiment programs were evaluated during the NSO Readiness Assessments of the PIANO and ARMANDO subcritical experiments, respectively. NSO has requested LLNL and LANL develop corrective action plans to address all findings identified during the Readiness Assessments. The LLNL corrective action plan will be completed by October 1, 2004. LANL's preparation of their corrective action plan has been delayed due to the LANL standdown, and this plan will be incorporated as part of the LANL Nevada Test Site restart effort. In both cases, NSO will track all corrective actions to acceptable closure and will evaluate for full compliance with DOE Order 5480.20A prior to conduct of the next subcritical experiment.

As requested, Mr. Michael Thompson of my staff will coordinate with your staff to schedule NNSA representatives from LASO, LSO, and NSO to brief the Board on corrective action plans for LANL, LLNL, and NTS. Please feel free to contact me, or have your staff contact Mr. Thompson at 301-903-5648 if you have any questions.

Sincerely,



Linton F. Brooks
Administrator

cc: E. Wilmot, DOE-LASO
C. Yuan-Soo Hoo, DOE-LSO
K. Carlson, DOE-NSO
M. Whitaker, DR-1

*I HAVE ASKED MY
NEW PRINCIPAL DEPUTY
TO PERSONALLY FOLLOW
THIS ISSUE.*

SEPARATION

PAGE

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Phase 1 Assessment Report

For
Los Alamos National Laboratory

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Signature Sheet

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EXECUTIVE SUMMARY

At the direction of the Manager, National Nuclear Safety Administration/Los Alamos Site Office (NNSA/LASO), and in coordination with the Senior Technical Safety Advisor LASO, a plan for the assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities to the requirements of DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities* was developed. Section 1 of the Assessment Plan is included as Attachment A. Per the approved assessment plan, the assessment is being conducted for groups of facilities and in two phases. The first of these phases is a high level or programmatic level review. The assessment of the final Phase 1 group of facilities was conducted during the period of May 11 through May 14, 2004. After all information from the four facility group assessments was collected it was analyzed by the team to determine if weaknesses identified individually in the different facilities could indicate systemic issues. As a result of that analysis, the team found six systemic issues.

The continuing issue of significance that lies at the root of many of the issues identified later in this report is that none of the programs reviewed presented the necessary documented program process guidance as required by DOE Order 5480.20A. The Order requires that the training and qualification program be documented, and approved, and that the approved documents form the basis for the management of the program. Although the several organizations presented significant training materials in documented form, e.g., lesson plans, OJT guides, etc., without the documented process guidance, the training program is managed via an expert-based approach, not standards based as the order directs. The assessment team has identified the following systemic issues that with only a few minor differences, were present in each of the organizations reviewed.

- The training and qualification program for Facility and Waste Operations (FWO) personnel deployed to non-FWO facilities is inadequate to meet minimum requirements.
- Many of the Training Implementation Matrices (TIMs) are not up-to-date.
- The Laboratory has incorrectly categorized DOE requirements as “not applicable” or taken exceptions without documented justifications in the Institutional TIM.
- Facility/organization programs that are in place rely on an expert-based versus process or standard-based approach.
- Instructor/trainer qualification programs are weak.
- Continuing training programs are weak or not in place.

The assessment plan contains seven objectives for review. These objectives and supporting criteria were selected from DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*. DOE-STD-1070-94 Objective 6 dealing with the conduct of training was not included in the Phase 1 assessment. Conduct of training will be evaluated in Phase 2. A summary of the team’s assessment of each objective is provided in the body of the

report and Section 1 of the individual assessment reports are included as Attachments B, C, D and E. The complete reports, including all individual verification forms are on file and available for review.

1.0 INTRODUCTION

At the direction of the Manager National Nuclear Safety Administration/Los Alamos Site Office (NNSA/LASO) and in coordination with the Senior Technical Safety Advisor, LASO an assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities has begun. Section 1 of the Assessment Plan included as Attachment A, requires the assessment to be conducted in two phases. The first of these phases, Phase 1, is a high-level or programmatic-level review. Phase 2 of the assessment plan requires an in-depth review of all facets of the implementation of the requirements of DOE Order 5480.20A, *Chg 1, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, in each LANL nuclear facility.

2.0 PURPOSE

This assessment is the first part of a larger assessment that has been designed to evaluate the effectiveness and consistency in implementation of the (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities to ensure they meet the minimum requirements established in DOE Order 5480.20A.

3.0 SCOPE

This report contains the combined results of the review of the programs in all four groups of nuclear facilities and applies to the majority of personnel in LANL nuclear facilities.

4.0 BACKGROUND

In July, 2003, the Defense Nuclear Facility Safety Board (DNFSB) identified weaknesses in the implementation of the requirements of DOE Order 5480.20A. The letter communicated the Board's concerns over the adequacy of the implementation of training programs in NNSA nuclear facilities.

In response to the DNFSB concerns, in October of 2003, E.H. Beckner, in a letter to the board, committed LASO to complete a review in accordance with DOE Order 5480.20A. To meet this commitment, LASO developed a plan to conduct a very compressed high-level, or programmatic, review of the state of nuclear facility training programs followed by a more detailed program implementation review. Section 1 of the Assessment Plan describes the purpose and sequence of activities. The Assessment Plan is included as Attachment A.

Per the approved Assessment Plan, the first phase of the assessment, which focused on programmatic compliance, was conducted February through May 2004. The Phase 1 Assessment was designed to determine that, if implemented as written the program prescribed in the Laboratory's program documents would result in a training and qualification program that is in compliance with DOE Order 5480.20A.

As described in the Assessment Plan, Los Alamos nuclear facilities were divided into four groups and a one-week on-site assessment was conducted on each group. The team has prepared

and submitted individual reports on the results of these four groups. The reports address the assessment team's findings and conclusions relative to that group of facilities. As part of Group 3, TA-16 was assessed in conjunction with a previously scheduled Operational Readiness Review (ORR). The findings from the ORR are identified separately but are provided in the Group 3 report and this report for completeness.

In July, the series of more comprehensive Phase 2 assessments will begin. Phase 2 assessments are designed and will be conducted to determine two things: 1) the status of the program's implementation, and 2) the programs effectiveness where implemented.

ASSESSMENT RESULTS

After reviewing the results of all four facility groups Phase 1 assessments it appears that the review of documents and interview with key personnel for each group led the team to very similar assessment results for each of the objectives. Detailed evaluations for each objective as it pertains to each group are included in the individual group assessment reports. Section 1 for those reports is provided as Attachments B, C, D, and E. The summary of those results is outline in Objectives 1 – 7.

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

The Assessors' overall conclusion is that Responsible Division Line (RDL) management owns and is responsible for the training and qualification of their assigned division personnel. However, the existing programs do not ensure that non-RDL personnel, e.g., FWO Division personnel, who are deployed into the facilities run by another division for extended periods of time, are properly trained and qualified relative to their deployed facility position's duties and responsibilities. This appears to be largely due to confusion about who has the training and qualification program responsibilities for deployed FWO personnel. Based on the documents reviewed and interviews with non-FWO Division management and FWO staff, it appears that the responsibility is currently unassigned.

The team's conclusion is that Objective 1 has been met with weaknesses.

The team identified the following 7 individual findings and 1 opportunity for improvement associated with this objective.

Finding #	Group #	Findings
1.1	1	The most recently approved TIM provided to the assessment team is not current with existing facility organization and infrastructure.
1.1	2	Neither the FWO nor the facility-owner Division (NMT or N-2) are taking responsibility for ensuring that the FWO personnel who are deployed into the TA-18 / LACEF, TA-55, or CMR facilities are properly trained and qualified to perform their job functions.
1.1	3	The TA-8 Nuclear Facility Training Program does not include training management and process guidance documents of sufficient detail that ensures program execution in accordance with DOE Order 5480.20A.
1.1	4	The FWO Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A. (FWO Nuclear Facilities)
1.1.1	4	The RRES-RANT-WCR Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A. (RRES Nuclear Facilities)
1.2.1	4	The LANSCE Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A. (LANSCE)

Associated Findings Excerpted From the ORR Report for TA-16		
Finding #	Group #	Findings
1.3	TA-16	There is insufficient specificity in the existing WETF programmatic documentation to ensure consistency in approach, level of rigor and discipline, and execution of the Training and Qualification Program.

OFI #	Group #	Opportunities For Improvement
1.1	1	An integrating document that provides an overview of the training and qualification program and defines the relationships and links between all the procedures and plans associated with the overall training and qualification process would be useful in ensuring a cohesive and enduring program.

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Based on the individuals interviewed and the documents reviewed, there is no formal process that when implemented would result in instructors who would meet requirements outlined in DOE Order 5480.20A. In some of the facilities assessed, instructor functions are currently being performed by senior technical personnel who do not meet the instructor qualification/certification requirements of DOE Order 5480.20A. In these facilities managers explained that they are moving to qualify more instructors.

The team's conclusion is that Objective 2 has not been met.

The team identified the following 9 individual findings and 3 opportunities for improvement associated with this objective.

Finding #	Group #	Findings
2.1	1	There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.
2.1.1	4	There is no formal process documentation describing the training and qualification of training staff based upon assigned jobs and duties. (RRES Nuclear Facilities)
2.1.2	4	No evidence was presented that describes the details of a continuing training program for training staff. (RRES Nuclear Facilities)
2.2	1	There are no approved program documents or written requirements that, if implemented as written, would result in formally qualified instructors as defined in DOE Order 5480.20 CRD section IV.2.g.(2).(c).2 or certified as required by LIR300.00.04.2, Laboratory Training: Essential Requirements.
2.2.1	2 & 3 <i>note 1</i>	There are no approved Laboratory or Facility program documents or written requirements that if implemented would result in trained and qualified instructors that meet the requirements of DOE Order 5480.20A, Contractors Requirements Document Chapter III, Paragraph 2.g.(2).(c). or certified instructors who meet the requirements of LIR 300-00-04.
2.2.1	4	The laboratory wide Instructor Training Program lacks formal documentation describing the process of instructor qualification with regards to the instructor's assigned duties. (FWO Facilities)
2.2.2	2 & 3 <i>note 1</i>	There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.
2.2.2	4	There is a lack of formal process documentation describing an instructor continuing training program that addresses any weaknesses in instructional duty performance. (FWO Nuclear Facilities)

Finding #	Group #	Findings
2.3.1	4	There is no documentation of a continuing training program for instructional staff that accounts for instructional performance weakness or trainee performance results. (LANSCE Facility)

Note 1: Multiple group numbers indicate identical findings were present in more than one facility group.

OFI #	Group #	Opportunities for Improvement
2.1	1	Establish a process for documenting management and/or supervisor evaluation as part of the final qualification for training staff positions.
2.2	1	Re-evaluate the exceptions taken for the entry level requirements of DOE Order 5480.20A and submit the Laboratory TIM for review and approval by NNSA.
2.3	1	A formal process that addresses change control for the Institutional TIM should be developed and implemented.

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

There is no formal, documented process to ensure that the requirements of DOE Order 5480.20A that are associated with hiring personnel are systematically met. In addition the approved version of the institutional TIM indicates that the Laboratory has taken exception to all of the entry level requirements for nuclear facility personnel. Although in each case examined, personnel in key positions did in fact meet entry level requirements there does not seem to be a formal process that would ensure the requirements of the order are met. The logic for taking exception to the entry level requirements in the order is unclear. The documentation references a memorandum from the Director, LANL as justification. The referenced memorandum could not be located for the team's review.

The team's conclusion is that Objective 3 has not been.

The team identified the following 7 individual findings associated with this objective.

Finding #	Group #	Findings
3.1	1, 2 & 3 <i>note 1</i>	A defined and documented process is not in place to ensure that entry-level requirements are systematically established in accordance with the minimum educational, experience, technical, and medical requirements as defined in DOE Order 5480.20A Chapter IV.
3.1.1	4	There is no formal process for the establishment of entry-level requirements based upon job requirements, nor is there a process for updating entry-level requirements based upon training and job performance. (RRES Nuclear Facilities)
3.1.1	4	There is no documentation that entry-level requirements have basis in analyzed job requirements. (FWO Nuclear Facilities)
3.2	1, 2 & 3 <i>note 1</i>	There is no defined and documented process in place to ensure that if adequately implemented, personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements in the Job Announcement or DOE Order 5480.20A Chapter IV prior to being assigned to a position.
3.3	1, 2 & 3 <i>note 1</i>	There is no defined and documented process in place to ensure that entry-level requirements for LANL positions are reviewed and revised as necessary based on evaluation of trainee performance.
3.3.1	4	The necessary documentation describing the process of evaluating entry-level requirements based upon training and job performance could not be provided. (FWO Nuclear Facilities)
3.3.1	4	There is no documented process for the establishment, maintenance, or update to entry-level requirements based upon analyzed job requirements or job performance at the LANSCE facility. (LANSCE)

Note 1: Multiple group numbers indicate identical findings were present in more than one facility group

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

The formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. This lack of rigor can result in inconsistent analysis. Inconsistent, incomplete, and/or poorly documented job and task analyses can have a serious negative impact on an organizations training and qualification program.

Based on the documents presented and interviews with key personnel, neither the FWO organization nor the RDL organization are ensuring that the FWO personnel who are “deployed” are trained and qualified to perform the duties and responsibilities associated with their deployed position. Each organization cites organizational procedures/guidance documents that specify the training and qualification of these types of personnel is the responsibility of the other organization.

The team’s conclusion is that Objective 4 has not been met.

The team identified the following 9 individual findings and 1 opportunity for improvement associated with this objective.

Finding #	Group #	Findings
4.1	2	There is a lack of procedural guidance/direction relative to job and/or task analysis.
4.1	3	There is a complete lack of procedural guidance that would ensure program content for competent job performance is identified, documented, and included in the training programs.
4.1.1	4	There is a complete lack of procedural guidance/direction relative to job and/or task analysis. (LANSCE)
4.1.1	4	There is a lack of procedural guidance/direction relative to job and/or taks analysis. (RRES Nuclear Facilities)
4.2	2	Neither FWO nor N-2 management are ensuring that the FWO personnel who are deployed into the N-2 organization are trained and qualified to perform their assigned duties and responsibilities
4.2.1	4	There is a lack of procedural guidance/direction relative to initial and continuing training. (RRES Nuclear Facilities)
4.3.1	4	There is no procedural requirement/guidance that prescribes the development and implementation of a Technical Staff training and qualification program that meets the intent and requirements contained in DOE Order 5480.20A. (FWO Nuclear Facilities)
4.2.1	4	There is a lack of procedural guidance/direction relative to initial and continuing training leading to reliance upon subjective decisions by technical SMEs. (LANSCE)

Associated Findings Excerpted From the ORR Report for TA-16		
Finding #	Group #	Findings
4.1.1	TA-16	There is no defined process at WETF that will ensure a consistent and systematic approach to job analysis and the resultant development of appropriate learning objectives.

OFI #	Group #	Opportunities for Improvement
4.1	2	Program should be revised to reflect qualification occurring before certification.

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Most of the documents provided to the team tended to be written at a very high “descriptive” level as opposed to a more detailed “prescriptive” level. This lack of specificity has the potential to cause inconsistent approaches to training analysis, design, development, implementation, and evaluation in both the classroom and OJT settings. For example, continuing training is a critical element of maintaining qualification status. Yet, some organizations could not provide a document, or even a section within an existing document that actually prescribed continuing training program requirements. The continuing training program that is in place and apparently functioning is largely due to the significant knowledge and drive of the current staff and their ability to work within the existing organizational structure to ensure continuing training occurs.

The team’s conclusion is that Objective 5 is not met.

The team identified the following 11 individual findings and 1 opportunity for improvement associated with this objective.

Finding #	Group #	Findings
5.1	1	The lack of adequate program description and guidance in approved programmatic documents adversely impacts the program and has the potential to result in incomplete, inaccurate, and/or ineffective training.
5.1	3	There is no evidence of procedural guidance that would ensure training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted.
5.1.1	4	The programmatic documentation supporting RRES’ training and qualification program are incomplete and lack the required level of direction/specificity that will ensure predictable and consistent training that enhances worker performance and safety. (RRES Nuclear Facilities)
5.1.2	4	The lack of adequate program description and guidance in approved programmatic documents relative to the review and approval of training program documentation may result in inaccurate, incomplete, and/or ineffective training program materials being issued for use. (RRES Nuclear Facilities)
5.1.1	4	The lack of adequate program description and guidance in approved programmatic documents relative to a continuing training program has the potential to adversely impact otherwise good training and qualification program by permitting incomplete, inaccurate, untimely, and/or ineffective continuing training. (LANSCE)

Finding #	Group #	Findings
5.2	3	There is no available evidence of procedural guidance that would ensure the content of initial training prepares the trainee to perform the job for which the candidate is being trained.
5.3	3	There is no available evidence of procedural guidance available that would ensure the content of continuing training maintains and improves incumbent job performance.

Associated Findings Excerpted From the ORR Report for TA-16

Finding #	Group #	Findings
ORR-5.1.1	TA-16	Although learning objectives are present in the training materials reviewed, there is no WETF training programmatic document that defines the process for developing learning objectives.
ORR_5.2.1	TA-16	Lesson plans are not developed and used for the various OJT Instructor/Evaluator documents.
ORR-5.3.1	TA-16	There is no programmatic documentation specifying the review, approval, and control requirements for training materials.
ORR-5.4.1	TA-16	A continuing training program is implemented, but not specifically defined in training programmatic documents.

OFI #	Group #	Opportunities for Improvement
5.1	2	Although the documents reviewed by the Assessors were, for the most part, complete, well written, and easy to understand, they tended to be written "descriptively" as opposed to "prescriptively." By writing programmatic documents in a prescriptive manner, many of the difficulties related to interpretation, consistency, and approach are eliminated. This lends itself to an increase in overall training program effectiveness.

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

In most organizations reviewed, there is a lack of procedural guidance regarding the development, approval, security, administration, and maintenance of written examinations. In many cases facility specific procedures point to the Laboratory-wide training procedures which do not contain sufficient guidance to ensure personnel responsible for written examinations met the intention of DOE Order 5480.20A.

The team's conclusion is that Objective 6 has not been met.

The team identified the following 5 individual findings associated with this objective.

Finding	Group #	Findings
6.1	1	There is no procedural documentation that provides for the development, approval, security, administration and maintenance of oral examinations and performance evaluations. Without this documentation, the consistency of trainee evaluation cannot be achieved.
6.1	3	There is no evidence that Division or Group-wide procedures exist that ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.
6.1.1	4	Training and Qualification program procedures are not at the necessary prescriptive level to ensure a standards-based program is in place, which meets the intent of DOE Order 5480.20A. (FWO Nuclear Facilities)
6.1.1	4	Division or Group-wide procedures do not contain the necessary guidance to ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs. . (RRES Nuclear Facilities)

Associated Findings Excerpted From the ORR Report for TA-16		
Finding	Group #	Findings
ORR-7.1	TA-16	WETF Training does not currently have any programmatic document that establishes, specifies, or otherwise identifies the requirements for developing, reviewing, approving, revising, and controlling examinations.

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

There is a lack of procedural guidance regarding training program evaluation. What procedural guidance there is only defines very basic requirements for training program evaluation, and does not give any guidance on a training program evaluation process. Without this detailed guidance, there can be no assurance that comprehensive training evaluation is conducted as required by DOE Order 5480.20A.

The team's conclusion is that Objective 7 has not been met.

The team identified the following 4 individual findings associated with this objective.

Finding	Group #	Findings
7.1	1	Implementation of procedures as written will not result in an effective training evaluation program.
7.1	4	The available procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. (FWO Nuclear Facilities)
7.1.1	4	The available procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. (RRES Nuclear Facilities)
7.11	4	There is no evidence available of procedural that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. (LANSCE)

6.0 Conclusion

Conclusions

After completion of the Phase 1 portion of the assessment, the assessment team has identified the following systemic issues that with only a few minor differences were present in each of the organizations reviewed.

The training and qualification program for Facility and Waste Operations (FWO) personnel deployed to non-FWO facilities is inadequate to meet minimum requirements.

Neither the Laboratory-wide procedures, the FWO procedure documents, the FWO program documents, the facility procedures nor the facility program documents require that the FWO facility managers, deployed to non-FWO facilities, complete any facility position-specific training or qualification requirements for the facilities they manage, beyond access training. For example, there is no requirement for the facility manager or any of the manager's staff (system operators, system engineers, maintenance technicians) to be familiar with the safety basis for the facility.

Many of the approved Training Implementation Matrices (TIMs) are not up-to-date.

The Training Implementation Matrices (TIMs) for the Laboratory are out of date i.e., in many cases the last approved DOE TIM was signed in 1997. Although in some cases more recently updated TIMs do exist, most have not been formally approved by DOE. There is no documentation that the institutional level TIM has been reviewed and approved by DOE, or now NNSA, in the past seven years. Documentation was not available to justify changes that have been made to the institutional level TIM since its approval. Many of the organizations have made significant revisions to their TIMs and are using these unapproved versions as the tool to demonstrate compliance with the requirements of DOE Order 5480.20A.

Through the institutional TIM, the Laboratory has incorrectly categorized DOE requirements as not applicable or taken exceptions without documented justifications.

The Laboratory has taken exception to all DOE Order 5480.20A entry-level requirements based on a Laboratory memo that can not be produced for the team to review. LANL Training Implementation Office (TIO) individuals who are responsible for the institutional TIM could not adequately defend the logic used to take the exceptions.

Facility/organization programs that are in place rely on an expert versus standard based approach.

Laboratory training and qualification programs rely heavily on expert-based programs as opposed to standards-based programs. This is true even in facilities or organizations with mature programs.

Instructor/trainer qualification programs are weak.

Instructor/trainer (classroom and OJT) training and qualification programs are another weakness frequently identified in facilities. Some facilities have no qualified instructors.

Continuing training programs are weak or not in place.

A documented continuing training program is generally not in place at the facility or organization level. Institutional training that has a mandatory proficiency training requirement is up-to-date, but in most cases there is no documented program in place for technical personnel (line managers, operators, technicians, etc.) or training personnel that describes or mandates continuing training requirements specific to their organization or facility.

Summary

The training and qualification program for Laboratory personnel has significant weaknesses in the program descriptions and implementing documents. While it is possible that undocumented training and qualification activities are in place and that an informal training and qualification program is happening in some facilities, the Laboratory could not demonstrate that a process is in place to ensure that individuals currently working as instructors, trainers, operators, supervisors, or managers in many of the Los Alamos nuclear facilities meet the minimum requirements for qualification as outlined in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*. Data from the upcoming Phase 2 assessment is required before a fact-based evaluation of the actual training and qualification level of the personnel assigned to technical positions in the Laboratory's nuclear facilities can be made.

Attachment A
Section 1 of the Assessment Plan

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Plan

January – June 2004

1.0 INTRODUCTION

The Manager, National Nuclear Security Administration, Los Alamos Site Office (NNSA/LASO), is committed to ensuring a safe and healthful work environment consistent with applicable regulations, orders, and policies for NNSA/LASO, contractors, and users at NNSA/LASO facilities. An effective Contractor Nuclear Facility Training and Qualification Program is critical to establishing and maintaining that environment.

1.1 Purpose

At the direction of the Manager, this assessment will evaluate the effectiveness and consistency in implementation of the Los Alamos National Laboratory (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

1.2 Scope

The assessment will examine the line organization's effectiveness in defining and implementing the programmatic elements of nuclear facility training and qualification program.

1.3 Sequence of Activities

The assessment will consist primarily of document reviews and interviews with the line organization managers and training managers responsible for implementing a training and qualification program that is compliant with DOE Order 5480.20A in their respective nuclear facilities. Each nuclear facility will be evaluated independently. The review will consist of two major activities. First, a high-level review of the programmatic elements of the LANL nuclear facility personnel training and qualification program; and second, a more detailed assessment of the implementation of the program and its effectiveness.

1.3.1 High Level Review

This review consists of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review, followed by a one-day on-site visit to each facility. The team will use the Criteria and Review Approach Document (CRAD) (Attachment A), to guide the review.

A Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report.

Each area defined in the CRAD is intended to guide the evaluation of the status of implementation of an effective nuclear facility training and qualification program. As such, the Verification Form discussion of the results will include information concerning the status of implementation.

At the conclusion of the on-site review, the team will analyze the data collected and as necessary request additional data from the appropriate LANL organization. The team will submit the results of the individual facility reviews to the Manager, LASO, and the LANL organizations being evaluated as they are completed. Once data has been collected from all facilities, the team will develop a draft of the final assessment report communicating the assessment team's findings and evaluation of the LANL training and qualification program for nuclear facility personnel and submit it to LANL to verify the accuracy of the findings. The final report will then be submitted to the Manager, LASO. The report will state the team's conclusion as to the status of implementation of an effective nuclear facility training and qualification program across the LANL organizations based on the evidence of the high-level review. It will provide a detailed listing of all findings and areas for improvement as well as identify any noteworthy practices the team observed.

1.3.2 Detailed Assessment

At the completion of the high-level review, areas identified in the review as weak or non-compliant will be evaluated in much greater detail to determine the extent of the weakness. In addition, the Laboratory's status in meeting each objective and supporting criteria in DOE-STD-1070-94; *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*, will be evaluated. The detailed assessment will rely much more heavily on observing training activities, interviewing instructors and line organization technical staff, detailed reviews of training material content as compared to current facility status, etc. A new formal CRAD will be developed for use in the detailed assessment.

As in the high-level review, a Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Attachment B.

The reporting process for the Detailed Assessment final report will follow the same report sequence as that described for the high-level review.

Attachment B
Group 1 Facilities
Assessment Report

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Report

For
Los Alamos National Laboratory
Technical Area 55 and
Chemical and Metallurgical Research Facilities
(Group 1)

Draft

Signature Sheet

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ATTACHMENTS

- ATTACHMENT A NUCLEAR FACILITY TRAINING AND QUALIFICATION
 ASSESSMENT PLAN
 Appendix 1 Criteria and Review Approach Document
 Appendix 2 Sample Verification Form
- ATTACHMENT B GROUP 1 NUCLEAR FACILITIES VERIFICATION FORMS

EXECUTIVE SUMMARY

At the direction of the Manager of the National Nuclear Security Administration/Los Alamos Site Office (NNSA/LASO) and in coordination with the Senior Technical Safety Advisor, LASO, a plan for the assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities was developed. The plan is included as Attachment A. Per the approved assessment plan, the assessment is being conducted in two phases. The first of these phases is a high-level or programmatic level review. A phase 1 assessment of the organizations conducting work at the first group of nuclear facilities, Technical Area (TA) 55 and the Chemical and Metallurgical Research (CMR) facility, was conducted February 24 through March 12, 2004. Documentation was provided by the contractor only for the NMT group, and so the assessment team could evaluate only that group. Specifically, the status of the Facility and Waste Operations (FWO) Division, which supplies the facility management and support staff to nuclear facilities at LANL, could not be evaluated. The FWO Division's training and qualification program will be reviewed as part of the second group of nuclear facilities.

The team has concluded that NMT-3 has a functional training and qualification program. Products of the program presented to the team were very structured and in most case very high quality documents. The team also noted that with few exceptions all the activities that must happen to meet the requirements of DOE Order 5480.20A are taking place. However, the team's concern is that these activities are taking place in many cases due to the expertise and commitment of the NMT training staff as opposed to comprehensive documented program requirements and processes. Discussions with key staff indicate that they are aware of the issues that can arise from relying on an expert based system and are moving to a more standards based program.

There were several issues with the processes owned by the Training Integration Office (TIO). One of the most significant is the use of an unapproved Training Implementation Matrix (TIM). Based solely on the documents provided to the team and interviews with senior TIO management, the team has concluded that the TIM most recently approved by DOE/NNSA was approved in 1997. A comparison of programs and documents called out in the 1997 TIM to those in the TIM that was submitted as the TIM actually in use, indicates many changes have been made. DOE Order 5480.20A requires that DOE must approve changes to the TIM.

The assessment plan identified seven objectives for review. All objectives and supporting criteria were selected from DOE-STD-1070-94; *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*. A summary of the team's assessment of each objective is provided in the body of the report and individual Verification Forms are included as Attachment B.

Overall there were 9 findings and 4 opportunities for improvement (OFIs). Summaries of findings and opportunities for improvement are provided in table 1 and table 2.

Table 1. Findings Summary

Finding #	Findings
1.1	The most recently approved TIM provided to the assessment team is not current with existing facility organization and infrastructure.
2.1	There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.
2.2	There are no approved program documents or written requirements that, if implemented as written, would result in formally qualified instructors as defined in DOE Order 5480.20 CRD section IV.2.g.(2).(c).2 or certified as required by LIR300.00.04.2, Laboratory Training: Essential Requirements.
3.1	A defined and documented process is not in place to ensure that entry-level requirements are systematically established in accordance with the minimum educational, experience, technical, and medical requirements as defined in DOE Order 5480.20A, Chapter 4.
3.2	A defined and documented process is not in place to ensure that if adequately implemented, personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements in the Job Announcement or DOE Order 5480.20A, Chapter 4, prior to being assigned to a position.
3.3	A defined and documented process is not in place to ensure that entry-level requirements for LANL positions are reviewed and revised as necessary based on evaluation of trainee performance.
5.1	The lack of adequate program description and guidance in approved programmatic documents adversely impacts the program and has the potential to result in incomplete, inaccurate, and/or ineffective training.
6.1	There is no procedural documentation that provides for the development, approval, security, administration and maintenance of oral examinations and performance evaluations. Without this documentation, the consistency of trainee evaluation cannot be achieved.
7.1	Implementation of procedures as written will not result in an effective training evaluation program.

Table 2. Opportunities for Improvement Summary

OFI #	Opportunities for Improvement
1.1	An integrating document that provides an overview of the training and qualification program and defines the relationships and links between all the procedures and plans associated with the overall training and qualification process would be useful in ensuring a cohesive and enduring program.
2.1	Establish a process for documenting management and/or supervisor evaluation as part of the final qualification for training staff positions.
2.2	Re-evaluate the exceptions taken for the entry-level requirements of DOE Order 5480.20A and submit the Laboratory TIM for review and approval by NNSA.
2.3	A formal process that addresses change control for the Institutional TIM should be developed and implemented.

1.0 Introduction

At the direction of the Manager, National Nuclear Security Administration/Los Alamos Site Office (NNSA/LASO), and in coordination with the Senior Technical Safety Advisor, LASO, an assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities has begun. The Assessment Plan included as Attachment A, requires the assessment be conducted in two phases. The first of these phases, Phase 1, is a high-level or programmatic level review. Phase 2 of the assessment plan requires an in-depth review of all facets of the implementation of the requirements of DOE Order 5480.20A in each LANL nuclear facility.

A Phase 1 assessment of the organizations conducting work at the first group of nuclear facilities, Technical Area (TA) 55 and the Chemical and Metallurgical Research (CMR) facility, was conducted February 24 through March 12, 2004.

2.0 Purpose

This assessment is the beginning of a larger assessment that has been designed to evaluate the effectiveness and consistency in implementation of the LANL nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining, and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

3.0 Scope

This report contains the results of the phase I assessment of the NMT program, which applies to the majority of personnel in the first group of nuclear facilities. The first group of facilities consisted of the CMR and TA-55 facilities. Documentation was provided by the contractor for the NMT group only, and so the assessment team could evaluate only that group. Specifically, the status of the Facility and Waste Operations (FWO) Division, which supplies the facility management and support staff to nuclear facilities at LANL, could not be evaluated. The FWO Division's training and qualification program will be reviewed as part of the second group of nuclear facilities.

4.0 Sequence of Activities

This assessment consisted of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review, followed by a week in Los Alamos to interview training management and training staff as well as review other documents that were not provided initially. The team used the Criteria and Review Approach Document (CRAD) to guide the review.

A verification form was prepared for each objective in the CRAD to document the basis for the conclusions reached concerning the objective and criteria. Findings identified during the review are discussed in detail on the associated verification form. Attachment B contains the individual verification forms

5.0 Assessment Results

Overall, NMT-3 has invested a significant effort in building a quality training and qualification program. In many respects they have succeeded. Individual training program products such as lesson plans, analysis reports, and training plans are very good and in several cases impressive. The NMT-3 training staff members interviewed are very knowledgeable and competent in the processes that make up a systematic approach to training.

The NMT-3 management's own informal evaluation of their program identified a significant weakness in that the program now is heavily expert-based as opposed to standards-/procedure-based. The assessment team agrees. While much of the work done by NMT-3 is excellent, written direction and process documentation is weak. This weakness appeared in the team's evaluation of almost every objective. In addition, the lack of an overarching document that describes how the many elements of the program fit together and identifies links and hand-offs from one procedure to the next made the process difficult to follow.

Training Integration Office (TIO) documents were reviewed only as they applied to NMT-3. Specific examples are the Laboratory Implementing Requirements (LIR) and the review of those elements of the TIM that identify the Laboratory documents that define the method LANL uses to ensure that nuclear facility staff assigned to support TA-55 and CMR meet entry-level requirements specified by DOE Order 5480.20A. One of the documents that was reviewed was the Training Implementation Matrix (TIM) maintained by TIO. The team has a major concern regarding how this document is being maintained. For example, the most current approved TIM presented to the assessment team by TIO was approved in 1997. However, TIO management also presented the team with another TIM and stated that it was the one currently in use. A cursory review identified significant changes made in the TIM since its last review and approval by DOE/NNSA. The assessment team also questions the validity of some of the exceptions taken in the TIM. For example, LANL has taken exception to almost every contractor entry-level requirement in Chapter 4 of DOE Order 5480.20A Contractor Requirements Document. The team was unable to complete their evaluation of the Laboratory's position due to the unavailability of supporting documents referenced in the TIM. This will be further evaluated during the group 2 nuclear facilities assessment scheduled in April of this year.

A summary of the results of the assessment of LANL's status in developing and maintaining a program that would meet the objectives established in DOE Standard 1070-94 is provided below. The detailed discussions are in the objective-specific verification forms in attachment B.

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

NMT Division is organized and managed such that line management is responsible for training and has established a distinct training organization separate from the line to provide support. The complete process one must follow to become fully qualified to perform technical work is very complex and requires multiple organizations. Understanding this process is complicated by the fact that there is no single document that outlines, even at an overview level, how the process works.

The team identified 1 finding and 1 opportunity for improvement associated with this objective.

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Members of the NMT-3 training staff easily exceed the minimum education and experience requirements outlined in DOE Order 5480.20A and have completed a rigorous training program. However the qualification and certification process, at the programmatic level, is not well defined or documented. Also documents provided to the team did not contain specific requirements for the continuing training of training staff.

The team identified 2 findings and 3 opportunities for improvement associated with this objective.

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

Although there seems to be a system of minimum requirements imposed for each position, this does not appear to be formalized. Additionally, a formal, documented process is not in place to ensure that the requirements of DOE Order 5480.20A associated with hiring entry-level personnel are met. The unapproved institutional TIM provided to the team as the TIM currently in use did not meet the intent of the entry-level requirements contained in DOE Order 5480.20A, Chapter 4. This, coupled with the fact that the TIM presented to the team contains significant changes (when compared to the TIM approved in 1997) that have not been reviewed or approved by DOE/NNSA, represents a significant deficiency.

There were 3 findings associated with this objective.

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Overall, the NMT-3 has an effective expert-based process for developing training. Based on the review of the sample training materials provided to the assessment team for review, NMT-3 exercises care in identifying and documenting the applicable requirements drivers for its various lesson plans and related training materials. However, the formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed.

There were no findings or opportunities for improvement associated with this objective.

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

NMT Division's training and qualification program contains many areas of strength and several areas of best practice. However, there seems to be a recurring theme that, at the very least, has the potential to reduce the consistency and effectiveness of the program. Specifically, the "paper element" of the program appears to have some rather large gaps that are filled using an expert-based system approach. This conclusion applies to the continuing training program as well.

There was 1 finding associated with this objective.

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

While documentation is in place that governs the development, approval, security, administration, and maintenance of written examinations, there appears to be no procedural documentation that governs the same for oral examinations and performance evaluations. Therefore, there is no documented procedural evidence that the intent of objective 6 can be achieved. This objective is not met.

There was 1 finding associated with this objective.

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

There is evidence that training program evaluation is in place and is on-going. However, there is a lack of procedural guidance regarding training program evaluation. What procedural guidance there is only defines the four different levels of evaluation, and does not provide any direction on how to administer or implement an effective and efficient training evaluation program. This objective has not been met.

There was 1 finding associated with this objective.

6.0 Conclusion

The team has concluded that NMT-3 has a functional training and qualification program. Products of the program presented to the team were structured and in most case high quality documents. The team concluded that with few exceptions all the activities that must happen to meet the requirements of DOE Order 5480.20A are taking place. However, the team is concerned that these activities are, in many cases taking place due to the expertise and commitment of the NMT training staff as opposed to comprehensive documented program requirements and processes. Discussions with key NMT-3 staff indicate that they are aware of the issues that can arise from relying on an expert-based system and are moving to a more standards-based program.

The team concluded that the TIM that is currently in use has not been reviewed and approved by NNSA/LASO. A comparison of programs and documents called out in the 1997 TIM to those in the TIM submitted to the assessment team as the TIM actually in use indicates many changes have been made since 1997. DOE Order 5480.20A requires that DOE must approve the TIM.

The team questions the validity of some of the exceptions to requirements taken in the TIM. Specifically, both the TIM approved in 1997 and the TIM currently in use take exception to almost every entry level requirement established by DOE Order 5480.20A for non-reactor nuclear facilities. The logic used to justify these exceptions is unclear due to incomplete and/or inadequate documentation.

Attachment A
**Nuclear Facility Training and Qualification
Assessment Plan**

NATIONAL NUCLEAR SECURITY ADMINISTRATION
LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Plan

January – June 2004

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- Appendix 1: Criteria and Review Approach Document
- Appendix 2: Sample Assessment Verification Forms

Los Alamos Site Office
Nuclear Facility Training and Qualification Program
Assessment Plan

1.0 INTRODUCTION

The Manager, National Nuclear Security Administration, Los Alamos Site Office (NNSA/LASO), is committed to ensuring a safe and healthful work environment consistent with applicable regulations, orders, and policies for NNSA/LASO, contractors, and users at NNSA/LASO facilities. An effective Contractor Nuclear Facility Training and Qualification Program is critical to establishing and maintaining that environment.

1.1 Purpose

At the direction of the Manager, this assessment will evaluate the effectiveness and consistency in implementation of the Los Alamos National Laboratory (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

1.2 Scope

The assessment will examine the line organization's effectiveness in defining and implementing the programmatic elements of nuclear facility training and qualification program.

1.3 Sequence of Activities

The assessment will consist primarily of document reviews and interviews with the line organization managers and training managers responsible for implementing a training and qualification program that is compliant with DOE Order 5480.20A in their respective nuclear facilities. Each nuclear facility will be evaluated independently. The review will consist of two major activities: first, a high-level review of the programmatic elements of the LANL nuclear facility personnel training and qualification program; and second, a more detailed assessment of the implementation of the program and its effectiveness.

1.3.1 High Level Review

This review consists of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review, followed by a one-day on-site visit to each facility. The team will use the Criteria and Review Approach Document (CRAD) (Appendix 1), to guide the review.

A Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be

included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

Each area defined in the CRAD is intended to guide the evaluation of the status of implementation of an effective nuclear facility training and qualification program. As such, the Verification Form discussion of the results will include information concerning the status of implementation.

At the conclusion of the on-site review, the team will analyze the data collected and as necessary request additional data from the appropriate LANL organization. The team will submit the results of the individual facility reviews to the Manager, LASO, and the LANL organizations being evaluated as the reviews are completed. Once data has been collected from all facilities, the team will develop a draft of the final assessment report communicating the assessment team's findings and evaluation of the LANL training and qualification program for nuclear facility personnel and submit it to LANL to verify the accuracy of the findings. The final report will then be submitted to the Manager, LASO. The report will state the team's conclusion as to the status of implementation of an effective nuclear facility training and qualification program across the LANL organizations based on the evidence of the high-level review. It will provide a detailed listing of all findings and areas for improvement as well as identify any noteworthy practices the team observed.

1.3.2 Detailed Assessment

At the completion of the high-level review, areas identified in the review as weak or non-compliant will be evaluated in much greater detail to determine the extent of the weakness. In addition, the Laboratory's status in meeting each objective and supporting criteria in DOE-STD-1070-94; *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*, will be evaluated. The detailed assessment will rely much more heavily on observing training activities, interviewing instructors and line organization technical staff, detailed reviews of training material content as compared to current facility status, etc. A new formal CRAD will be developed for use in the detailed assessment.

As in the high-level review, a Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

The reporting process for the Detailed Assessment final report will follow the same report sequence as that described for the high-level review.

2.0 ASSESSMENT OBJECTIVES

As stated, the review will be conducted using the CRAD. The detailed listing of evaluation criteria for the high-level review are provided in Appendix 1, Criteria and Review Approach Document. The assessment team will evaluate each Laboratory organization conducting work in nuclear facilities to determine their status in meeting the following objectives.

2.1 Objective 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

2.2 Objective 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

2.3 Objective 3

Trainees meet the minimum requirements for entry into the training program.

2.4 Objective 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

2.5 Objective 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

2.6 Objective 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

2.7 Objective 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

3.0 ADMINISTRATION

3.1 Meetings and Presentations

The assessment will be an open process with the goal of maximizing the opportunity to achieve a full understanding of the effectiveness of the Laboratory's nuclear facility training and qualification program.

The Team Leader will conduct an out brief with the LASO Senior Technical Advisor. The briefing will include the findings of the team and the basis for any recommendations that will be made to the Manager concerning implementation of the nuclear facility training and qualification program.

3.2 Documentation

The assessment will be guided by the CRAD. The documentation will be structured in a manner to show that the elements of the CRAD were evaluated and that the criteria were met or what aspects of the criteria were found to be deficient. The purpose of the documentation is to provide information concerning details of the review to individuals who did not witness the review.

In order that the schedule for assessment is maintained and the draft report complete prior to dissolution of the team, each team member will document his/her work as it is conducted. This means daily input to the Verification Forms. Each reviewer will be provided with a preliminary Form 1 containing the objective and criteria for each CRAD. In the event that issues of noteworthy or questionable practices are identified, they will be documented within the Verification Forms. If the final report to the Manager, NNSA/LASO, recommends technical direction to organizations, those actions will be supported by detailed information on the Verification Forms. The team members are responsible for ensuring that the Form 1s do not contain Classified or Unclassified Controlled Nuclear Information (UCNI).

3.3 Team Composition

The team consists of the following individuals:

Team Leader	Lynn Maestas, NNSA/AL
Team Members	Grady Petty, Epsilon Systems Solutions, Inc. Steve Arner, Epsilon Systems Solutions, Inc. Larry Palmer, Epsilon Systems Solutions, Inc. Bill Lapsansky, Epsilon Systems Solutions, Inc. Mark Schares, Epsilon Systems Solutions, Inc.

4.0 SCHEDULE

For planning purposes, the projected schedule for the nuclear facility training and qualification program assessment at LANL is as follows:

Los Alamos Site Office Contractor Training Review

Group	Request for Documents	Documents Due	Onsite	Facility Report
Group 1 TA-55, CMR	Feb. 17	Feb. 24	Mar. 08-12	Mar. 12-19
Group 2 TA-18	Mar. 08	Mar. 15	Mar. 29-Apr. 02	Apr. 02-09
Group 3 TA-8 WETF	Apr. 05	Apr. 12	Apr. 19-26	Apr. 26-May 01
Group 4 RANT/ WCRR/ MDA TA-54 (Area G, RLW) TA-53 (LANSCE)	Apr. 26	May 03	May 10-17	May 17-24

Draft Summary Report June 01

Final Summary Report June 18

Appendix 1

Criteria and Review Approach Document

Appendix 1 Criteria and Review Approach Document

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

Criteria

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

Approach

Document Review

- Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training
- Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control
- Selected individual training records
- Documents that define the goals, objectives and plan for implementing the training and qualification program
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Criteria

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

Approach

Document Review

- List of qualified instructors (classroom and OJT)
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team
- Selected training staff training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

Criteria

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

Approach

Document Review

- Copies of facility- or organization-specific Job and Task Analysis implementing procedures
- The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position
- The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position
- Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

Approach

Document Review

- Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved
- Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current
- Existing lesson plans and/or OJT guides for training selected technical staff positions
- Documentation of completed continuing training
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Criteria

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations
- Selected examinations
- Selected individual training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Criteria

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

Approach

Document Review

- Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness
- Training evaluation documentation
- Selected training materials

Interviews

- Line organization training representative
- Facility/Organization Training Manager

Appendix 2

Sample Verification Form

Appendix 2
Sample Verification Form

Functional Area: Objective Number:	Criteria Met/Not Met: Date:
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OBJECTIVE

CRITERIA

APPROACH

Documents Reviewed.

Interviews.

DISCUSSION

CONCLUSION AND SUMMARY

FINDING

NA

Inspected by: _____ Team Member	Approved by: _____ Team Leader
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Attachment B
Group 1 Nuclear Facilities
Verification Forms

Functional Area: Nuclear Facility Training	Criteria Met/Not Met: Met
Objective Number: 1	Date: March 19, 2004

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

CRITERIA

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification program(s).
4. Training records are maintained to support management information needs and to provide required historical data.
5. Training developed and/or implemented by personnel or organizations other than the operating contractor's staff is monitored and controlled to ensure that it meets applicable facility requirements.
6. Training facilities, equipment, and materials effectively support training activities.

APPROACH

Documents Reviewed.

- DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- LIR300-00-04, *Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce*
- NMT13-AP-58, *Training Leading to Worker Qualification*
- NMT-AP-016, *On-the-Job Training and Evaluation*
- NMT-AP-001, *Document Development and Control*
- NMT-AP-003, *Records Management*
- NMT-AP-019, *Training Qualification and Certification Program*
- NMT-AP-014, *Facility-Specific Training*
- NMT-AP-001, *Document Development and Control*

- NMT Division Room Controller: *Training Analysis*
- NMT Division Room Controller: *Training Design, Development, Evaluation, and Implementation*
- TA-55 Training Implementation Matrix, Approved on 09/27/96

Interviews.

- NMT-3 Training Team Leader
- NMT-3 Deputy Group Leader
- Director, Training Integration Office (TIO)

DISCUSSION

1.1.1 It is clear that line management owns and is responsible for training within the NMT Division. NMT-AP-019 identifies NMT-specific positions and details their responsibilities relative to training. Interviews with NMT-3 staff supported and provided necessary details concerning how line management is actively involved in the training and qualification processes of NMT personnel. However, the same can not be said for non-NMT organizations, e.g., Facility Waste Operations (FWO). From the documents provided to the assessment team, it is unclear how organizations such as FWO address training. This is an area that will be closely reviewed during the on-site implementation portion for TA-55 and CMR (Phase 2) of this assessment. In addition, as FWO is present at all LANL nuclear facilities, the next Phase 1 assessment at TA-18 will specifically include FWO.

1.1.2 The assessment team has a concern relative to the most recently approved (i.e., 9/27/96) Training Implementation Plan (TIM) for TA-55. Even though this is not a product of NMT-3 (i.e., the TIM was approved years before NMT-3 came into existence), the Team feels compelled to address its concern here. The preparation, review and approval requirements for a TIM are governed by DOE Order 5480.20A. Specifically, these requirements are set forth in Sections 7.c.(3), 8.a., and 8.b of the Order itself; item 2 of the Contractor Requirements Document; Attachment 2, Definitions, Definition hh; Section 6.c., Chapter 1; Sections 7.a.(1) (a) and (b); and Chapter 1, Section 7.a.(2). Of specific concern to the Team is that the TIM is not current; it reflects neither the existing NMT-3 structure nor the NMT-3 suite of documents. The team also has some questions relative to its standing as a NNSA-approved document. The Director, TIO, referenced a "Lab-wide" TIM that exists in a database in her office, but was uncertain as to that document's approval status. The only thing she was able to provide the team relative to the "Lab-wide" TIM's approval was that it had been "reviewed many times by DOE." At the very least, the latest approved TIM is not current with existing facility infrastructure. The intent of a TIM is to provide the facility and its oversight personnel with a "roadmap" of how a facility's training and qualification program compares against the requirements of DOE Order 5480.20A. Although not stated as a requirement, the intent of the Order relative to TIM in general was for the applicable facility to develop a TIM, have it approved by the applicable authority, and then *maintain it current with facility status.*

1.3.1 While the review of NMT-AP-019, *Training Qualification and Certification Program,*

indicated that a mature and fully implemented training program is in place for the NMT Division, determining exactly what that program is and how it functions is difficult. Specifically, the NMT Division Training Program is a complex, multi-faceted effort involving numerous distinctly separate organizations. There is no question following discussions with NMT-3 personnel that the elements normally associated with the systematic approach to training as required by DOE Order 5480.20A are for the most part in place and functional. However, there is no single document that one can turn to that describes the overall process and how the respective process elements are coordinated and controlled. This opens the door to potential difficulties in process requirement interpretation and implementation.

- 1.3.2 NMT-3 has undertaken the task of developing documents equivalent to position descriptions for each functional position within the NMT Division. This process will result in a comprehensive job analysis for each functional position, lists of position-specific tasks, the development of position-specific training and qualification requirements, and task-specific learning objectives and training materials. An example of how this new process will work and the type of product developed, the NMT Division Room Controller: *Training Analysis* document and the NMT Division Room Controller: *Training Design, Development, Evaluation, and Implementation* document, was provided to the assessment team. A potential weakness in this otherwise sound approach was discovered during the review of these documents is that there is nothing that connects the Task to Training Matrix in the *Training Analysis* document to the Terminal and Enabling Objectives in the *Design, Development, Evaluation, and Implementation* document. As stated, this is a work in progress that will greatly enhance the effectiveness of the NMT Division's training and qualification programs and processes.
- 1.4.1 Over the course of the assessment, numerous training records were requested from NMT-3. In all cases, the EDS seemed to be able to produce the document/record requested in a reasonably short time.
- 1.4.2 Assessors did not observe or otherwise assess the CMT-3 Records keeping system and therefore, no comment, conclusion, or summary relative to its integrity, safety, and/or security is made.
- 1.5.1 The major subcontractor whose employees routinely perform extended work within Los Alamos facilities in general and NMT facilities specifically is Kellog Brown and Root, Inc., Shaw Environmental and Infrastructure, Inc., Los Alamos Technical Associates (KSL). All KSL employees are required to complete all of the training required for access into NMT facilities as well as any facility-specific training requirements pertaining to specific work activities. KSL is responsible for ensuring that all of its employees meet the necessary position-specific entry level requirements, e.g., journey level craft skill, and provide NMT with technically trained and qualified support personnel. KSL maintains the training and qualification records for its personnel documenting that they possess and maintain their required knowledge and skills. NMT-

3 maintains the training records for KSL personnel relative to the training they receive from NMT.

1.5.2 Refer to comment 1.1.1 above for a discussion pertaining to the training for other non-NMT Division personnel.

1.6.1 The physical training facilities (e.g., classrooms, laboratories, furnishings) and equipment (e.g., training aids, A/V equipment) appear more than adequate and will lend themselves to effective training.

CONCLUSION AND SUMMARY

Objective 1 and its six Criteria are met.

NMT Division is organized and managed such that line management is responsible for training and has established a distinct training organization separate from the line. While on the surface this is good, and indeed many facets of the NMT-3 training and qualification effort is good and noteworthy, the complete process one must follow to become fully qualified to perform technical work is very complex and requires multiple organizations. Complicating this fact is that there is no single document that outlines, even at an overview level, how the process works, what the different “hand-offs” to other organizations and procedures are and why they are necessary, and how they are accomplished. This opens the door to inconsistent interpretation and application of requirements with a predictable end result of incomplete and/or inadequate training and qualification of personnel.

In all cases, the EDS seemed to be able to produce the document/record requested in a reasonably short time.

FINDING

1.1 The most recently approved TIM provided to the assessment team is not current with existing facility organization and infrastructure.

OPPORTUNITY FOR IMPROVEMENT

1.1 An integrating document that provides an overview of the training and qualification program and defines the relationships and links between all the procedures and plans associated with the overall training and qualification process would be useful in ensuring a cohesive and enduring program.

Inspected by:	Original signed by Steve Arner, Team Member	Approved by:	Original signed by Lynn Maestas, Team Leader
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Functional Area: Nuclear Facility Training	Criteria Met/Not Met: Not Met
Objective Number: 2	Date: March 19, 2004

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH

Interviews

- Training Team Leader NMT-3
- Deputy Group leader, NMT-3
- Group Leader NMT-3
- Director, Training Integration Office (TIO)

Documents Reviewed.

- LIR300-00-04, *Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce*
- NMT13-AP-58, *Training Leading to Worker Qualification*
- NMT-AP-016, *On-the-Job Training and Evaluation*
- NMT-AP-001, *Document Development and Control*
- NMT-AP-003, *Records Management*
- NMT-AP-019, *R2 Training Qualification and Certification Program*
- *Los Alamos National Laboratory Employee Development System, Training Plans and Courses for PBT Specialists*
- Selected Training Records

DISCUSSION

- 2.1.1 NMT-3 has a large well qualified staff. Computerized formal detailed training plans exist for each position in NMT-3. A high level review of training records indicates that the majority of full time NMT-3 training staff has completed all requirements of their respective training plans. There are no formal qualification documentation systems (such as a qualification card) for the training staff other than these computerized plans. Based on the review of documents provided to the team, it appears that the qualification program for training staff consists only of attendance and successful completion of various training courses. Interviews with NMT-3 staff indicate that performance criteria are included in many of the instructor training courses.
- 2.1.2 For example, an instructor must actually develop and successfully present training to satisfactorily complete the required training. However, there is no documentation or written requirement for any review and evaluation by their Training managers or supervisors as the final step in qualification as required by DOE Order 5480.20 CRD section IV.2.g.(2).(c).2 There is a requirement in LIR300.00.04.2, Laboratory Training: Essential Requirements, stating that, "Instructors who develop or deliver training for the TSQP program shall be certified by TIO." Documents presented to the team do not define the actual certification process.
- 2.1.3 As a second example, LIR 300.00.04.2 states that, "All training staff involved in providing training for qualification or certification programs shall become TSQP qualified." The LIR then states that the individual shall identify the TSQP role appropriate to their assignments and complete the associated training plans. It does not specify or discuss any further requirements. Documents reviewed do not require any manager or supervisor review or participation in the final qualification process.

CONCLUSION AND SUMMARY

Based on the individuals interviewed and the records reviewed, it appears that members of the NMT-3 training staff easily exceed the minimum education and experience requirements outlined in DOE Order 5480.20A and have completed a rigorous training program. However the process, at the programmatic level, is not well defined or documented.

The assessment team also questions the validity of some of the exceptions taken in TIM. For example, LANL has taken exception to almost every contractor entry-level requirement in Chapter 4 of DOE Order 5480.20A Contractor Requirements Document. The team was unable to complete their evaluation of the Laboratory's position due to the unavailability of supporting documents referenced in the TIM.

The team's conclusion is that Objective 2 is not met. Criteria 1 and 2 are met Criteria 3 is not met. The team also identifies the opportunities for improvement listed below.

FINDING

- 2.1 There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.
- 2.2 There are no approved program documents or written requirements that, if implemented as written, would result in formally qualified instructors as defined in DOE Order 5480.20 CRD section IV.2.g.(2).(c).2 or certified as required by LIR300.00.04.2, Laboratory Training: Essential Requirements.

OPPORTUNITIES FOR IMPROVEMENT

- 2.1 Establish a process for documenting management and/or supervisor evaluation as part of the final qualification for training staff positions.
- 2.2 Re-evaluate the exceptions taken for the entry level requirements of DOE Order 5480.20A and submit the Laboratory TIM for review and approval by NNSA.
- 2.3 A formal process that addresses change control for the Institutional TIM should be developed and implemented.

Inspected by:	Original signed by <hr/> Grady Petty, Team Member	Approved by:	Original signed by <hr/> Lynn Maestas, Team Leader
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Functional Area: Nuclear Facility Training	Criteria Met/Not Met: Not Met
Objective Number: 3	Date: March 19, 2004

OBJECTIVE

Trainees meet the minimum requirements for entry into the training program.

CRITERIA

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH

Documents Reviewed.

- Job # 203855, Training Spec 3
- NMT-AP-019, R2, *Training Qualification and Certification Program*
- NMT-AP-014-R1.1, *Facility-Specific Training*
- LANL Training and Testing Requirements Form
- LANL HR-1 Review Sheet
- Job Classification Approval Process (JCOP) Summary
- Hiring Flowchart (LANL Website Manager's Toolkit)
- LANL DOE Order 5480.20A Training Implementation Training Matrix
- Sample Job Posting
- Applicant Screening Worksheet
- AM 107, *External Hiring*
- AM 108, *Internal Transfers*
- AM 728, *Reliability Programs*

Interviews.

- NMT-3 Training Team Leader
- NMT-3 Deputy Group Leader
- NMT-3 Group Leader
- Director, Training Integration Office (TIO)
- HR Generalist (Matrix Support to NMT-3)

DISCUSSION

- 3.1.1 Entry-level requirements are based on an iterative process between the hiring official and the assigned Human Resource (HR) Generalist. The hiring official drafts a job advertisement and provides it to the HR Generalist. The HR Generalist reviews the provided information and utilizes several job aids to ensure that the position has been categorized in accordance with the LANL position classifications for the job series and level. While the matrices that are used to categorize each position appears to be standardized across LANL, a procedure does not exist (or at least was not made available to the Assessors) that formalizes this process and defines how they are to be utilized. In many cases the LANL matrices exceed the requirements of DOE Order 5480.20A. However, a firm link between the requirements and the matrices does not exist to ensure that revisions to the matrices will conform to the DOE Order 5480.20A requirements.
- 3.1.2 Formal position descriptions were not evident in the process. Based on discussion with NMT-3, the best descriptor of each employee's responsibilities is the Job Advertisement under which they were hired. The lack of formality in this process is compounded during the development of each employee's training, qualification, and certification. This issue is discussed in greater detail under the discussion for Objectives 4 and 5.
- 3.1.3 The LANL Training Integration Office (TIO) is responsible for developing and maintaining the institutional level Training Implementation Matrix (TIM). A review of the institutional TIM provided to the team raised some concerns relative to the intent of the entry-level requirements specified in DOE Order 5480.20A. DOE and LANL approvals were not evident on the version of the TIM provided to the Team. The LANL TIM, developed in response to DOE Order 5480.20A, contains exceptions to many of the minimum training and experience requirements (i.e., IV.02.a.1, IV.02.a.2, IV.02.a.3.a, IV.02.a.3.c, IV.02.b.1, IV.02.b.2, IV.02.c.1, IV.02.d.1, IV.02.f.1, IV.02.f.2, IV.02.g.1.b, IV.02.g.2, IV.02.g.b). The response for taking exceptions to each of these Order requirements states "AM201 states policy for requirements for personnel selection. Facility hiring officials have authority to select personnel based on the regulatory environment of their operations (memo from Director's office dated 3/2/94 and PCO:95-05). See I.04.a.1 response." No I.04.a.1 response was found in the TIM. The response to I.04.a response states in part "Post-hiring training is widely used at the Laboratory to provide workers with facility access and position specific skills that are unique to Laboratory operations." Chapter 1 paragraph 4.a. of DOE Order 5480.20A states that "factors such as background experience, and education ... should be based on the ability of the person to meet job performance requirements." The position taken in the LANL TIM does not appear to meet the intent of the Order to establish minimum education and experience requirements for entry-level positions within Nuclear Facilities. Additional issues related to the TIMs are covered under objective 1 of this report.
- 3.1.4 No apparent links were observed between the requirements of DOE Order 5480.20A and the hiring or selection process. In some cases, hiring practices may exceed DOE

Order 5480.20A, but a process is not in place to ensure that the minimum requirements are systematically met.

- 3.1.5 When persons are promoted within their current job series (e.g., SSM-1 to SSM-2), the HR Generalist performs a review that encompasses the accretion of duties. The process does not appear to take into account the minimum position requirements as stated in DOE Order 5480.20A.
- 3.1.6 NMT-AP-019 and NMT-AP-014 discuss training qualification and certification and facility training requirements. These documents concentrate on ensuring that all persons that perform work in NMT Division facilities are trained and qualified. Entry-level requirements were not specified for entry into the training programs encompassed by these procedures.
- 3.1.7 AM 107 includes provisions for the identification of preexisting medical conditions and Laboratory physical examinations for new employees. AM 728 includes medical evaluation requirements for PAP and PSAP candidates. DOE Order 5480.20A, Chapter 4, paragraph 3 states that “Operating contractor management shall determine the physical demands imposed upon operating organization personnel by the job tasks that are required to perform both routine and emergency functions.” Even though medical requirements have been specified Laboratory-wide for entry-level, PAP, and PSAP positions, a process was not observed to establish entry-level medical requirements for specific positions that may require unique physical attributes.
- 3.2.1 Education, required skills, and desired skills are prescribed in each Job Advertisement. The job criteria (both required and desired) are placed on the applicant screening worksheet. According to the interview with the HR Generalist, but not observed in a written procedure, each criterion receives a weighting factor. After applications are received, the hiring official (and others as deemed appropriate by the hiring official) rates each applicant on the criteria for each job and prepares selection documentation. The scores are documented on a table. If an applicant meets a criterion, they receive a numerical score based on how well they met it (e.g., extensive experience receives a score of three; limited experience receives a score of one). If an applicant does not demonstrate a required/desired skill or educational requirement, they receive a score of zero for that element. The HR Generalist reviews the results of this process and forwards the documentation to the Compensation Specialist for the generation of the proposed starting salary. Based on the explanation of this process provided by the HR Generalist, an applicant that did not meet all of the minimum requirements of the Job Advertisement (which should include entry-level requirement as defined in DOE Order 5480.20A, Chapter 4 section 4) could be selected to fill a position in a nuclear facility.
- 3.2.2 The processes discussed in this criterion were not formally defined or documented. No assurance was provided that personnel selected by the Hiring Official would meet all of the Job Announcement or DOE Order 5480.20A entry-level requirements.

3.3.1 A process to review and revise entry-level requirements was not observed. The HR Generalist was not aware of a case where entry-level requirements had been revised based on trainee performance. The Hiring Official has the option to revise future Job Announcements, but a systematic process is not in place to ensure that entry-level requirements are reviewed and revised as necessary based on trainee performance.

CONCLUSION AND SUMMARY

Objective 3 and its associated criteria are not met. Although there seems to be a system of minimum requirements imposed for each position, this does not appear to be formalized.

Additionally, a formal, documented process is not in place to ensure that the requirements of DOE Order 5480.20A associated with hiring entry-level personnel are met. The HR Generalist that provides matrix support to NMT is in the process of developing a formal written process description document and associated training. Completion of these projects and implementation of the training would represent an improvement in the current situation. Incorporation of the minimum DOE Order 5480.20A education and experience requirements would improve the overall process. The institutional TIM provided to the team as the TIM currently in use did not meet the intent of the entry-level requirements contained in DOE Order 5480.20A, Chapter 4. This, coupled with the fact that the TIM presented to the team contains significant changes (when compared to the TIM approved in 1997) that have not been reviewed or approved by DOE/NNSA, represents a significant deficiency.

FINDING

The provided institutional TIM did not meet the intent of the entry-level requirements contained in DOE Order 5480.20A, Chapter 4. Specifically:

- 3.1 A defined and documented process is not in place to ensure that entry-level requirements are systematically established in accordance with the minimum educational, experience, technical, and medical requirements as defined in DOE Order 5480.20A Chapter 4.
- 3.2 A defined and documented process is not in place to ensure that if adequately implemented, personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements in the Job Announcement or DOE Order 5480.20A Chapter 4 prior to being assigned to a position.
- 3.3 A defined and documented process is not in place to ensure that entry-level requirements for LANL positions are reviewed and revised as necessary based on evaluation of trainee performance.

Inspected by:	Original signed by Lynn Maestas, Team Member	Approved by:	Original signed by Lynn Maestas, Team Leader
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Functional Area: Nuclear Facility Training	Criteria Met/Not Met: Met
Objective Number: 4	Date: March 19, 2004

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

CRITERIA

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.

APPROACH

Documents Reviewed.

- NMT-AP-019, *Training Qualification and Certification Program*
- TA55-PED-113-01, *NMT-10 Course Developer's Handbook*
- NMT Division Room Controller: *Training Analysis*
- NMT Division Room Controller: *Training Design, Development, Evaluation, and Implementation*
- LIR300-00-04, *Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce*
- NMT13-AP-58, *Training Leading to Worker Qualification*
- NMT-AP-016, *On-the-Job Training and Evaluation*
- NMT-AP-001, *Document Development and Control*
- NMT-AP-003, *Records Management*

Interviews.

- NMT-3 Training Team Leader
- NMT-3 Deputy Group Leader
- NMT-3 Group Leader

DISCUSSION

- 4.1.1 The process of how job and task analysis is accomplished is not clear from reading NMT-AP-019. NMT-AP-019 provides a general overview discussion of a generic approach to job and task analysis and even provides a sample task to training matrix, but it fails to provide the detail necessary for one to determine the actual process. The documents provided to the assessors to date do not specify how the job and task analysis process is accomplished, nor do they specify how the data resulting from a job and task analysis are transitioned into meaningful and appropriate training program content. While it was obvious that the elements of a job and task analysis were present and largely functional, it was only after extensive discussion with NMT-3 personnel that the assessors were able to learn how the NMT Division accomplishes this vital process. There is no single document that defines or specifies how this is to be carried out.
- 4.1.2 NMT-3 personnel provided the assessors with a recent example of how a job and task analysis is accomplished, as well as an example end product of the process (i.e., the NMT Division Room Controller: Training Analysis document and the NMT Division Room Controller: Training Design, Development, Evaluation, and Implementation document). A review of the Training Analysis document revealed that it contains a comprehensive discussion of the process used to analyze the position of Room Controller, including a discussion of all applicable drivers associated with the need to develop training for Room Controllers and the resultant task to training matrix for Room Controllers. Although the task to training matrix identified specific tasks requiring training, it stopped short of including the learning objective(s) necessary to adequately address the training requirement, or even a reference to where one might go to find those learning objectives. However, a review of the Training Design, Development, Evaluation, and Implementation document provided the reader with a complete presentation of the required learning objectives, as well as the details necessary to develop, implement, and evaluate the training. Unless one already knew that the two documents were inextricably connected, one would have an incomplete picture of how the development of learning objectives and, indeed, training programs are tied to the prerequisite job and task analyses.
- 4.1.3 NMT-3 personnel stated that they were in the process of transitioning from an expert-based training and qualification program to one that is standards based. While on the surface this is beneficial, much of the existing and extensive paperwork documenting the NMT Division's emerging standards-based training and qualification program seems to document the existing expert-based system. It also appears that it requires an extensive knowledge of the expert-based system in order to understand how the new standards-based process flows. The documents assume a pre-existing level of knowledge of the previous expert-based system.
- 4.2.1 A thorough discussion of all of the drivers affecting the training and qualification of Room Controllers was succinctly and clearly presented in NMT Division Room Controller: Training Analysis. The reader is left with a vivid picture of why the training

and qualification program for NMT Division Room Controllers is necessary. If this is representative of how the various drivers affecting training are presented, this is a best practice.

- 4.2.2 Similarly, the Alpha-7 L Continuous Air Monitor Course # 28362 Course Handbook also provided clear references to applicable drivers for the training.
- 4.2.3 The lack of specific program requirements documents for a continuing training program weaken this criterion somewhat. While it is obvious (as stated above) that the suitable references are cited in initial training, the same can not be said for continuing training. There is no procedural guidance governing the development and implementation of a continuing training program, opportunities for inconsistency in approach and level of rigor and discipline exist.

CONCLUSION AND SUMMARY

Objective 4 and Criteria 1 and 2 are met.

Overall, the NMT-3 has an effective process for developing training. It is based primarily on the level of expertise in the NMT-3 organization. Based on the review of the sample training materials provided to the assessment team for review, NMT-3 exercises care in identifying and documenting the applicable requirements drivers for its various lesson plans and related training materials. The team does have some concerns that the formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. Since the foundation of effective training lies upon effective analysis, then inconsistent, incomplete, and/or poorly documented job and task analyses can have a deleterious impact on an otherwise good training and qualification program.

FINDING

None.

Inspected by:	Original signed by Steve Arner, Team Member	Approved by:	Original signed by Lynn Maestas, Team Leader
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Functional Area: Nuclear Facility Training	Criteria 1 and 2 Met/Not Met: Met
Objective Number: 5	Date: March 19, 2004

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

CRITERIA

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH

Documents Reviewed.

- NMT Division Room Controller: *Training Analysis*
- NMT Division Room Controller: *Training Design, Development, Evaluation, and Implementation*
- Alpha-7 L Continuous Air Monitor Course # 28362 Course Handbook
- Alpha-7 L Continuous Air Monitor Course # 28362 Instructor's Guide
- LIR300-00-04, *Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce*
- NMT13-AP-58, *Training Leading to Worker Qualification*
- TA55-PED-113-01, *NMT-10 Course Developer's Handbook*
- NMT-AP-001, *Document Development and Control*
- NMT-AP-003, *Records Management*
- NMT-AP-006, *Short-Duration Hazard Control Plans*

Interviews.

- NMT-3 Training Team Leader
- NMT-3 Deputy Group Leader
- NMT-3 Group Leader

DISCUSSION

- 5.1.1 Section 7.2.2 of TA55-PED-113-01, NMT-10 Course Developer's Handbook, requires the development and use of both terminal and enabling objectives for all training materials developed by NMT. This section also provides a brief but adequate discussion of the theory and philosophy behind learning objectives.
- 5.1.2 The training materials for the Division Room Controller position as well as for the Alpha 7L Continuous Air Monitor that were provided to the assessment team were reviewed for learning objectives in addition to training program content. Both the terminal and enabling objectives for both sets of materials were in place and adequate. The terminal and enabling objectives for the Division Room Controller could be tied directly back to the analysis process results.
- 5.2.1 The lesson plan and supporting materials for the Alpha 7L Continuous Air Monitor training program are well designed, complete, accurate, and well documented. If this one example is typical of other NMT-3 lesson plans, this would be a strength were it not for comment 2 below.
- 5.2.2 The only concern the assessment team has relative to this one example provided to the team for review is that there is no document, this includes any of the documents provided to the team as well references to a document, that specifies the requirements and the general mechanics of developing a complete and effective lesson plan with adequate supporting materials.
- 5.3.1 Although all of the NMT-3 training related documents provided to and reviewed by the assessment team had been formally approved and signed as such, assessors could find no procedural requirement mandating or even suggesting a formal review and approval process for training materials.
- 5.4.1 NMT-AP-019 requires NMT-3 to develop and implement continuing training programs for "all NMT Division workers . . . with specific position needs." The discussion that follows is of a general overview nature and lacks specificity, although it does provide some general guidance relative to program and system knowledge, activity-type training, and required reading. None of the documents provided to the assessment team specify the requirements for and execution of a robust and effective continuing training program, nor do they reference such documents. The fact that such a program exists is beyond question. What is of concern is that without the requirements existing on paper, consistency of approach and level of rigor and discipline between facilities, positions, and employees becomes questionable.

5.4.2 Actual conduct or effectiveness of the NMT Division continuing training program elements was not assessed at this time and therefore no conclusions or findings will be made to that affect.

CONCLUSION AND SUMMARY

Objective 5 and Criteria are met.

It is clear to the assessment team that well-written terminal and enabling objectives are the norm for the training and qualification materials developed by NMT-3. Procedures require the development and use of objectives and there appears to be adequate guidance in how to develop good, effective performance-based learning objectives. Although the learning objectives are developed and in place, in many instances it is difficult to tie the developed learning objective back to a training requirement identified in the job and task analysis process. Being able to easily tie learning objectives to analysis results is an indicator of a well organized, thought out, and effective training program.

When assessing Objective 5, Assessors found another example of a lack of documents containing training program process requirements or at best are extremely hard to find in an otherwise strong program. The fact that training program materials are reviewed and approved is obvious, but the requirement for doing so is evidently a remnant of the former expert based program since it could not be found on paper. Without a formally established review and approval process for developed training materials, the question of how are the materials reviewed and approved arises.

Although Objective 5 is met, Criteria 3 and 4 are weak. While the NMT Division’s training and qualification program contains many areas of strength there seems to be a recurring theme that, at the very least, has the potential to reduce the consistency and effectiveness of the program. Specifically, the “paper element” of the program appears to have some rather large gaps that seem to be filled using an expert-based system approach. This conclusion applies to the continuing training program as well.

FINDING

5.1 The lack of adequate program description and guidance in approved programmatic documents adversely impacts the program and has the potential to result in incomplete, inaccurate, and/or ineffective training.

Inspected by:	Original signed by Steve Arner, Team Member	Approved by:	Original signed by Lynn Maestas, Team Leader
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Functional Area: Nuclear Facility Training	Criteria Met/Not Met: Not Met
Objective Number: 6	Date: March 19, 2004

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH

Documents Reviewed.

- LIR300-00-04, *Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce*
- NMT13-AP-58, *Training Leading to Worker Qualification*
- NMT-AP-016, *On-the-Job Training and Evaluation*
- NMT-AP-001, *Document Development and Control*
- NMT-AP-006, *Short-Duration Hazard Control Plans*
- NMT-AP-007, *Hazard Control Plans*
- TA55-PED-113-01-R01, *NMT-10 Course Developer's Handbook*
- NMT-AP-003, R0, *Test Development and Administration*
- NMT-AP-014-R1.1, *Facility-Specific Training*
- NMT-AP-554, R3, *Training Analysis for Procedures*
- NMT-AP-019, R2, *Training Qualification and Certification Program*

Interviews.

- NMT-3 Group Leader
- NMT-3 Deputy Group Leader
- NMT-3 Training Team Leader

DISCUSSION

- 6.1.1 NMT-AP-019, R2, 4.0 Training Evaluation states that performance checklists, performance demonstrations and comprehensive examinations are conducted and for which task risk level they should be conducted for.
- 6.2.1 NMT-AP-019, R2, 4.1 *Performance Checklists*, points the developer to NMT-AP-016, *On-the-Job Training and Evaluation* for the preparation of performance Checklists. NMT-AP-019, R2, 4.2 *Performance Demonstrations* and 4.3 *Examinations* do not provide guidance on how to develop performance demonstrations and examinations and do not point the developer to where that guidance can be found.
- 6.2.2 NMT10-AP-003, *Test Development and Administration*, Appendix A, *Guidelines for Item Writing, Section 14*; states “Each item must be linked to one of the specified enabling objectives, and for each enabling objective there should be at least one test question.”
- 6.2.3 NMT10-AP-003 provides the guidance necessary, which if implemented as written, ensures that written examinations are based on learning objectives, administered consistently, controlled, and documented.
- 6.2.4 There is no procedure provided that provides developers instruction on the development, administration, and control of oral examination questions.
- 6.3.1 NMT10-AP-003, R0, *Test Development and Administration* does not provide guidance to periodically change written and oral examinations.
- 6.4.1 NMT10-AP-003, R0, *Test Development and Administration* provides guidance, which if implemented as written ensures the development, approval, security, administration, and maintenance of written examinations. There is no procedural guidance that would ensure the development, approval, security, administration, and maintenance of oral examinations and performance evaluations.
- 6.4.2 As stated, NMT-AP-019, R2, Section 4.1 points to NMT-AP-016 for the preparation of Performance Checklists. A review of NMT-AP-016 indicated a lack of guidance on the preparation of OJT Performance Checklists. Without this guidance, it is impossible to determine if Performance Checklists are based on learning objectives and if Performance Checklists are developed in a consistent manner.
- 6.5.1 NMT10-AP-003, R0, *Test Development and Administration* provides guidance, which if implemented as written ensures remedial training and reevaluation are provided when examination or performance standards are not met.

CONCLUSION AND SUMMARY

Criteria 2, 3, and 4 are not met. Objective 6 is not met.

While documentation is in place that governs the development, approval, security, administration and maintenance of written examinations, there appears to be no procedural documentation that governs the same for oral examinations and performance evaluations. Therefore, the intent of Objective 6 is not met.

FINDING

6.1 There is no procedural documentation that provides for the development, approval, security, administration and maintenance of oral examinations and performance evaluations. Without this documentation, the consistency of trainee evaluation may not be achieved.

Inspected by:	Original signed by _____ Lawrence Palmer, Team Member	Approved by:	Original signed by _____ Lynn Maestas, Team Leader
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Functional Area: Nuclear Facility Training	Criteria Met/Not Met: Not Met
Objective Number: 7	Date: March 19, 2004

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH

Documents Reviewed.

- LIR300-00-04, *Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce*
- NMT13-AP-58, *Training Leading to Worker Qualification*
- NMT-AP-016, *On-the-Job Training and Evaluation*
- NMT-AP-001, *Document Development and Control*
- NMT-AP-006, *Short-Duration Hazard Control Plans*
- NMT-AP-007, *Hazard Control Plans*

- TA55-PED-113-01-R01, *NMT-10 Course Developer's Handbook*
- NMT-AP-003, R0, *Test Development and Administration*
- NMT-AP-014-R1.1, *Facility-Specific Training*
- NMT-AP-554, R3, *Training Analysis for Procedures*
- NMT-AP-019, R2, *Training Qualification and Certification Program*

Interviews.

- NMT-3 Group Leader
- NMT-3 Deputy Group Leader
- NMT-3 Training Team Leader

DISCUSSION

- 7.1.1 Program evaluation of NMT training courses is governed by TA55-PED-113-01-R01, *NMT-10 Course Developer's Handbook, Section 8.3 – Evaluating Content*. Comments for Section 8.3 are as follows:
- 7.1.2 Section 8.3.1 – *Level 1, Reaction Evaluation for Facility-Specific Courses* states “NMT-10 uses self-paced course critiques (Attachment 3) to conduct Level 1, Reaction Evaluation for all Facility-Specific Courses.” The course critiques are sent to the responsible course developer who adds the course critiques to the applicable Course Notebook. There is no requirement to revise the course material based on the results of the course critiques.
- 7.1.3 Section 8.3.2 – *Level 2, Learning Evaluation* states, “NMT-10 uses written examinations, computer based examinations, or performance checklists to conduct Level 2, Learning Evaluation.” A Course Material Evaluation Form is used to document trainees' observations of specific inaccurate or questionable training material. Test item analysis is also used to analyze existing and/or new written examinations. The results of the test item analysis and the Course Material Evaluation Form is used to revise training courses.
- 7.1.4 Section 8.3.3 – *Level 3, Behavior Evaluation* states, “NMT-10 uses the NMT Management Walk Around Program to conduct Level 3, Behavior Evaluation.” The NMT Management Walk Around Program procedure was unavailable for review. The Course Developer's Handbook does not contain direction on how to implement and administer level 3 evaluations.
- 7.1.5 Section 8.3.4 – *Level 4, Results Evaluation* states, “NMT-10 monitors indicators such as TA-55 occurrences, accident/incident reports, and audit findings to conduct Level 4, Results Evaluation.” The Handbook does not contain direction on how to implement and administer level 4 evaluations.
- 7.1.6 TA55-PED-113-01-R01 demonstrates that there is a defined process in place for trainees to evaluate individual training courses. However, this process did not demonstrate that there was a comprehensive evaluation of individual training programs by qualified individuals on a periodic basis to identify program strengths and weaknesses.

- 7.2.1 Instructors are evaluated using Level 1 evaluation. There is no procedural guidance that directs instructional improvement based on the results of these evaluations.
- 7.3.1 Feedback from trainee performance is documented in TA55-PED-113-01-R01. The procedure did not include a mechanism to systematically refine the training program based on the feedback. Feedback from supervisors of former trainees to evaluate and refine the training program was not demonstrated.
- 7.4.1 A systematic process to monitor and evaluate change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) was not provided. Based on discussions with NMT-3, there is a reliance on informal communication with the rest of NMT to determine when there has been a change that could result in the need to develop or update existing training.
- 7.5.1 Evidence was not provided of a process to ensure that improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
- 7.6.1 Evidence was not provided of a process to ensure that training materials are maintained current, based upon the results of training program evaluations.
- 7.7.1 A process to evaluate training facilities was not demonstrated. Training facilities will be reviewed during phase 2 of this assessment.

CONCLUSION AND SUMMARY

Criteria 1 – 6 are not met. Criteria 7 was not evaluated. Objective 7 is not met.

There is a lack of procedural guidance regarding training program evaluation. What procedural guidance there is only defines the four different levels of evaluation, and does not provide any direction on how to administer or implement an effective and efficient training evaluation program.

FINDING

- 7.1 Implementation of procedures as written will not result in an effective training evaluation program.

Inspected by:	Original signed by Lawrence Palmer, Team Member	Approved by:	Original signed by Lynn Maestas, Team Leader
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Attachment C
Group 2 Facilities
Assessment Report

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LOS ALAMOS SITE OFFICE

**Nuclear Facility Training and Qualification
Assessment Report**

For

Los Alamos National Laboratory
Los Alamos Critical Experiments Facility (TA-18) and
Facility and Waste Operations (FWO) Division

Signature Sheet

Original signed by

Lynn Maestas, NNSA/AL
Team Leader

Original signed by

Grady Petty, Epsilon Systems Solutions, Inc.
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ATTACHMENTS

- ATTACHMENT A **NUCLEAR FACILITY TRAINING AND QUALIFICATION
ASSESSMENT PLAN**
 Appendix 1 Criteria and Review Approach Document
 Appendix 2 Sample Verification Form
- ATTACHMENT B **GROUP 2 NUCLEAR FACILITIES VERIFICATION FORMS**

EXECUTIVE SUMMARY

At the direction of the Manager, National Nuclear Safety Administration/Los Alamos Site Office (NNSA/LASO), and in coordination with the Senior Technical Safety Advisor, LASO, a plan for the assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities was developed. The plan is included as Attachment A. Per the approved assessment plan, the assessment is being conducted in two phases. The first of these phases is a high-level or programmatic level review. A Phase 1 assessment of the first group of nuclear facilities, Technical Area (TA) -18/Los Alamos Critical Experiments Facility (LACEF) was conducted during the period of March 29 through April 2, 2004. In addition to the TA-18/LACEF organization training program, the Facility and Waste Operations (FWO) Division training program that pertains to FWO personnel providing matrix support in TA-18, TA-55, and Chemical and Metallurgy Research (CMR) Facility was also reviewed. As discussed in the assessment report for TA-55 and CMR completed in March, the information necessary to evaluate adequately the FWO Division program in TA-55 and CMR was not available to include the results in the earlier report.

The team has concluded that in most cases, the documentation reviewed (Laboratory-wide Training Integration Office TIO and N-2 Division) did not contain adequate guidance for a process-based program that meets the requirements and intent of DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

The team also determined that a position-specific formal Training and Qualification program for FWO personnel (e.g., TA-18 Facility Coordinator positions or Facility Manager at TA-55), matrixed to the responsible division with the overall responsibility for the safe operation of the facility does not exist. Further, there is confusion about which organization is responsible for the training and qualification of the FWO deployed personnel in the facility. Neither the FWO, NMT Division (for CMR and TA-55) nor the N-2 Division (for TA-18/LACEF) are taking responsibility for ensuring that the FWO personnel who are deployed into the facility are properly trained and qualified to perform their job functions.

The combination of weaknesses in the N-2 program, combined with the apparent lack of defined qualification requirements for key FWO personnel, is a significant concern.

The assessment plan identified seven objectives for review. All objectives and supporting criteria were selected from DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*. A summary of the team's assessment of each objective is provided in the body of the report and individual Verification Forms are included as Attachment B.

Overall, there were 12 findings and 2 opportunities for improvement. Summaries of Findings and Opportunities for Improvement are included in Table 1, *Findings Summary*, and Table 2, *Opportunities for Improvement Summary*.

Table 1. Finding Summary

Finding #	Findings
1.1	Neither the FWO nor the facility-owner Division (NMT or N-2) are taking responsibility for ensuring that the FWO personnel who are deployed into the TA-18/LACEF, TA-55, or CMR facilities are properly trained and qualified to perform their job functions.
2.2.1	There are no approved Laboratory or Facility program documents or written requirements that, if implemented, would result in trained and qualified instructors who meet the requirements of DOE Order 5480.20A, Contractors Requirements Document, Chapter III, Paragraph 2.g.(2).(c), or certified instructors who meet the requirements of LIR 300-00-04.
2.2.2	There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.
3.1	A defined and documented process is not in place to ensure that entry-level requirements are systematically established in accordance with the minimum educational, experience, technical, and medical requirements as defined in DOE Order 5480.20A, Chapters III and IV.
3.2	A defined and documented process is not in place to ensure that, if adequately implemented, personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements in the Job Announcement or DOE Order 5480.20A, Chapters III and IV, prior to being assigned to a position.
3.3	A defined and documented process is not in place to ensure that entry-level requirements for LANL positions are reviewed and revised as necessary based on evaluation of trainee performance.
4.1	There is a lack of procedural guidance/direction relative to job and/or task analysis.
4.2	Neither FWO nor N-2 management are ensuring that the FWO personnel who are "deployed" into the N-2 organization are trained and qualified to perform their assigned duties and responsibilities.
5.1	None of the documents provided the Assessment Team define or quantify the review, approval, and control requirements for training materials.
5.2	The lack of adequate program description and guidance for continuing training in approved programmatic documents has the potential to adversely impact N-2's training and qualification program by permitting incomplete, inaccurate, untimely, and/or ineffective continuing training.
6.1	Current written procedures do not meet the requirements and intent of DOE Order 5480.20A regarding written and oral examinations.
7.1	Current written procedures do not implement an effective training evaluation program. Requirement: DOE Order 5480.20A, I.7.b.(5)

Table 2. Opportunities for Improvement Summary

OFI #	Opportunities for Improvement
4.1	Program should be revised to reflect qualification occurring before certification.
5.1	Although the documents reviewed by the Assessors were, for the most part, complete, well written, and easy to understand, they tended to be written “descriptively” as opposed to “prescriptively.” By writing programmatic documents in a prescriptive manner, many of the difficulties related to interpretation, consistency, and approach are eliminated. This lends itself to an increase in overall training program effectiveness.

1.0 Introduction

At the direction of the Manager, National Nuclear Safety Administration/Los Alamos Site Office (NNSA/LASO), and in coordination with the Senior Technical Safety Advisor, LASO, an assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities has begun. The Assessment Plan, included as Attachment A, requires a two-phase assessment. Phase 1 is a high level or programmatic level review. Phase 2 is an in-depth review of all facets of the implementation of the requirements of DOE Order 5480.20A in each LANL nuclear facility.

A Phase 1 assessment of the second group of nuclear facilities, Technical Area (TA)-18 and the Facility and Waste Operations (FWO) Division was conducted during the period of March 29 through April 2, 2004.

2.0 Purpose

This assessment is the first part of a larger assessment that has been designed to evaluate the effectiveness and consistency in implementation of the LANL nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

3.0 Scope

This report contains the results of the Phase I assessment of the N-2 and FWO programs that apply to the majority of personnel in the second group of nuclear facilities. The contractor, prior to the N-2 group assessment, provided documentation, and the FWO Division, which supplies the facility management and support staff to nuclear facilities at LANL, also provided documentation during the assessment. The FWO Division training and qualification program was reviewed as part of the second group of nuclear facilities.

4.0 Sequence of Activities

This assessment consisted of a preliminary document review, documents which were identified and requested two weeks prior to a scheduled on-site review, followed by a week in Los Alamos to interview training management, training staff, and a review of additional documents that were not initially provided. The team used the Criteria and Review Approach Document (CRAD) to guide the review.

A Verification Form was prepared for each objective in the CRAD to document the basis for the conclusions reached concerning the objective and criteria. Findings identified during the review of the individual CRAD are discussed in detail on the associated verification form. Individual verification forms are included as Attachment B.

5.0 Assessment Results

Although technical training is occurring for N-2 personnel, it is more the result of the individual commitment of the training coordinator and management as opposed to a group of well-defined programmatic elements. There is a lack of adequate programmatic documents with sufficient specificity to ensure that the various requirements of a mature training program are met. This creates the potential for inadequate, inaccurate, untimely, or incomplete training.

The Assessors' overall conclusion is that N-2 management owns and is responsible for the training and qualification of N-2 Division personnel. However, Assessors have a serious concern that the existing programs do not ensure that non-N-2 Division personnel (or non-NMT Division, for TA-55 and CMR), e.g., FWO Division personnel, who are deployed into the facilities for extended periods of time, are properly trained and qualified. This is largely due to confusion over who is responsible for the training and qualification program for matrixed FWO personnel. Based on document review and interviews conducted with N-2, NMT, and FWO staff, it appears that responsibility is currently unassigned.

Programmatic documentation necessary to meet fully the requirements and intent of DOE Order 5480.20A is not in place. During the course of the assessment, it became apparent that many of the areas examined were not well defined, specifically:

- Instructor qualification and instructor continuing training program (Objective 2)
- Entry-level requirements (Objective 3)
- Formal job and task analysis (Objective 4)
- Training design, development, and implementation (Objective 5)
- Development, approval, security, administration, and maintenance of examinations (Objective 6)
- Comprehensive training program evaluation, (i.e., identification of improvements, development of corrective actions, and implementation and follow-up of corrective actions) (Objective 7)

A summary of the results of the assessment of LANL's status in developing and maintaining a program that would meet the Objectives established in DOE-STD-1070-94 is provided below. The detailed discussion that expands on this summary is contained in the objective-specific verification forms. Verification forms are included as Attachment B.

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

The Assessors' overall conclusion is that N-2 management owns and is responsible for the training and qualification of N-2 Division personnel. However, Assessors have a serious concern that the existing programs do not ensure that non-N-2 Division personnel (or non-NMT Division, for TA-55 and CMR), e.g., FWO Division personnel, who are deployed into the facilities for extended periods of time, are properly trained and

qualified. This is largely due to confusion over who is responsible for the training and qualification program for matrixed FWO personnel. Based on the documents reviewed and interviews with N-2, NMT, and FWO staff, it appears that the responsibility is currently unassigned.

In all cases, the EDS seemed to be able to produce the document/record requested in a reasonably short time.

The N-2 Division has recently moved into its new building, which has provisions for permanent, large, functional training classrooms. The conducting of more traditional classroom type training will take place in the new facilities. The bulk of the training conducted within N-2 is of the on-the-job training (OJT) nature and is executed in the field either on actual equipment, or on staged mockups. The facilities are entirely adequate and support good training.

Objective 1 and Criteria 1, 3, 4, 5, and 6 are met, although Criterion 2 is not met.

The team identified 1 Finding associated with this objective.

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Based on individuals interviewed and documents reviewed, there is no formal process that, when implemented, would result in instructors who would meet requirements outlined in DOE Order 5480.20A. Currently, senior technical personnel who do not meet the requirements of the DOE order or the LIR to be qualified and certified instructors are performing instructor functions. The TA-18 Training Manager explained that they are moving to qualify more instructors. Facility-specific Procedures indicate that only those individuals performing instructor functions more than 20% of their work schedule will be required to qualify as instructors. Although on the surface this is very logical, it should be noted that the Training Manager is the only person currently in an established training position. Implementing the procedures that impose the 20% criteria to identify those individuals who ultimately would be required to qualify as instructors may not significantly change the number of qualified instructors.

The team's conclusion is that Objective 2 is not met.

The team identified 2 findings associated with this objective.

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

The N-2 Training Implementation Matrix (TIM) and associated training plans appear to exceed the requirements of DOE Order 5480.20A. However, a firm link between the

requirements of the order and the training plans does not exist to ensure that revisions will necessarily conform to the DOE Order 5480.20A requirements. A formal, documented process is not in place to ensure that the requirements of DOE Order 5480.20A associated with hiring personnel are systematically met.

The team's conclusion is that Objective 3 is not met.

There were 3 Findings associated with this objective.

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

The formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. This lack of rigor can result in inconsistent analysis. Inconsistent, incomplete, and/or poorly documented job and task analyses can have a serious negative impact on the organization's training and qualification program.

Based on the documents presented and interviews with key personnel, neither the FWO organization nor the N-2 organization is ensuring that the FWO personnel who are "deployed" into the N-2 organization are trained and qualified. Each organization cites organizational procedures/guidance documents that specify the training and qualification of these types of personnel is the responsibility of the other organization.

The team's conclusion is that Objective 4 is not met.

There were 2 Findings, 1 Opportunity for Improvement and 2 Best Practices associated with this objective.

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

The documents provided to the Assessors for review were, for the most part, complete, well written, and easy to understand. However, these documents tended to be written at a very high "descriptive" level as opposed to a more detailed "prescriptive" level.

The lack of specificity referenced above has the potential to cause inconsistent approach to training analysis, design, development, implementation, and evaluation in both the classroom and OJT settings. For example, continuing training is a critical element of maintaining one's certification and/or qualification status. Yet, N-2 does not seem to have

a document, or even a section within an existing document, that actually prescribes continuing training program requirements. The continuing training program that is in place and apparently functioning is largely due to the significant knowledge and drive of the N-2 Training Manager and her ability to work within the existing organizational structure to ensure continuing training occurs, as it should when it should.

The team's conclusion is that Objective 5 is met.

There was 2 Findings, 1 Opportunity for Improvement and 1 Best Practice associated with this objective.

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

There is a lack of procedural guidance regarding the development, approval, security, administration, and maintenance of written examinations. The facility-specific procedures point to the Laboratory-wide training procedures that do not contain sufficient guidance to ensure personnel responsible for written examinations met the intention of DOE Order 5480.20A.

The team's conclusion is that Objective 6 is not met.

There was 1 Finding associated with this objective.

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

There is a lack of procedural guidance regarding training program evaluation. What procedural guidance there is only defines very basic requirements for training program evaluation, and does not give any guidance on a training-program-evaluation-process. Without this detailed guidance, there can be no assurance that comprehensive training evaluation is conducted as required by DOE Order 5480.20A.

The team's conclusion is that Objective 7 is not met.

There was 1 Finding associated with this objective.

6.0 Conclusion

The team has concluded that in most cases, the documentation reviewed (Laboratory-wide [TIO] and N-2 Division) did not contain adequate guidance for a process-based program, which meets

the requirements and intent of DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

The team has also concluded that a position-specific formal training and qualification program for FWO personnel (e.g., TA-18 Facility Coordinator positions, or Facility Manager at TA-55), matrixed to the responsible division with the overall responsibility for the safe operation of the facility, does not exist. Further, there is confusion about which organization is responsible for the training and qualification of the FWO deployed personnel in the facility. Neither the FWO nor the N-2 Division are taking responsibility for ensuring that the FWO personnel deployed into the facility are trained properly and/or qualified to perform their job functions.

Attachment A
Nuclear Facility Training and Qualification
Assessment Plan

NATIONAL NUCLEAR SECURITY ADMINISTRATION
LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Plan

January – June 2004

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ATTACHMENTS

- Appendix 1: Criteria and Review Approach Document
- Appendix 2: Sample Assessment Verification Forms

Los Alamos Site Office
Nuclear Facility Training and Qualification Program
Assessment Plan

1.0 INTRODUCTION

The Manager, National Nuclear Security Administration, Los Alamos Site Office (NNSA/LASO), is committed to ensuring a safe and healthful work environment consistent with applicable regulations, orders, and policies for NNSA/LASO, contractors, and users at NNSA/LASO facilities. An effective Contractor Nuclear Facility Training and Qualification Program is critical to establishing and maintaining that environment.

1.1 Purpose

At the direction of the Manager, this assessment will evaluate the effectiveness and consistency in implementation of the Los Alamos National Laboratory (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

1.2 Scope

The assessment will examine the line organization's effectiveness in defining and implementing the programmatic elements of nuclear facility training and qualification program.

1.3 Sequence of Activities

The assessment will consist primarily of document reviews and interviews with the line organization managers and training managers responsible for implementing a training and qualification program that is compliant with DOE Order 5480.20A in their respective nuclear facilities. Each nuclear facility will be evaluated independently. The review will consist of two major activities. First, a high-level review of the programmatic elements of the LANL nuclear facility personnel training and qualification program; and second, a more detailed assessment of the implementation of the program and its effectiveness.

1.3.1 High Level Review

This review consists of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review, followed by a one-day on-site visit to each facility. The team will use the Criteria and Review Approach Document (CRAD) (Appendix 1), to guide the review.

A Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be

included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

Each area defined in the CRAD is intended to guide the evaluation of the status of implementation of an effective nuclear facility training and qualification program. As such, the Verification Form discussion of the results will include information concerning the status of implementation.

At the conclusion of the on-site review, the team will analyze the data collected and as necessary request additional data from the appropriate LANL organization. The team will submit the results of the individual facility reviews to the Manager, LASO, and the LANL organizations being evaluated as they are completed. Once data has been collected from all facilities, the team will develop a draft of the final assessment report communicating the assessment team's findings and evaluation of the LANL training and qualification program for nuclear facility personnel and submit it to LANL to verify the accuracy of the findings. The final report will then be submitted to the Manager, LASO. The report will state the team's conclusion as to the status of implementation of an effective nuclear facility training and qualification program across the LANL organizations based on the evidence of the high-level review. It will provide a detailed listing of all findings and areas for improvement as well as identify any noteworthy practices the team observed.

1.3.2 Detailed Assessment

At the completion of the high-level review, areas identified in the review as weak or non-compliant will be evaluated in much greater detail to determine the extent of the weakness. In addition, the Laboratory's status in meeting each objective and supporting criteria in DOE-STD-1070-94; *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*, will be evaluated. The detailed assessment will rely much more heavily on observing training activities, interviewing instructors and line organization technical staff, detailed reviews of training material content as compared to current facility status, etc. A new formal CRAD will be developed for use in the detailed assessment.

As in the high-level review, a Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

The reporting process for the Detailed Assessment final report will follow the same report sequence as that described for the high-level review.

2.0 ASSESSMENT OBJECTIVES

As stated, the review will be conducted using the CRAD. The detailed listing of evaluation criteria for the high-level review are provided in Appendix 1, Criteria and Review Approach Document. The assessment team will evaluate each Laboratory organization conducting work in nuclear facilities to determine their status in meeting the following objectives.

2.1 Objective 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

2.2 Objective 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

2.3 Objective 3

Trainees meet the minimum requirements for entry into the training program.

2.4 Objective 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

2.5 Objective 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

2.6 Objective 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

2.7 Objective 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

3.0 ADMINISTRATION

3.1 Meetings and Presentations

The assessment will be an open process with the goal of maximizing the opportunity to achieve a full understanding of the effectiveness of the Laboratory's nuclear facility training and qualification program.

The Team Leader will conduct an outbrief with the LASO Senior Technical Advisor. The briefing will include the findings of the team and the basis for any recommendations that will be made to the Manager concerning implementation of the nuclear facility training and qualification program.

3.2 Documentation

The assessment will be guided by the CRAD. The documentation will be structured in a manner to show that the elements of the CRAD were evaluated and that the criteria were met or what aspects of the criteria were found to be deficient. The purpose of the documentation is to provide information concerning details of the review to individuals who did not witness the review.

In order that the schedule for assessment is maintained and the draft report complete prior to dissolution of the team, each team member will document his/her work as it is conducted. This means daily input to the Verification Forms. Each reviewer will be provided with a preliminary Form 1 containing the objective and criteria for each CRAD. In the event that issues of noteworthy or questionable practices are identified, they will be documented within the Verification Forms. If the final report to the Manager, NNSA/LASO, recommends technical direction to organizations, those actions will be supported by detailed information on the Verification Forms. The team members are responsible for ensuring that the Form 1s do not contain Classified or Unclassified Controlled Nuclear Information (UCNI).

3.3 Team Composition

The team consists of the following individuals:

Team Leader	Lynn Maestas, NNSA/AL
Team Members	Grady Petty, Epsilon Systems Solutions, Inc. Steve Arner, Epsilon Systems Solutions, Inc. Larry Palmer, Epsilon Systems Solutions, Inc. Bill Lapsansky, Epsilon Systems Solutions, Inc. Mark Schares, Epsilon Systems Solutions, Inc.

4.0 SCHEDULE

For planning purposes, the projected schedule for the nuclear facility training and qualification program assessment at LANL is as follows:

Los Alamos Site Office Contractor Training Review

Group	Request for Documents	Documents Due	Onsite	Facility Report
Group 1 TA-55, CMR	Feb. 17	Feb. 24	Mar. 08-12	Mar. 12-19
Group 2 TA-18	Mar. 08	Mar. 15	Mar. 29-Apr. 02	Apr. 02-09
Group 3 TA-8 WETF	Apr. 05	Apr. 12	Apr. 19-26	Apr. 26-May 01
Group 4 RANT/ WCRR/ MDA TA-54 (Area G, RLW) TA-53 (LANSCE)	Apr. 26	May 03	May 10-17	May 17-24

Draft Summary Report June 01

Final Summary Report June 18

Appendix 1

Criteria and Review Approach Document

Appendix 1 Criteria and Review Approach Document

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

Criteria

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

Approach

Document Review

- Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training
- Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control
- Selected individual training records
- Documents that define the goals, objectives and plan for implementing the training and qualification program
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Criteria

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

Approach

Document Review

- List of qualified instructors (classroom and OJT)
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team
- Selected training staff training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

Criteria

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

Approach

Document Review

- Copies of facility- or organization-specific Job and Task Analysis implementing procedures
- The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position
- The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position
- Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

Approach

Document Review

- Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved
- Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current
- Existing lesson plans and/or OJT guides for training selected technical staff positions
- Documentation of completed continuing training
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Criteria

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations
- Selected examinations
- Selected individual training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Criteria

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position-specific training effectiveness
- Training evaluation documentation
- Selected training materials

Interviews

- **Line organization training representative**
- **Facility/Organization Training Manager**

Appendix 2
Sample Verification Form

APPENDIX 2
Sample Verification Form

Functional Area: Objective Number:	Criteria Met/Not Met: Date:
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OBJECTIVE

CRITERIA

APPROACH

Documents Reviewed.

Interviews.

DISCUSSION

CONCLUSION AND SUMMARY

FINDING

NA

Inspected by: _____ Team Member	Approved by: _____ Team Leader
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Attachment B
Group 2 Nuclear Facilities
Verification Forms

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Met
Objective Number:	1	Date:	April 9, 2004

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

CRITERIA

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification program(s).
4. Training records are maintained to support management information needs and to provide required historical data.
5. Training developed and/or implemented by personnel or organizations other than the operating contractor's staff is monitored and controlled to ensure that it meets applicable facility requirements.
6. Training facilities, equipment, and materials effectively support training activities.

APPROACH

Documents Reviewed

- LACEF TIM dated 3/10/04
- Training Plan 2311, LACEF Crew Chief Certification
- Training Plan 4887, LACEF Crew Member Certification
- Training Plan 4213, TA-18 Fissionable Material Handler Certification
- Training Plan 411
- Training Plan 2318
- Training Plan 2383
- LACEF Training Modules
- List of Qualified OJT Instructors/Evaluators
- N2-TRN-PLN-0265, Rev 0, On the Job Training for N-2 Activities
- N2-TRN-PLN-0286, Rev 0, N-2 Train the Trainer Course
- NIS6-TRN-PLN-0078, Rev 1, LACEF Training Plans and Requirements

- TA18-TRA-PLN-0077, Rev 1, TA-18 Training Program Plan
- TA18-TRN-PLN-0106, Rev 1, Certified Fissionable Material Handler Training Plan
- TA18-TRN-PLN-0148, Rev 0, TA-18 TSR LACEF Briefing, Course #25666
- Approved Organizational Charts for TA-18 and NIS
- NIS6-QA-PLN-0110, Rev 0, *N-2 Management Plan*
- TA18-AB-SAD-0102, Basis for Interim Operations at TA-18
- TA18-OP-PRO-0104, Conduct of Operations Manual
- TA18-CM-PRO-0002, TA-18 Records Management
- TA18-AB-SAD-0094, Technical Safety Requirements for TA-18
- NIS6-CEF-QAP-91.5, *LACEF Training Plan*
- TA18-ADM-PRO-0108, Rev 0, TA-18 Hazard Control Plan Instructions
- TA18-CP-HCP-0019, Rev 4, TA-18 SNM MBA Operations Hazard Control Plan

Interviews.

- N-2 Training Manager
- N-2 Safety and Security Team Leader
- N-2 Deputy Group Leader
- Director, Training Integration Office
- Facility Manager (FWO) TA-55

DISCUSSION

- 1.1.1 N-2 documents provided to the Assessment Team for review contained clear and unambiguous statements indicating that N-2 line management owns and is responsible for ensuring N-2 personnel are trained and qualified to perform their job assignments. The N-2 Deputy Group Leader actively participated in a N-2 briefing regarding training. It was obvious to the Assessors that the Deputy Group Leader owned (i.e., was knowledgeable of all aspects of the program and was playing an active role in its implementation) the training for N-2 Division personnel.
- 1.1.2 While N-2 line management clearly owns the training for N-2 Division personnel working within the TA-18/LACEF facility, the same cannot be said for non-N-2 organizations, e.g., Facility Waste Operations (FWO) Division. N-2 and NMT documents clearly and specifically exclude FWO and sub-contract groups from the purview of line management's ownership/responsibility for ensuring the facility is staffed with properly trained and qualified workers. NMT and N-2 documents specifically assign that responsibility to FWO as the "parent" organization. In separate interviews with key FWO management team members, Assessors learned that FWO expects the position-specific portion of the deployed FWO personnel to be identified and provided for the Division owning the facility. This statement applies only to those FWO personnel who are "deployed" into the facility on a permanent basis and includes personnel at senior decision-making levels, e.g., Facility Managers. This issue was first identified in the TA-55/CMR assessment a few weeks ago, but could not be fully assessed due to schedule conflicts that precluded meeting directly with FWO. A careful review of documents and the above-referenced interviews have confirmed and

substantiated the initial observation. An interview with the TA-55 Facility Manager indicates that at the facility level, in some cases, efforts are underway to develop a comprehensive facility-specific, position-specific qualification program. However, this effort is just beginning. The Assessors are concerned that the potential exists for having inadequately trained and qualified personnel assigned to key positions in the facility.

- 1.2.1 As discussed in Criterion 1, it is clear that N-2 line management owns and is responsible for ensuring N-2 personnel are trained and qualified to perform their job assignments. As discussed in 1.1.2 above, the same cannot be said for the training and qualification of non-N-2 personnel assigned or "deployed" to the facility from another organization, e.g., FWO.
- 1.3.1 Numerous documents were provided to the Assessment Team that mandated the establishment of a facility-specific training and qualification program. Overall, these documents were well written, clear, and concise. However, they are written more at a descriptive as opposed to prescriptive level, creating the potential for difficulties in ensuring a consistent approach to training program execution.
- 1.4.1 Over the course of the assessment, numerous training records were requested and received from N-2 and reviewed by Assessment Team members. The training records were universally the same, having come from the EDS database.
- 1.4.2 Assessors did not observe or otherwise assess the N-2 recordkeeping system and therefore, no comment, conclusion, or summary relative to its integrity, safety, and/or security is made.
- 1.5.1 Refer to comment 1.1.2 above for a discussion on the training for non-N-2 Division personnel who are deployed to TA-18/LACEF.
- 1.6.1 The physical training facilities (e.g., classrooms, laboratories, furnishings) and equipment (e.g., training aids, A/V equipment) appear more than adequate and lend themselves to effective training. The new building into which N-2 recently moved has provisions for classrooms and other training-related areas. This is an excellent facility.

CONCLUSION AND SUMMARY

Objective 1 and Criteria 1, 3, 4, 5, and 6 are met, although Criterion 2 is not met.

While the Assessors' overall conclusion is that N-2 management owns and is responsible for the training and qualification of N-2 Division personnel, Assessors have a serious concern that the potential exists for non-N-2 Division personnel, e.g., FWO, who are deployed into the facility for extended periods of time may not be properly trained and qualified. This is largely due to both the N-2 and FWO management approach that the other division has the "training ownership" responsibility.

In all cases, the EDS seemed to be able to produce the document/record requested in a reasonably short time.

The N-2 Division has recently moved into its new building. There are provisions for permanent, large, and functional training classrooms and areas in the building. These new facilities will be used for the more traditional classroom type training. The bulk of the training conducted within N-2 is of the OJT nature and is executed in the field either on actual equipment or staged mockups. The facilities are entirely adequate and support good training.

BEST PRACTICES

None.

OPPORTUNITIES FOR IMPROVEMENT

None.

FINDING

1.2 Neither the FWO nor the facility owner Division (NMT or N-2) are taking responsibility for ensuring that the FWO personnel who are deployed into the TA-18/LACEF, TA-55, or CMR facilities are properly trained and qualified to perform their job functions.

Inspected by:	Original Signed by Steve Arner	Approved by:	Original Signed by Lynn Maestas
	Team Member		Team Leader

Functional Area: Nuclear Facility Training	Criteria Met/Not Met: Not Met
Objective Number: 2	Date: April 9, 2004

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH

Documents Reviewed.

- LIR300-00-04, Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce
- ACE Facility Matrix, DOE Order 5480.20A, Training Implementation Matrix Chapter 1: General Requirements (3/10/04)
- LACEF Training Modules
- N2-TRN-PLN-0265, Rev.0, On the Job Training for N-2 Activities
- N2-TRN-PLN-0286, R0, N-2 Train the Trainer Course
- TA18-TRN-PLN-0077, Rev.1, *TA-18 Training Program/Plan*
- NIS6-TRN-PLN-0078, Rev.1, Los Alamos Critical Experiments Facility (LACEF) Training Plans and Requirements
- Training Plan # 411 TSQP-OJT Instructor/Evaluator

Interviews.

- N-2 Training Manager
- N-2 Safety and Security Team Leader
- N-2 Division Group Leader
- Facility Manager TA-55

DISCUSSION

- 2.1.1 Documents provided to the team for review did not specify the requirements for becoming a TA-18/LACEF-qualified instructor and did not provide evidence that “instructors on subjects such as Technical Safety Requirements, reactor operating principles and characteristics, and control manipulations” were required to meet the special requirements specified in DOE Order 5480.20A Contractors Requirements Document Chapter III, Paragraph 2.g.2.c.1 or the requirements that instructors must be qualified by the training manager (DOE Order 5480.20A Contractors Requirements Document Chapter III, Paragraph 2.g.2.c.2).
- 2.1.2 LIR 300-00-04, *Laboratory Training: A Graded and Systematic Approach to a Qualified Workforce* provides general requirements for all training staff involved in providing training for qualification or certification programs. It also includes a requirement that instructors be certified by TIO, but how the certification process was to be completed and documented is not defined in LIR 300-00-04. There is no LACEF implementing procedure or requirements documents that specify how LACEF will implement requirements of the LIR or document that the requirements are complete.
- 2.1.3 See comments for 2.1.2 above.
- 2.1.4 Documents provided to the team did not contain specific requirements for the continuing training of TA-18/LACEF training staff. General Laboratory requirements for instructors list specific training requirements in Training Plans, but the requirements for continuing training is not included in the plan. For example, the Training Plan for PBT specialists lists only training that is either suggested or one-time only. This lack of a formal continuing training program description document that defines requirements, sets schedules, and provides for tracking completion of training inhibits implementation of a successful, consistent, and documentable program.

CONCLUSION AND SUMMARY

Based on the individuals interviewed and the documents reviewed, there is no formal process that, when implemented, would result in instructors who would meet requirements outlined in DOE Order 5480.20A. Currently, instructor functions are being performed by senior technical personnel who do not meet the requirements of the DOE order or the LIR to be qualified and certified instructors. The TA-18 Training Manager explained that they are moving to qualify more instructors. Facility-specific Procedures indicate that only those individuals performing instructor functions more than 20% of their work schedule will be required to qualify as instructors. Although on the surface this very logical, it should be noted that currently the Training Manager is the only person in an established training position. So, implementing the procedures that impose the 20% criteria to identify those individuals who ultimately would be required to qualify as instructor may not significantly change the number of qualified instructors. It is the team’s position that having a one-person training staff to manage and implement the rigorous training program for a Category B Reactor Facility that includes several

classroom training courses and many on-the-job training requirements for key positions is inadequate.

The team's conclusion is that Objective 2 is not met.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

2.2.1 There are no approved Laboratory or Facility program documents or written requirements that, if implemented, would result in trained and qualified instructors who meet the requirements of DOE Order 5480.20A, Contractors Requirements Document Chapter III, Paragraph 2.g.(2).(c), or certified instructors who meet the requirements of LIR 300-00-04.

2.2.2 There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.

Inspected by:	Original Signed by Grady Petty Team Member	Approved by:	Original Signed by Lynn Maestas Team Leader
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Functional Area:	Nuclear Facility Training	Criteria 1, 2 & 3 Met/Not Met:	Not Met
Objective Number:	3	Date:	April 9, 2004

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

CRITERIA

4. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
5. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
6. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

Interviews.

Line organization training representative
Facility/Organization Training Manager

APPROACH

Documents Reviewed.

- AM 107, External Hiring
- AM 108, Internal Transfers
- AM 728, Reliability Programs
- LANL DOE Order 5480.20A Training Implementation Training Matrix
- LACE Training Implementation Matrix
- LANL HR-1 Review Sheet
- Job Classification Approval Process (JCOP) Summary
- Hiring Flowchart (LANL Website Manager's Toolkit)

Interviews.

- N-2 Deputy Group Leader
- N-2 Safety and Security Team Leader
- N-2 Training Coordinator
- TIO Director
- HR Specialist (Matrix Support the N-2)

DISCUSSION

3.1.1 Entry-level requirements are generally the re-advertisement of previous job advertisements. The hiring official provides the appropriate job advertisement to the HR

Specialist. The HR Specialist reviews the draft job advertisement and asks the hiring official a series of questions to ensure that the draft adequately covers any changes that may have occurred to the position. The HR Specialist has a process flow chart, reviews the provided information, and utilizes several job aids to ensure that the position has been categorized in accordance with the LANL position classifications for the job series and level. While the matrices used to categorize each position appear to be standardized across LANL, a formal procedure does not exist (or at least was not made available to the Assessors) that formalizes this process and defines how they are to be utilized.

- 3.1.2 Formal position descriptions were not evident in the hiring process. Based on discussions with the HR Specialist, the best descriptor of each employee's responsibilities is the Job Advertisement under which they were hired. The lack of formality in this process is compounded during the development of each employee's training, qualification, and certification. This issue is discussed in greater detail under the discussion for Objectives 4 and 5.
- 3.1.3 The LANL Training Integration Office (TIO) is responsible for developing and maintaining the institutional level Training Implementation Matrix (TIM). A review of the institutional TIM provided to the team raised some concerns relative to the intent of the entry-level requirements specified in DOE Order 5480.20A. These concerns are discussed in greater detail in the TA-55/CMR portion of this assessment. Even though the entry-level requirements are exempted in the institutional TIM, the TA-18 TIM documents that LACEF meets these requirements. These requirements are also captured in NIS6-TRN-PLN-0078 and TA18-TRN-PLN-0106. The reviewers noted that many of the entry-level requirements from DOE Order 5480.20A were exceeded in both training plans. However, DOE Order 5480.20A and the LACE Facility TIM III.02.g.1.b require the training coordinator to have two years nuclear and six months on-site experience. NIS6-TRN-PLN-0078 identifies the training coordinator as an entry-level position (interpreted to mean that no nuclear or on-site experience is required). The N-2 Training Coordinator interviewed by the team appeared to exceed the DOE Order 5480.20A experience requirements. A formal link between the order and training plans was not observed.
- 3.1.4 The hiring requirements of DOE Order 5480.20A were discussed with N-2. The Deputy Group Leader was aware of the requirements and the requirements were captured in NIS6-TRN-PLN-0078, but these requirements do not appear to have been documented in the hiring and selection process. In most cases, hiring practices may exceed DOE Order 5480.20A, but a process is not in place to ensure that the minimum requirements are systematically met.
- 3.1.5 AM 107 includes provisions for the identification of preexisting medical conditions and Laboratory physical examinations for new employees. AM 728 includes medical evaluation requirements for the personnel reliability program (PAP and PSAP candidates). Based on discussion with N-2, it was assumed that the personnel reliability program medical requirements were sufficient for all TA-18 personnel reliability

program positions. DOE Order 5480.20A, Chapter IV, paragraph 3, states that "Operating contractor management shall determine the physical demands imposed upon operating organization personnel by the job tasks that are required to perform both routine and emergency functions." Even though medical requirements have been specified Laboratory-wide for entry-level and personnel reliability positions, a process was not observed to establish entry-level medical requirements for specific positions that may require unique physical attributes.

- 3.1.6 Based on discussions with FWO, if the need arises to fill one of the FWO deployed positions, the hiring would be accomplished by FWO. The aspects of this objective related to FWO will be evaluated in greater detail during the assessment of FWO facilities during the fourth installment of Phase 1 of this review.
- 3.1.7 The processes discussed in this criterion were not formally defined or documented.
- 3.2.1 Education, required skills, and desired skills are prescribed in each Job Advertisement. The job criteria (both required and desired) are placed on the applicant screening worksheet. According to the interview with N-2, but not observed in a written procedure, each criterion is reviewed and rated. If a candidate does not meet the minimum requirements of the job posting, N-2 stated that the application is not forwarded to the hiring official for consideration. Based on the discussion with the HR Specialist, if an applicant did not fully meet one of the required elements (e.g., Q Clearance) their application might be forwarded to the hiring official if other aspects of their application deserved consideration.
- 3.2.2 The processes discussed in this criterion were not formally defined or documented.
- 3.3.1 A process to review and revise entry-level requirements was not observed. N-2 was not aware of any past situations that would have resulted in the need to review and revise entry-level requirements based on trainee performance.
- 3.3.2 The HR Specialist described a process where there would be a discussion between the HR Specialist and hiring official that might lead to the revision of entry-level requirements based on changes to the position or past performance. This process was not formally documented.
- 3.3.3 The processes discussed in this criterion were not formally defined or documented.

CONCLUSION AND SUMMARY

Objective 3 and its associated criteria are not met. The N-2 TIM and associated training plans appear to exceed the requirements of DOE Order 5480.20A. However, a firm link between the requirements of the order and the training plans does not exist to ensure that revisions will necessarily conform to the DOE Order 5480.20A requirements. A formal, documented process is not in place to ensure that the requirements of DOE Order 5480.20A associated with hiring personnel are systematically met.

There were 3 Findings associated with this objective.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

- 6.1 A defined and documented process is not in place to ensure that entry-level requirements are systematically established in accordance with the minimum educational, experience, technical, and medical requirements as defined in DOE Order 5480.20A, Chapters III and IV.
- 6.2 A defined and documented process is not in place to ensure that if adequately implemented, personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements in the Job Announcement or DOE Order 5480.20A, Chapters III and IV prior to being assigned to a position.
- 6.3 A defined and documented process is not in place to ensure that entry-level requirements for LANL positions are reviewed and revised as necessary based on evaluation of trainee performance.

Inspected by: _____	Original Signed by Lynn Maestas _____ Team Member	Approved by: _____	Original Signed by Lynn Maestas _____ Team Leader
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Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	4	Date:	April 09, 2004

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH

Documents Reviewed.

- LACEF TIM dated 3/10/04
- Training Plan 2311, LACEF Crew Chief Certification
- Training Plan 4887, LACEF Crew Member Certification
- Training Plan 4213, TA-18 Fissionable Material Handler Certification
- Training Plan 411
- Training Plan 2318
- Training Plan 2383
- LACEF Training Modules
- List of Qualified OJT Instructors/Evaluators
- N2-TRN-PLN-0265, Rev 0, On the Job Training for N-2 Activities
- N2-TRN-PLN-0286, Rev 0, N-2 Train the Trainer Course
- NIS6-TRN-PLN-0078, Rev 1, LACEF Training Plans and Requirements
- TA18-TRA-PLN-0077, Rev 1, TA-18 Training Program Plan
- TA18-TRN-PLN-0106, Rev 1, Certified Fissionable Material Handler Training Plan
- TA18-TRN-PLN-0148, Rev 0, TA-18 TSR LACEF Briefing, Course #25666
- Approved Organizational Charts for TA-18 and NIS
- NIS6-QA-PLN-0110, Rev 0, *N-2 Management Plan*
- TA18-AB-SAD-0102, Basis for Interim Operations at TA-18
- TA18-OP-PRO-0104, Conduct of Operations Manual

- TA18-CM-PRO-0002, TA-18 Records Management
- TA18-AB-SAD-0094, Technical Safety Requirements for TA-18
- NIS6-CEF-QAP-91.5, *LACEF Training Plan*
- TA18-ADM-PRO-0108, Rev 0, TA-18 Hazard Control Plan Instructions
- TA18-CP-HCP-0019, Rev 4, TA-18 SNM MBA Operations Hazard Control Plan

Interviews.

- N-2 Training Manager
- N-2 Safety and Security Team Leader
- N-2 Deputy Group Leader
- Director, Training Integration Office
- Ta-55 Facility Manager

DISCUSSION

- 4.0 N-2 has adopted an approach to qualification and certification that is inconsistent with the intent of DOE Order 5480.20A and most, if not all other .20A-applicable DOE facilities with qualification and certification program requirements. Specifically, the first step in the process is for a new employee to “certify” as a crewmember. This certification does not allow the person to do anything, since he/she is still very much in the early stages of training and qualification. The intent of certification is to provide senior management with assurance that all aspects of the training and qualification have been satisfied and that the candidate possesses the required knowledge and skills to safety and effectively perform their job. The intent is that *qualification* occur before *certification*. In discussions with the N-2 Training Manager, Assessors feel that this is more of an issue of semantics and would be relatively easy to correct.
- 4.1.1 DOE Order 5480.20A, Chapter 1, Paragraph 4.a. and 4.b., discuss Personnel Selection Requirements. In interviews with key personnel, Assessors were presented with a thorough discussion of the rigid and well-documented hiring practices and policies of the Los Alamos National Laboratory’s contractor. Even though not specifically required, Paragraphs 4.a. and 4.b. imply the use of “position descriptions” that specify facility-specific entry-level education and experience levels in the hiring process. There are no approved facility position-specific position description documents that define either the minimum entry-level requirements or the duties and responsibilities for any of the Nuclear Nonproliferation Division’s (N-2) positions reviewed, i.e., Fissile Material Handler (FMH), Crew Team Member, and Crew Team Chief. In interviews with key personnel, Assessors learned that if a position had to be filled, line management would prepare a “job ad” that contained all of the position’s duties and responsibilities as well as all entry-level requirements. It was stated that it was common for the “job ad” preparers to merely copy the previous “job ad” for that position. While minimum education and experience requirements do in fact exist as evidenced in NIS6-TRN-PLN-0078, Rev 1, *LACEF Training Plans and Requirements*, it was unclear to the Assessors how these minimum education and experience requirements were determined.
- 4.1.2 Although three of the reviewed documents, i.e., LIG300-01-04.0, *Laboratory Training, Qualification, and Certification*, TA18-TRA-PLN-0077, Rev 1, *TA-18 Training*

Program Plan, and the LACEF Training Modules document either addressed the issue of job analysis at a very superficial level, or detailed the results of an analysis, the Assessors found no document that provided clear, succinct direction and/or requirements for conducting and documenting job analyses.

- 4.1.3 In discussions with the N-2 Training Manager, and after reviewing TA18-ADM-PRO-0108, Rev 0, *TA-18 Hazard Control Plan Instructions*, and TA18-CP-HCP-0019, Rev 4, *TA-18 SNM MBA Operations Hazard Control Plan*, Assessors found that N-2 relies upon their well-defined and implemented Hazard Control Plan (HCP) process to identify specific facility and/or experiment training requirements. After identifying and defining the work scope and all known hazards associated with that scope, the next step in the HCP process is to identify specific training requirements (in the form of a training plan) for the positions identified as the ones that will be performing the scope of work. A specific HCP, e.g., TA18-CP-HCP-0019, Rev 4, is developed to support that unique scope of work. In this way, N-2 assures itself that personnel who perform facility-/experiment-specific work scope are properly trained and qualified to perform that work.
- 4.1.4 The tasks related to FMH and LACEF operations, i.e., Crew Team Member and Crew Chief, are well documented and are periodically modified to reflect actual facility and/or experiment conditions and status. However, there is no defined process or requirement for ensuring this is accomplished.
- 4.1.5 In interviews with key staff from both N-2 and FWO, the Assessors learned that there is no defined job- and/or facility-specific training and qualification program or requirements for the two FWO personnel who are matrixed or deployed into the N-2 organization. This condition is exacerbated by the fact that neither the N-2 management nor the FWO management is taking ownership of the training and qualification for the individuals who are "deployed" to a facility. This raises serious questions relative to whether or not these employees are trained and qualified to perform their duties as required by not only DOE Order 5480.20A, but several other DOE regulatory documents and Federal law, i.e., 10 CFR 830.120 among others.
- 4.2.1 The procedures and related documents reviewed by the Assessors were, in general, well written, clear, and succinct. Although lacking in specific detail in many critical areas, the documents provided a good overview description of N-2's training program. The documents referenced applicable requirements and drivers in appropriate places. After reading the documents provided, one is left with a reasonably clear picture of N-2's approach to training and qualification. However, the documents do not provide sufficient specificity to provide anyone not already possessing an expert level knowledge of how N-2's training and qualification program works with sufficient detail to independently work within their system.
- 4.2.2 Initial training requirements are clearly identified in applicable documents for Fissile Material Handlers, Crew Team Members, and Crew Chiefs. The same cannot be said for

continuing training. While it is clear that continuing training takes place, no document could be produced that succinctly defines and codifies the process. It appears that the continuing training is more along the lines of an expert-based process as opposed to a standards-based process. This issue was discussed in interviews with key personnel and they acknowledged the lack of document specificity.

4.2.3 The Assessors found it noteworthy that programmatic document author(s) took the time to include specific Technical Specification Requirements (TSR) that impact or are impacted by training to emphasize the importance of training. The Assessors consider this a best practice and should be modeled by other nuclear facilities at the Los Alamos National Laboratory.

4.3.1 The training and qualification program for Technical Staff was not reviewed as part of this assessment, and therefore no comments or conclusions are warranted.

CONCLUSION AND SUMMARY

Neither Objective 4 nor Criteria 1 and 2 are met. Criterion 3 was not assessed and therefore, no conclusion can be made for it at this time.

The formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. This lack of rigor can result in inconsistent analysis. Inconsistent, incomplete, and/or poorly documented job and task analyses can have a serious negative impact on the organization's training and qualification program.

Based on the documents presented and interviews with key personnel, neither the FWO organization nor the N-2 organization are ensuring that the FWO personnel who are "deployed" into the N-2 organization are trained and qualified. Each organization cites organizational procedures/guidance documents that specify the training and qualification of these types of personnel is the responsibility of the other organization.

BEST PRACTICES

- 4.1 The use of HCPs to identify work scope and define specific training requirements is noteworthy and should be shared with other facilities.
- 4.2 Including specific TSR references in training programmatic documents is noteworthy and should be shared with other facilities.

OPPORTUNITIES FOR IMPROVEMENT

- 4.1 Program should be revised to reflect qualification occurring before certification.

FINDING

- 4.1 There is a lack of procedural guidance/direction relative to job and/or task analysis

- 4.2 Neither FWO nor N-2 management are ensuring that the FWO personnel who are “deployed” into the N-2 organization are trained and qualified to perform their assigned duties and responsibilities.

Inspected by: _____	Original Signed by Steve Arner _____ Team Member	Approved by: _____	Original Signed by Lynn Maestas _____ Team Leader
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Functional Area:	Nuclear Facility Training	Criteria 1 and 2 Met/Not Met:	Met
Objective Number:	5	Date:	April 9, 2004

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH

Documents Reviewed.

- LACEF TIM dated 3/10/04
- Training Plan 2311, LACEF Crew Chief Certification
- Training Plan 4887, LACEF Crew Member Certification
- Training Plan 4213, TA-18 Fissionable Material Handler Certification
- Training Plan 411
- Training Plan 2318
- Training Plan 2383
- LACEF Training Modules
- List of Qualified OJT Instructors/Evaluators
- N2-TRN-PLN-0265, Rev 0, On the Job Training for N-2 Activities
- N2-TRN-PLN-0286, Rev 0, N-2 Train the Trainer Course

- NIS6-TRN-PLN-0078, Rev 1, LACEF Training Plans and Requirements
- TA18-TRA-PLN-0077, Rev 1, TA-18 Training Program Plan
- TA18-TRN-PLN-0106, Rev 1, Certified Fissionable Material Handler Training Plan
- TA18-TRN-PLN-0148, Rev 0, TA-18 TSR LACEF Briefing, Course #25666
- Approved Organizational Charts for TA-18 and NIS
- NIS6-QA-PLN-0110, Rev 0, *N-2 Management Plan*
- TA18-AB-SAD-0102, Basis for Interim Operations at TA-18
- TA18-OP-PRO-0104, Conduct of Operations Manual
- TA18-CM-PRO-0002, TA-18 Records Management
- TA18-AB-SAD-0094, Technical Safety Requirements for TA-18
- NIS6-CEF-QAP-91.5, *LACEF Training Plan*

Interviews.

- N-2 Training Manager
- N-2 Safety and Security Team Leader
- N-2 Deputy Group Leader
- Director, Training Integration Office

DISCUSSION

- 5.1.1 A review of the training materials provided revealed that learning objectives are developed from tasks that are selected for training and that they are measurable and describe appropriate knowledge and skills.
- 5.2.1 The training materials reviewed supported the stated learning objectives and facilitated effective training.
- 5.2.2 OJT materials are tailored to facility-specific needs and are prepared and approved by SMEs who are qualified on the particular task being trained.
- 5.3.1 While N-2 has several well-written training program procedures, none specify requirements pertaining to reviewing, approving, and controlling training materials. It is obvious that training materials are being reviewed and approved. This appears to be another example of the remnants of a previously existing expert-based system that had been used to define, implement, and manage the training and qualification activities at TA-18. Recently, significant improvements in the overall documentation infrastructure necessary to define and implement an effective training and qualification program have been made by N-2.
- 5.4.1 A continuing training program is implemented, but not specifically defined in any of the documents provided to the Assessors. Specifically, none of the documents provided to the Assessment Team provided any guidance pertaining to designing, implementing, and/or evaluating a continuing training program, although NIS6-TRN-PLN-0078 and TA18-TRN-PLN-0106 contain four brief sections that describe continuing training at a very high level. It is clear that continuing training is occurring but there is no

programmatic approach defined in N-2 documents.

CONCLUSION AND SUMMARY

Objective 5 and Criteria 1, 2, and 4 are met. Criterion 3 is not met.

The documents provided to the Assessors for review were, for the most part, complete, well written, and easy to understand. However, these documents tended to be written at a very high "descriptive" level as opposed to a more detailed "prescriptive" level.

The lack of specificity referenced above has the potential to cause inconsistent approach to training analysis, design, development, implementation, and evaluation in both the classroom and OJT settings. For example, continuing training is a critical element of maintaining one's certification and/or qualification status. Yet, N-2 does not seem to have a document, or even a section within an existing document that actually prescribes continuing training program requirements. The continuing training program that is in place and apparently functioning is largely the due to the significant knowledge and drive of the N-2 Training Manager and her ability to work within the existing organizational structure to ensure continuing training occurs as it should when it should.

BEST PRACTICES

- 5.1 The Assessors found it noteworthy that programmatic document author(s) took to time to include specific Technical Specification Requirements (TSR) that impact or are impacted by training to emphasize the importance of training. The Assessors consider this a best practice and should be modeled by other nuclear facilities at the Los Alamos National Laboratory.

OPPORTUNITIES FOR IMPROVEMENT

- 5.1 Although the documents reviewed by the Assessors were, for the most part, complete, well written, and easy to understand, they tended to be written "descriptively" as opposed to "prescriptively." By writing programmatic documents in a prescriptive manner, many of the difficulties related to interpretation, consistency, and approach are eliminated. This lends itself to an increase in overall training program effectiveness.

FINDING

- 5.1 None of the documents provided the Assessment Team define or quantify the review, approval, and control requirements for training materials.
- 5.2 The lack of adequate program description and guidance for continuing training in approved programmatic documents has the potential to adversely impact N-2's training and qualification program by permitting incomplete, inaccurate, untimely, and/or ineffective continuing training.

Inspected by: _____	Original Signed By Steve Arner	Approved by: _____	Original Signed By Lynn Maestas
	Team Member		Team Leader

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	6	Date:	April 9, 2004

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH

Documents Reviewed.

- LIR300-00-04.2, Laboratory Training: Essential Requirements
- LIG 300-01-04.0, Laboratory Training: Training Qualification/Certification
- LIG 300-00-04.1, Laboratory Training: Graded and Systematic Approach to Activity-Level Training (On-the-Job Training and In-the-Field Training)
- LIG 230-06-01.0, Maintenance Procedures, Training, Scheduling, and History
- LIG 307-01-01.0, Walk-around Procedures and Training
- TA18-TRN-PLN-007, Rev. 1, TA-18 Training Program/Plan
- NIS6-TRN-PLN-0078, Rev. 1, Los Alamos Critical Experiments Facility (LACEF) Training Plans and Requirements.
- N2-TRN-PLN 0286, Rev. 0, N-2 Train the Trainer Course
- N2-TRN-PLN-0265, Rev. 0, On the Job Training for N-2 Activities.
- TA-18-TRN-PLN-0106, Rev. 1, Certified Fissionable Material Handler Training Plan.

Interviews.

- N-2 Training Manager
- N-2 Deputy Group Leader
- N-2 Safety and Security Team Leader
- Director, TIO

DISCUSSION

- 6.1.1 TA-18-TRN-PLN-0078 establishes requirements for the regular evaluation of trainee mastery using written and oral examinations. This criterion is met.
- 6.2.1 LIR-300-00-04.2, Attachment B, *Development Steps* states “*For required tests, write questions to objectives and validate the test.*” TA18-TRN-PLN-0077, Rev. 1, Section 7.1.2, states “*During the design phase, the objectives and evaluation criteria for the training are developed based on information from the analysis phase.* NIS6-TRN-PLN-0078, Rev. 1, Section 5.1, states, “*A content-validated written examination containing a representative selection of questions based on the knowledge and skills identified in the learning objectives and training reference material is administered...*” The questions used for written and oral examinations are taken from an existing examination question bank. There is no available documentation that defines the process of how the examination bank is populated or the criteria that is used in the development of the questions. The documentation cited above does infer that questions will be based on learning objectives, but lacks any detailed guidance on how to ensure this is done. Without this detailed guidance regarding the genesis of questions and their link to learning objectives, TA-18 cannot demonstrate that this criterion is met. This criterion is not met.
- 6.3.1 No guidance was found in any documentation regarding changing examination content. Procedures reviewed and interviews with TA-18 personnel determined that an examination bank is used to develop written and oral examinations, but TA-18 lacks the necessary guidance regarding the use and maintenance of the examination bank. There is also a complete lack of procedural guidance regarding altering the content of written and oral examinations at intervals sufficient to prevent compromise. This criterion is not met.
- 6.4.1 No guidance was found in any documentation regarding the development, approval, security, administration, and maintenance of written and oral examinations. This criterion is not met.
- 6.5.1 Procedures provide adequate guidance in the remediation and reevaluation when examination or performance standards are not met. This criterion is met.

CONCLUSION AND SUMMARY

There is a lack of procedural guidance regarding the development, approval, security, administration, and maintenance of written examinations. The facility-specific procedures point to the Laboratory-wide training procedures which do not contain sufficient guidance to ensure personnel responsible for written examinations met the intention of DOE Order 5480.20A. Objective 6 is not met.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

6.1 Procedures as written do not meet the requirements and intent of DOE Order 5480.20A regarding written and oral examinations.

Inspected by:	Original Signed by Lawrence Palmer Team Member	Approved by:	Original Signed by Lynn Maestas Team Leader
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Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	7	Date:	April 9, 2004

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH

Documents Reviewed.

- LIR300-00-04.2, Laboratory Training: Essential Requirements
- LIG 300-01-04.0, Laboratory Training: Training Qualification/Certification
- LIG 300-00-04.1, Laboratory Training: Graded and Systematic Approach to Activity-Level Training (On-the-Job Training and In-the-Field Training)
- LIG 230-06-01.0, Maintenance Procedures, Training, Scheduling, and History
- LIG 307-01-01.0, Walk-around Procedures and Training
- TA18-TRN-PLN-007, Rev. 1, TA-18 Training Program/Plan
- NIS6-TRN-PLN-0078, Rev. 1, Los Alamos Critical Experiments Facility (LACEF) Training Plans and Requirements.

- N2-TRN-PLN 0286, Rev. 0, N-2 Train the Trainer Course
- N2-TRN-PLN-0265, Rev. 0, On the Job Training for N-2 Activities.
- TA-18-TRN-PLN-0106, Rev. 1, Certified Fissionable Material Handler Training Plan.

Interviews.

- N-2 Training Manager
- N-2 Deputy Group Leader
- N-2 Safety and Security Team Leader
- Director, TIO

DISCUSSION

- 7.1.1 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps*, outlines the three institutional steps in Los Alamos National Laboratory's training program evaluation process. Procedure TA-18-TRN-PLN-0077, Rev. 1, Section 7.1.5, *Evaluation*, outlines in general terms the process TA-18 uses to conduct training program evaluation. These two procedures state some basic requirements but do not give any information regarding an evaluation process. Without this guidance, training personnel cannot implement any type of comprehensive training evaluation program as required by DOE Order 5480.20A. This criterion is not met.
- 7.2.1 Procedures available for review do not provide any guidance regarding the regular evaluation of instructor's instructional skills and technical competencies. Interviews with TA-18 management personnel indicated that this was done on an informal basis due to the sporadic nature of the training conducted by TA-18. This criterion is not met.
- 7.3.1 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps*, states that training personnel will "*Review trainee feedback on course and trainee learning*" and "*Revise training and tests, as required.*" This is the only guidance given regarding Level 1 and Level 2 evaluations that this Assessor could find. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of DOE Order 5480.20A. This criterion is not met.
- 7.4.1 Procedure TA-18-TRN-PLN-0077, Section 7.1.5.2, states "*Summative evaluation includes soliciting trainee and instructor feedback, assessing job performance after training, and measuring the impact of training on regulatory compliance. The training program is continuously monitored and revisions are made as a result of changes in policies or procedures, job requirements, regulatory requirements, and operating experience. Training evaluation is conducted in accordance with Laboratory guidance for training evaluation.*" Again, this is the only guidance given and lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of DOE Order 5480.20A. This criterion is not met.
- 7.5.1 There is no procedural guidance available that ensures improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance evaluations. This criterion is not met.
- 7.6.1 There is no procedural guidance available that ensures training materials are maintained

current, based upon the results of training program evaluations. This criterion is not met.

7.7.1 There is no procedural guidance available that ensures training facilities are evaluated to determine their effect on the training process. This criterion is not met.

CONCLUSION AND SUMMARY

There is a lack of procedural guidance regarding training program evaluation. What procedural guidance there is only defines very basic requirements for training program evaluation, and does not give any guidance on a training program evaluation process. Without this detailed guidance, there can be no assurance that comprehensive training evaluation is conducted as required by DOE Order 5480.20A. Objective 7 is not met.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

7.1 Procedures as written do not implement an effective training evaluation program.
Requirement: DOE Order 5480.20A, I.7.b.(5)

Inspected by: _____	Original signed by Lawrence Palmer _____ Team Member	Approved by: _____	Original Signed by Lynn Maestas _____ Team Leader
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Attachment D
Group 3 Facilities
Assessment Report

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Report

For
Los Alamos National Laboratory
Engineering Sciences and Applications Division's Applied
Engineering Technologies Group, TA-8, Radiography Facility, and Engineering and Science
Applications Division's Tritium Science and Engineering Group, TA-16, Weapons Engineering
Tritium Facility

(Group 3)

Signature Sheet

Original signed by

Lynn Maestas, NNSA/AL
Team Leader

Original signed by

H. Matt Jones, Epsilon Systems Solutions, Inc.
Team Member

Original signed by

Steve Arner, Epsilon Systems Solutions, Inc.
Team Member

Original signed by

Lawrence Palmer, Epsilon Systems Solutions, Inc.
Team Member

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ATTACHMENTS

- ATTACHMENT A Nuclear Facility Training and Qualification Assessment Plan
Appendix 1 Criteria and Review Approach Document
Appendix 2 Sample Verification Form
- ATTACHMENT B Group 3, TA-8 Radiography Facility Verification Forms
- ATTACHMENT C Group 3, TA-16 Weapons Engineering Tritium Facility (WETF)
Verification Forms

EXECUTIVE SUMMARY

At the direction of the Manager National Nuclear Safety Administration/ Los Alamos Site Office (NNSA/LASO) and in coordination with the Senior Technical Safety Advisor LASO, a plan for the assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities was developed. The plan is included as Attachment A. Per the approved assessment plan, the assessment is being conducted for groups of facilities and in two phases. The first of these phases is a high level or programmatic level review. A phase 1 assessment of TA-8, radiography Facility and TA-16, Weapons Engineering Tritium Facility (WETF), the third group of facilities, was conducted during the period of April 20 through April 23, 2004. With regards to TA-16, WETF, this assessment was conducted concurrent with an operational readiness review (ORR) being conducted at the facility. For WETF, the review, although guided by the approved implementation plan for the DOE operational readiness review (DOE-ORR), was conducted to the same objectives and criteria. Of significance, the assessment for WETF was a complete assessment including the implementation of training and qualification processes, and has been formally submitted to LANL management in the DOE-ORR Final Report. The WETF Verification Forms are included in this report for completeness in reporting the results of the LSAO Training and Qualification Programs Assessment Plan, but all responses and formal action taken as a result of the WETF ORR should be directed to the WETF DOE-ORR Final Report, not the WETF Form 1s attached in this report.

This report will not attempt to reconcile differences in the differing level of detail and difference in conclusions between the two facilities. Although the approach and content of each facilities assessment Verification Forms is similar, each review was conducted with different overall objectives and basis.

The team has concluded that in most cases, the documentation reviewed for TA-8, Radiography Facility, and to a lesser degree TA-16, WETF, did not exist or contain adequate guidance for a robust process-based program, which meets the requirements and intent of DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, which is believed to be at the root of many of the findings contained in later sections of this report.

The team also determined that a position-specific formal Training and Qualification program for FWO personnel (e.g., Facility Coordinator positions, or Facility Manager), matrixed to the responsible division with the overall responsibility for the safe operation of the facility does not exist. Further, there is confusion about which organization is responsible for the facility specific technical training and qualification of the FWO deployed personnel in the facility.

The assessment plan contains seven objectives for review. These objectives and supporting criteria were selected from DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*. DOE-STD-1070-94 Objective 6 was not included in the Phase 1 assessment of TA-8, Radiography Facility. A summary of the team's assessment of each objective is provided in the body of the report and individual Verification Forms are

included as Attachments B and C for TA-8, Radiography Facility, and TA-16, WETF respectively.

Overall there were twenty-one (21) findings. Summaries of those findings are included in Table 1 *Findings Summary*.

Table 1. Finding Summary

Finding #	Findings
TA-8, Radiography Facility	
1.1	The TA-8 Nuclear Facility Training Program does not include training management and process guidance documents of sufficient detail that ensures program execution in accordance with DOE Order 5480.20A.
2.1	There are no approved Laboratory or Facility program documents or written requirements that if implemented would result in trained and qualified instructors that meet the requirements of DOE Order 5480.20A, Contractors Requirements Document Chapter III, Paragraph 2.g.(2).(c). or certified instructors who meet the requirements of LIR 300-00-04.
2.2	There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.
3.1	A defined and documented process is not in place to ensure that entry-level requirements are systematically established in accordance with the minimum educational, experience, technical, and medical requirements as defined in DOE O 5480.20A Chapter IV.
3.2	A defined and documented process is not in place to ensure that if adequately implemented, personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements in the Job Announcement or DOE O 5480.20A Chapter IV prior to being assigned to a position.
3.3	A defined and documented process is not in place to ensure that entry-level requirements for LANL positions are reviewed and revised as necessary based on evaluation of trainee performance.
4.1	There is a complete lack of procedural guidance that would ensure program content for competent job performance is identified, documented, and included in the training programs.
5.1	There is no evidence of procedural guidance available that would ensure training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted.
5.2	There is no evidence of procedural guidance available that would ensure the content of initial training prepares the trainee to perform the job for which the candidate is being trained.
5.3	There is no evidence of procedural guidance available that would ensure the content of continuing training maintains and improves incumbent job performance.
6.1	There is no evidence that Division or Group-wide procedures exist that ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Finding #	Findings
TA-8, Radiography Facility	
7.1	There is no evidence of procedural guidance available that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.
TA-16, WETF (as reported in the WETF DOE-ORR Final Report)*	
1.3.1	There is insufficient specificity in the existing WETF programmatic documentation to ensure consistency in approach, level of rigor and discipline, and execution of the Training and Qualification Program.
4.1.1	There is no defined process at WETF that will ensure a consistent and systematic approach to job analysis and the resultant development of appropriate learning objectives.
4.2.1	OJT lesson materials lack adequate lesson plan detail to ensure consistent delivery of the required training.
4.3.1	Currently, the WETF does not have a training and qualification program for its Technical Staff personnel.
5.1.1	Although learning objectives are present in the training materials reviewed, there is no WETF training programmatic document that defines the process for developing learning objectives.
5.2.1	Lesson plans are not developed and used for the various OJT Instructor/Evaluator documents
5.3.1	There is no programmatic documentation specifying the review, approval, and control requirements for training materials
5.4.1	A continuing training program is implemented, but not specifically defined in training programmatic documents.
7.1.1	WETF Training does not currently have any programmatic document that establishes, specifies, or otherwise identifies the requirements for developing, reviewing, approving, revising, and controlling examinations.
7.3.1	The content of written examinations at WETF is not changed and exams are therefore subject to compromise. NOTE, this is a Phase 2 finding
8.1.1	A comprehensive evaluation of individual training programs is not being conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses. NOTE, this is a Phase 2 finding
8.2.1	Instructional skills and technical competencies of instructors are not being evaluated. NOTE, this is a Phase 2 finding
8.3.1	Feedback from trainee performance during training and feedback from former trainees and their supervisors is not being used to evaluate and refine the training program. NOTE, this is a Phase 2 finding

* TA-16, WETF, formal responses to any finding stated in Table 1, should be managed and responded to through the DOE-ORR process as appropriate. These findings were reported here only to document completed scope of the LASO Training and Qualification Program Assessment Plan.

1.0 Introduction

At the direction of the Manager National Nuclear Safety Administration/ Los Alamos Site Office (NNSA/LASO) and in coordination with the Senior Technical Safety Advisor LASO an assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities has commenced in mid February 2004. The Assessment Plan included as Attachment A, requires the assessment will be conducted in two phases. The first of these phases, Phase 1, is a high level or programmatic level review. Phase 2 of the assessment plan requires an in depth review of all facets of the implementation of the requirements of DOE Order 5480.20A in each LANL nuclear facility.

A Phase 1 assessment of the third group of nuclear facilities, Technical Area (TA)-8, Radiography Facility and TA-16, WETF was conducted during the period of April 20, through April 23, 2004.

2.0 Purpose

This assessment is the first part of a larger assessment that has been designed to evaluate the effectiveness and consistency in implementation of the Los Alamos National Laboratory (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

3.0 Scope

This report contains the results of the Phase I assessment of the TA-8 Radiography Facility and the TA-16 WETF programs.

4.0 Sequence of Activities

This assessment consisted of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review, followed by a week in Los Alamos to interview line and training management and training staff as well as review other documents that were not identified nor provided initially. The team used the Criteria and Review Approach Document to guide the review.

A Verification Form was prepared for each objective in the CRAD to document the basis for the conclusions reached concerning the objective and criteria. Findings identified during the review of the individual CRAD are discussed in detail on the associated Verification Form. Individual Verification Forms are included as Attachment B and C.

5.0 Assessment Results

There is a lack of programmatic documents with sufficient specificity relative to the various aspects of a mature training program that creates the potential for inadequate, inaccurate, untimely, or incomplete training.

While the Assessors' overall conclusion is that management owns and is responsible for the training and qualification the assessment team members have a concern that the potential exists for personnel, e.g., FWO, who are deployed into the facility for extended periods of time not to be properly trained and qualified for work specific to the facility assigned. This is largely due to both the programmatic line and FWO management approach that the other division has the "training ownership" responsibility, and from the review, there appears to be no formal "facility specific technical training" provided as required by the Order.

Programmatic documentation necessary to fully meet the requirements and intent of DOE Order 5480.20A is not in place. . During the course of the assessment it became apparent that many of the areas examined were not well defined, specifically:

- Instructor Qualification and Instructor continuing training program. (Objective 2)
- Entry-level requirements (Objective 3)
- Formal Job and Task Analysis (Objective 4)
- Training Design, Development and Implementation (Objective 5)
- Development, approval, security, administration, and maintenance of examinations. (Objective 6)
- Comprehensive training program evaluation, (i.e., identification of improvements, development of corrective actions and implementation and follow-up of corrective actions.) (Objective 7)

In most cases, the documentation reviewed did not contain adequate guidance for a process-based program, which meets the requirements and intent of DOE O 5480.20A.

A summary of the results of the assessment of LANL's status in developing and maintaining a program that would meet the Objectives established in DOE Standard 1070-94 is provided below. The detailed discussion that expands on this summary is contained in the objective-specific Verification Forms. Verification Forms are included as Attachment B and C for TA-8, Radiography Facility and the TA-16, WETF respectively.

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

TA-8, Radiography Facility

There exists very high-level documentation that states management responsibility for the training and qualification program elements for the facility. Indications are, however, that due to the lack of more definitive guidance, such as approved program process procedures does not give high assurance that specific responsibilities are well known, understood, or fully executed by those who possess those roles and responsibilities nor is it possible to demonstrate management approval.

The conclusion is that this Objective is not fully met at the programmatic level do to lack of an approved documented training program.

TA-16, WETF

There is abundant evidence that a robust training program is implemented at WETF and that it is well supported by both management and workers. Group Leaders work to provide the Training Department with the resources needed to facilitate strong and effective training. Group Leaders also pointed out that they are actively trying to hire another Trainer to assist in the work.

The only concern is that there appears to be an almost uniform lack of specificity in training programmatic documents. While it is obvious that training is being conducted and that the training program in general is well conceived and implemented, the programmatic documentation (e.g., Program Manual, implementing procedures) do not provide adequate documentation pertaining to the analysis, design, development, implementation, and feedback of a healthy training program.

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

TA-8, Radiography Facility

The lack of documentation, specifically process definition and acceptable methods for the execution of a training staff qualification program is non compliant with the DOE Order 5480.20A requirements for training staff.

The conclusion is that this Objective is not met at the programmatic level.

TA-16, WETF

Through a combination of education, experience, and training, the WETF Training Department staff and those subject matter experts (SME) who are serving as OJT Instructor/Evaluators possess the requisite skills and knowledge to effectively perform their assigned duties and responsibilities.

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

TA-8, Radiography Facility

Objective 3 and its associated criteria are not met. Although there seems to be a system of minimum requirements imposed for each position, this does not appear to be formalized.

At the current time, the persons that are being hired by AET for TA-8-23 appear to generally meet and/or exceed the requirements specified in DOE O 5480.20A. The plan to have the Authorization Basis Manager serve as the Acting Training Manger does not appear to meet the requirements in DOE O 5480.20A. A formal, documented process is not in place to ensure that the requirements of DOE O 5480.20A associated with hiring entry-level personnel are met.

TA-16, WETF

The hiring and/or promotion process, along with the attendant need to ensure all minimum requirements are satisfied for entry into the position/program is very formal and rigorous as would be expected from a major government contractor. It is through the hiring process itself that all minimum requirements are verified to be met.

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

TA-8, Radiography Facility

There is a complete lack of procedural guidance that would ensure program content for competent job performance is identified, documented, and included in the training programs. This objective is not met.

TA-16, WETF

Although WETF's Training and Qualification program is fully and effectively implemented, the programmatic documentation is insufficient to provide one with a clear understanding of how the program works. Without doubt, individual positions have been analyzed and effective training developed and implemented. The weakness lies in being unable to determine how the training needs were determined. This raises questions related to the "systematic" part of the Systematic Approach to Training required by DOE Order 5480.20A.

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

TA-8, Radiography Facility

There is no evidence of procedural guidance available that would ensure training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. There is no evidence of procedural guidance available that would ensure the content of initial training prepares the trainee to perform the job for which the candidate is being trained. There is no evidence of procedural guidance available that would ensure the content of continuing training maintains and improves incumbent job performance. This Objective is not met.

TA-16, WETF

WETF has recently begun an extensive effort to upgrade their programmatic documentation, including those documents that define and control their Training and Qualification Program. If WETF's Training and Qualification Program documentation (e.g., the Training Program Manual) were written at a greater level of detail, assuming that the reader does not know much if anything about their program, many of the questions and concerns arising from this ORR could have been avoided. Although not a specific requirement of DOE Order 5480.20A, the development of an adequate number of programmatic/procedural documents containing sufficient specificity such that consistency in approach, content, level of rigor and discipline, etc., is certainly one of the intents of Section 2 of Chapter I. WETF has made substantial progress in upgrading their overall procedural infrastructure, and this continues to be a work in progress.

OBJECTIVE 6 (NOTE: WETF Verification Form for this Objective is denoted as Objective 7)

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

TA-8, Radiography Facility

There is no evidence that Division or Group-wide procedures exist that ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs. This objective is not met.

TA-16, WETF (NOTE: WETF Verification Form for this Objective is denoted as Objective 7)

The knowledge and skill of WETF personnel are regularly evaluated/tested to ensure they possess and maintain the required knowledge and skills to perform their job. This is demonstrated in the fact that virtually all WETF training is done using the OJT and performance evaluations. The OJT program addresses all WETF job functions for which technical training is required. In this manner, the trainee receives instruction from a SME on the actual equipment in the field under actual field conditions. After training, the trainee is then evaluated on how well he/she performs the task. Hands-on training such as this is widely recognized as the most effective.

OBJECTIVE 7 (NOTE: WETF Verification Form for this Objective is denoted as Objective 8)

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

TA-8, Radiography Facility

There is no evidence of procedural guidance available that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. This objective is not met.

TA-16, WETF

The intent of Objective 8 has been satisfied although a formal program to evaluate training effectiveness has not been functional in the past. The Training Lead has recently implemented a Level 1 evaluation program and is committed to developing and implementing Level 2 and Level 3 evaluation programs using the Kirkpatrick Model, or an equivalent one. It is obvious that that the training is being accomplished and that it is meeting the needs of the workers and the facility. The fact that the training materials are kept current testifies to the attention being given training. The lack of a training effectiveness evaluation program is of concern, but it is not a fatal flaw.

6.0 Conclusion

The team has concluded that for both facilities the primary deficiency is the lack of formal approved process guidance documentation. The documentation that was reviewed did not contain adequate guidance for a process-based program, which meets the requirements and intent of DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*. Both facilities need to develop Program documentation that describes the processes associated with a Systematic Approach to Training, which has been approved by the appropriate management. Such documentation would remove much of the ambiguity and lack of definition that exists in the Programs reviewed.

The team has also concluded that a position-specific formal training and qualification program for FWO personnel matrixed to the responsible division with the overall responsibility for the safe operation of the facility does not exist. Further, there is confusion about which organization is responsible for the training and qualification of the FWO deployed personnel in the facility. Neither the FWO nor the Divisions are taking responsibility for ensuring that the FWO personnel who are deployed into the facility are properly trained and qualified to perform their job functions at that facility.

Attachment A
**Nuclear Facility Training and Qualification
Assessment Plan**

NATIONAL NUCLEAR SECURITY ADMINISTRATION
LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Plan

January – June 2004

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ATTACHMENTS

- Appendix 1: Criteria and Review Approach Document
- Appendix 2: Sample Assessment Verification Forms

Los Alamos Site Office
Nuclear Facility Training and Qualification Program
Assessment Plan

1.0 INTRODUCTION

The Manager, National Nuclear Security Administration, Los Alamos Site Office (NNSA/LASO), is committed to ensuring a safe and healthful work environment consistent with applicable regulations, orders, and policies for NNSA/LASO, contractors, and users at NNSA/LASO facilities. An effective Contractor Nuclear Facility Training and Qualification Program is critical to establishing and maintaining that environment.

1.1 Purpose

At the direction of the Manager, this assessment will evaluate the effectiveness and consistency in implementation of the Los Alamos National Laboratory (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE O 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

1.2 Scope

The assessment will examine the line organization's effectiveness in defining and implementing the programmatic elements of nuclear facility training and qualification program.

1.3 Sequence of Activities

The assessment will consist primarily of document reviews and interviews with the line organization managers and training managers responsible for implementing a training and qualification program that is compliant with DOE O 5480.20A in their respective nuclear facilities. Each nuclear facility will be evaluated independently. The review will consist of two major activities. First, a high-level review of the programmatic elements of the LANL nuclear facility personnel training and qualification program; and second, a more detailed assessment of the implementation of the program and its effectiveness.

1.3.1 High Level Review

This review consists of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review, followed by a one-day on-site visit to each facility. The team will use the Criteria and Review Approach Document (CRAD) (Appendix 1), to guide the review.

A Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

Each area defined in the CRAD is intended to guide the evaluation of the status of implementation of an effective nuclear facility training and qualification program. As such, the Verification Form discussion of the results will include information concerning the status of implementation.

At the conclusion of the on-site review, the team will analyze the data collected and as necessary request additional data from the appropriate LANL organization. The team will submit the results of the individual facility reviews to the Manager, LASO, and the LANL organizations being evaluated as they are completed. Once data has been collected from all facilities, the team will develop a draft of the final assessment report communicating the assessment team's findings and evaluation of the LANL training and qualification program for nuclear facility personnel and submit it to LANL to verify the accuracy of the findings. The final report will then be submitted to the Manager, LASO. The report will state the team's conclusion as to the status of implementation of an effective nuclear facility training and qualification program across the LANL organizations based on the evidence of the high-level review. It will provide a detailed listing of all findings and areas for improvement as well as identify any noteworthy practices the team observed.

1.3.2 Detailed Assessment

At the completion of the high-level review, areas identified in the review as weak or non-compliant will be evaluated in much greater detail to determine the extent of the weakness. In addition, the Laboratory's status in meeting each objective and supporting criteria in DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*, will be evaluated. The detailed assessment will rely much more heavily on observing training activities, interviewing instructors and line organization technical staff, detailed reviews of training material content as compared to current facility status, etc. A new formal CRAD will be developed for use in the detailed assessment.

As in the high-level review, a Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

The reporting process for the Detailed Assessment final report will follow the same report sequence as that described for the high-level review.

2.0 ASSESSMENT OBJECTIVES

As stated, the review will be conducted using the CRAD. The detailed listing of evaluation criteria for the high-level review is provided in Appendix 1, Criteria and Review Approach

Document. The assessment team will evaluate each Laboratory organization conducting work in nuclear facilities to determine their status in meeting the following objectives.

2.1 Objective 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

2.2 Objective 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

2.3 Objective 3

Trainees meet the minimum requirements for entry into the training program.

2.4 Objective 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

2.5 Objective 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

2.6 Objective 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

2.7 Objective 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

3.0 ADMINISTRATION

3.1 Meetings and Presentations

The assessment will be an open process with the goal of maximizing the opportunity to achieve a full understanding of the effectiveness of the Laboratory's nuclear facility training and qualification program.

The Team Leader will conduct an out brief with the LASO Senior Technical Advisor. The briefing will include the findings of the team and the basis for any recommendations that will be made to the Manager concerning implementation of the nuclear facility training and qualification program.

3.2 Documentation

The assessment will be guided by the CRAD. The documentation will be structured in a manner to show that the elements of the CRAD were evaluated and that the criteria were met or what aspects of the criteria were found to be deficient. The purpose of the documentation is to provide information concerning details of the review to individuals who did not witness the review.

In order that the schedule for assessment is maintained and the draft report complete prior to dissolution of the team, each team member will document his/her work as it is conducted. This means daily input to the Verification Forms. Each reviewer will be provided with a preliminary Form 1 containing the objective and criteria for each CRAD. In the event that issues of noteworthy or questionable practices are identified, they will be documented within the Verification Forms. If the final report to the Manager, NNSA/LASO, recommends technical direction to organizations, those actions will be supported by detailed information on the Verification Forms. The team members are responsible for ensuring that the Form 1s do not contain Classified or Unclassified Controlled Nuclear Information (UCNI).

3.3 Team Composition

The team consists of the following individuals:

Team Leader	Lynn Maestas, NNSA/AL
Team Members	Grady Petty, Epsilon Systems Solutions, Inc.
	Steve Arner, Epsilon Systems Solutions, Inc.
	Larry Palmer, Epsilon Systems Solutions, Inc.
	Bill Lapsansky, Epsilon Systems Solutions, Inc.
	Mark Schares, Epsilon Systems Solutions, Inc.
	Matt Jones, Epsilon Systems solutions, Inc.

4.0 SCHEDULE

For planning purposes, the projected schedule for the nuclear facility training and qualification program assessment at LANL is as follows:

Los Alamos Site Office Contractor Training Review

Group	Request for Documents	Documents Due	Onsite	Facility Report
Group 1 TA-55, CMR	Feb. 17	Feb. 24	Mar. 08-12	Mar. 12-19
Group 2 TA-18	Mar. 08	Mar. 15	Mar. 29-Apr. 02	Apr. 02-09
Group 3 TA-8 WETF	Apr. 05	Apr. 12	Apr. 19-26	Apr. 26-May 01
Group 4 RANT/ WCRR/ MDA TA-54 (Area G, RLW) TA-53 (LANSCE)	Apr. 26	May 03	May 10-17	May 17-24

Draft Summary Report June 01

Final Summary Report June 18

APPENDIX 1

Criteria and Review Approach Document

Appendix 1 Criteria and Review Approach Document

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

Criteria

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

Approach

Document Review

- Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training
- Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control
- Selected individual training records
- Documents that define the goals, objectives and plan for implementing the training and qualification program
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Criteria

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

Approach

Document Review

- List of qualified instructors (classroom and OJT)
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team
- Selected training staff training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

Criteria

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

Approach

Document Review

- Copies of facility- or organization-specific Job and Task Analysis implementing procedures
- The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position
- The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position
- Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

Approach

Document Review

- Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved
- Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current
- Existing lesson plans and/or OJT guides for training selected technical staff positions
- Documentation of completed continuing training
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Criteria

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations
- Selected examinations
- Selected individual training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Criteria

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

Approach

Document Review

- Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness
- Training evaluation documentation
- Selected training materials

Interviews

- **Line organization training representative**
- **Facility/Organization Training Manager**

Appendix 2
Sample Verification Form

APPENDIX 2
Sample Verification Form

Functional Area:	Criteria
Objective Number:	Met/Not Met:
	Date:

OBJECTIVE

CRITERIA

APPROACH

Documents Reviewed.

Interviews.

DISCUSSION

CONCLUSION AND SUMMARY

FINDING

NA

Inspected by: _____	Approved by: _____
Team Member	Team Leader

Attachment B
Group 3, TA-8 Radiography Facility
Verification Forms

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-8**

Functional Area:	Management and Administration of Training and Qualification Programs	Criteria Met/Not Met:	Not Met
Objective Number:	1	Date:	4/22/2004

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility missions(s)

CRITERIA

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

APPROACH

Documents Reviewed.

- AET-TRN-823-02, *Training Implementation Matrix (TIM)*, Rev. 1, Dated 8/05/03
- AET-TRN-823-01, *Training Implementation Plan (TIP)*, Rev 1, Dated 8/05/03
- AET-TRN-823-03, *Training Management Manual (TMM)*, Rev. 0 Dated 9/10/03
- ESA-AET- TA-8-23 *Training Gap Analysis*, Dated 9/26/03

Interviews.

- Deputy Group Leader
- Facility Training Manager
- Authorization Basis Manager

DISCUSSION

1.1 The facility presented the TIM, TIP, and TMM as the suite of documents that describe the TA-8 Training and Qualification Program. Together these documents describe at a very high level the facility's compliance status and implementing approaches for DOE Order 5480.20A, *Personnel Selection, Qualification and Training Requirements for DOE Nuclear Facilities*. There is objective evidence that the TIM is DOE approved. Included is the delineation of responsible organizations for the various elements of the

training and qualification of personnel associated with the operational activities at TA-8. Several organizations share in the overall responsibility for the training and qualification program:

- Engineering Sciences and Applications Division-Applied Engineering Technologies (ESA-AET) is responsible for the definition, execution, and completion of all training and qualification requirements for staff who are assigned to that division. They do not acknowledge responsibility for any training and qualification programs requirements for any position filled by matrixed staff with the exception of TA-8 access training.
- Nuclear Materials Technologies (NMT) is responsible for the training, qualifications, and certifications of those positions matrixed to ESA-AET, which are those individuals who unpack and re-package any SNM specimens, which will undergo radiography in the facility. The individuals are certified as fissile material handlers.
- Facilities and Waste Operations Division (FWO) is responsible for the training and qualification programs for maintenance staff, facility managers, and facility coordinators.
- Health Safety and Radiation (HSR) is responsible for the training and qualification of radiological technicians to be in compliance with 10 CFR 835.
- Technical Support staff (QA, IS/IH, Criticality Safety, radiological engineering, etc.) training and qualification program requirements are the responsibility of the "home" organization.

NOTE: ESA-AET acknowledges that they are responsible for access training for all personnel seeking access authorization into TA-8.

- 1.2 Within the above organizations there are individuals or groups of individuals assigned responsibility for the execution of the training and qualification programs, however, there are no defined processes and methods for carrying out those responsibilities.

Although the responsibility is defined, the processes and methods to be used that are associated with the management and execution of a systematically developed training and qualification program are, again, not defined in documentation, thus are not formally "approved."

At TA-8 the training staff (any individual who performs training function as described in DOE Order 5480.20A) consists of a Facility Training Manager (with other collateral duties), and a less than full time individual who conducts radiographer training via on the job training (OJT) (a Subject matter Expert). Documentation that was submitted to this assessment team suggesting management recognized that in order to establish and maintain a DOE Order 5480.20A compliant program, additional funds and resources are needed.

As a note of accomplishment and evidence that roles and responsibilities exist and can be associated with organization positions, the job and task analysis performed and

documented in the Training Gap Analysis referenced above, training and qualification roles and responsibilities appear complete and appropriately assigned. The degree that individuals associated with these roles and responsibilities understand their significance and carry them out has not been assessed as a part of this review.

- 1.3 Goals, objectives, and plans are in place but lack the level of rigor required of DOE Order 5480.20A. The weakness exists in the fact that the training and qualification program has no documented processes or methods defining the execution of responsibilities to achieve and maintain a program based upon a systematic approach to training (SAT). Several specific weaknesses in the presentation of policy and management expectations described in the above documentation include:
1. The declaration that the ESA-AET organization has no "operator" related positions is emphasized heavily in the documentation provided. This declaration is questionable. ESA-AET is the owner "operator" of the TA-823 facility. Roles and responsibilities for select ESA-AET staff, which are assigned positions in the "operating" group, (refer to the Training Gap Analysis) define responsibilities for establishing and maintaining facility nuclear safety, are functions traditionally carried out by nuclear facility operators and supervisors.
 2. The detail of training and qualification program descriptions regarding "matrixed" individuals, does not make clear the continuity of training between "home" organizations and the "line" organization responsible for the nuclear safety aspects of the facility. Specific example is that there is no indication that facility specific training (other than access training and authorization) has been analyzed, exists, or is provided to matrixed personnel assigned to the facility.
 3. The plans and milestones committed to in documents presented to the team have incidents where the milestones have passed without achieving closure of the action. Cognizant personnel appeared aware of the current status and could describe those action delayed or in need of management attention.
- 1.4 The TMM, Section 7, Documentation, describes the attributes of documentation management for training and qualifications programs. The Training Integration Office (TIO) at LANL maintains the Employee Development System (EDS), a database, which is declared as the official records repository for training. A training record management process exists and appears to meet the expectations and requirements of the Order.

CONCLUSION AND SUMMARY

There exists very high level documentation that states management responsibility for the training and qualification program elements for the facility. Indications are, however, that due to the lack of more definitive guidance, such as approved program process procedures does not give high assurance that specific responsibilities are well known, understood, or fully executed by those who possess those roles and responsibilities nor is it possible to demonstrate management approval.

The conclusion is that this Objective is not fully met at the programmatic level do to lack of an approved documented training program.

FINDING

- 1.1 The TA-8 Nuclear Facility Training Program does not include training management and process guidance documents of sufficient detail that ensures program execution in accordance with DOE Order 5480.20A.

Inspected by: _____ H. Matt Jones Team Member	Approved by: _____ Lynn Maestas Team Leader
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**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-8**

Functional Area:	Development and Qualification of Training Staff	Criteria Met/Not Met:	Not Met
Objective Number:	2	Date:	4/22/2004

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH

Documents Reviewed.

- LIR300-00-04, *Laboratory Training :Essential Requirements*, Rev. Date 3/29/2004
- LIG300-00-04, *Laboratory Training: Graded and systematic Approach to Activity-Level Training (On-the-Job training and In-the -Field Training)*, Rev. Date 3/29/2004
- AET-TRN-823-02, *Training Implementation Matrix (TIM)*, Rev. 1, Dated 8/05/03
- AET-TRN-823-01, *Training Implementation Plan (TIP)*, Rev 1, Dated 8/05/03
- AET-TRN-823-03, *Training Management Manual (TMM)*, Rev. 0 Dated 9/10/03
- ESA-AET- TA-8-23 *Training Gap Analysis*, Dated 9/26/03
- Facility Training Manager training record.

Interviews.

- Facility Training Manager
- Director, Training Integration Office
- Deputy Group Leader.
- Manager Authorization Basis

DISCUSSION

- 2.1 The training staff at TA-8 consists of a Facility Training Manager who is not full time in support of the facility, and a Lead Radiographer who performs OJT instruction. These individuals possess the appropriate technical knowledge for the function they perform,

and have completed Laboratory required training staff training plans for the functions that they perform.

- 2.2 The Laboratory has an established Training Staff Qualification Program (TSQP). The management of the TSQP is the responsibility of the Training Integration Office (TIO) and applies Laboratory wide.

What is lacking, is the degree of formality and process definition for the execution of a training staff qualification program at the Laboratory and facility level that meets the requirements of DOE Order 5480.20A.

- 2.3 There is no evidence that a training staff continuing training program has been established at the facility to ensure training staff maintains and improves performance of assigned instructional duties.

During interviews it was asked if the line management had a required self-assessment function. It was stated that there was a Management Walk around requirement. When asked if the requirement had any specific training coverage required or if they conducted and documented training function related assessments, the response was that training related line management assessments for program adequacy and compliance have not been performed at the facility. Thus there is no policy or procedure by which the various program elements of a training program receive systematic review such that the entire program is reviewed within some periodicity.

CONCLUSION AND SUMMARY

The lack of documentation, specifically process definition and acceptable methods for the execution of a training staff qualification program is non compliant with the DOE Order 5480.20A requirements for training staff.

The conclusion is that this Objective is not met at the programmatic level.

FINDING

- 2.1 There are no approved Laboratory or Facility program documents or written requirements that if implemented would result in trained and qualified instructors that meet the requirements of DOE Order 5480.20A, Contractors Requirements Document Chapter III, Paragraph 2.g.(2).(c). or certified instructors who meet the requirements of LIR 300-00-04.
- 2.2 There are no approved program documents or written requirements that, if implemented as written, would result in a continuing instructional skills training program that maintains, improves, and updates the knowledge and skills of incumbent training staff.

Inspected by: _____ H. Matt Jones Team Member	Approved by: _____ Lynn Maestas Team Leader
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**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-8**

Functional Area:	Trainee entry-Level Requirements	Criteria Met/Not Met:	Not Met
Objective Number:	3	Date:	April 22, 2004

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

CRITERIA

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH

Documents Reviewed.

- AET-TRN-823-01, *Training Implementation Plan*
- AET-TRN-823-02, *Training Implementation Matrix*
- AET-TRN-823-03, *Training Management Manual*
- AET-QP-ND-01, *Quality Procedure for Qualification & Certification of Nondestructive Testing Personnel*
- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*

Interviews

- TA-8-23 Training Manager
- ESA-AET Deputy Group Leader
- Director, Training Integration Office
- ESA-AET Safety Basis Manager
- ESA-WOI Training Team Leader
- ESA-WOI Performance-Based Training Specialist
- TA-8-23 Facility Representative

DISCUSSION

- 3.1 Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.

Entry-level requirements are provided as part of job advertisements. The Team Leader, Operations Coordinator and/or Lead Radiographer set high standards (that are sometimes difficult for applicants to meet) in the job advertisements. The facility tries to hire persons with a background in radiography; successful applicants often come to the facility with a background in radiography from the military, medical field, or RCT. Some positions that are extra difficult to fill have had a standing job advertisement within the LANL personnel system.

Based on the discussions with AET, the entry-level requirements appear to generally exceed the DOE O 5480.20A entry-level requirements. However, a standardized process to ensure that entry-level requirements are established in accordance with DOE O 5480.20A was not observed.

During the interview with AET, it was disclosed that the Acting Training Manager has accepted a new assignment and would be vacating the current position. Upon the departure of the Training Manager, the Authorization Basis Manger will become the Acting Training Manager. The Authorization Basis Manger does not appear to meet the DOE O 5480.20A requirement that the Training Manger “. . . have a baccalaureate including courses in education . . .”

Formal position descriptions were not evident in the process. Based on discussion with AET, the best descriptor of each employee's responsibilities is the Job Advertisement under which they were hired. The lack of formality in this process is compounded during the development of each employee's training, qualification, and certification.

The LANL Training Integration Office (TIO) is responsible for developing and maintaining the institutional level Training Implementation Matrix (TIM). A review of the institutional TIM provided to the team raised some concerns relative to the intent of the entry-level requirements specified in DOE Order 5480.20A. These concerns are discussed in greater detail in the TA-55/CMR portion of this assessment. Even though the entry-level requirements are exempted in the institutional TIM, the TA-8 TIM states “At this time, TA-8-23 facility does not foresee the need for an “exception policy”, since future new hires will be required to meet the education and experience requirements stated for the position. If an exception policy is created, it will be submitted to NNSA/DOE for approval.” The TA-18 TIM that was approved on August 5, 2003 references NDT&E WP-1A as a document that specifies NDT education and experience requirements. Based on an interaction with the Acting Training Manger, this document was replaced by AET-QP-ND-01, *Quality Procedure for Qualification & Certification of Nondestructive Testing Personnel*, in an unapproved update to the TIM. This document contained training and experience requirements for obtaining various levels of qualification, but DOE O 5480.20A entry-level requirements were not discussed.

The processes discussed in this criterion were not formally defined or documented.

- 3.2 Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.

Education, required skills, and desired skills are prescribed in each Job Advertisement. According to the interview with AET, applicants that do not meet the required job criteria are not considered. There have been a few cases where none of the applicants have met the required skills. The jobs were re-posted. In some cases, the minimum job criteria were reduced. The AET interviewees noted that additional training may be required to prepare the successful applicants to encumber these positions. There was no indication that the required job criteria did not meet the DOE O 5480.20 criteria, but a defined and documented process was not observed to ensure that personnel selected for the operating organization met the DOE O 5480.20A prescribed entry-level requirements.

- 3.3 Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

A formal process to review and revise entry-level requirements was not observed. As discussed under criterion 2, entry-level requirements were reduced when the job advertisements did not produce adequate candidates.

CONCLUSION AND SUMMARY

Objective 3 and its associated criteria are not met. Although there seems to be a system of minimum requirements imposed for each position, this does not appear to be formalized.

At the current time, the persons that are being hired by AET for TA-8-23 appear to generally meet and/or exceed the requirements specified in DOE O 5480.20A. The plan to have the Authorization Basis Manager serve as the Acting Training Manger does not appear to meet the requirements in DOE O 5480.20A. A formal, documented process is not in place to ensure that the requirements of DOE O 5480.20A associated with hiring entry-level personnel are met.

FINDING

The provided documentation did not meet the intent of the entry-level requirements contained in DOE Order 5480.20A, Chapter IV. Specifically:

- 3.1 A defined and documented process is not in place to ensure that entry-level requirements are systematically established in accordance with the minimum educational, experience, technical, and medical requirements as defined in DOE O 5480.20A Chapter IV.
- 3.2 A defined and documented process is not in place to ensure that if adequately implemented, personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements in the Job Announcement or DOE O 5480.20A Chapter IV prior to being assigned to a position.
- 3.3 A defined and documented process is not in place to ensure that entry-level requirements for LANL positions are reviewed and revised as necessary based on evaluation of trainee performance.

Inspected by: <u> Lynn Maestas </u> Team Member	Approved by: <u> Lynn Maestas </u> Team Leader
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**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-8**

Functional Area:	Determination of Training Program Content	Criteria Met/Not Met:	Not Met
Objective Number:	4	Date:	04/23/04

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH

Documents Reviewed

- AET-PLN-GEN-01, *Quality Assurance Plan*
- AET-TRN-823-03, *Training Management Manual*
- AET-PLN-823-01, *Training Implementation Plan*
- AET-RT-ND-01, *Radiographic Procedure for Pit Surveillance*
- AET-OI-823-11, *Two-Person Control of Special Nuclear Material*
- AET-OP-823002, *Radiography in a Shielded Installation*
- AET-OI-ND-28, *Densitometer (X-Rite Model 301)*
- AET-OI-ND-01, *General Instructions for Film Radiography*
- ESA-AET-HCP-823-02, Rev.0, *Hazard Control Plan, X-Ray Radiological Operations at TA-8-23*
- AET-HCP-823-01, Rev. 0, *Hazard Control Plan, High Explosives Operations at TA-8-23*
- HSR1: 2004BT-03, *Radiological Work Permit*
- HSR1: 2004BT-02, *Radiological Work Permit*
- HSR1: 2004BT-01, *Radiological Work Permit*
- AET-TRN-ND32-R00, *TA-8 Radiolography Facility, Ludlum Model 3 with HP 190 Probe, On-the-Job Training Instruction and Evaluation*

- *AET-OI-ND32-R01, Ludlum Model 3 with HP 190 Probe Operating Instructions*
- *AET-WA-ND02-R04, ESA-AET, NDT Worker Authorization*
- *AET-QP-GEN-04, Records Management*
- *AET-QP-ND-01, Quality Procedure for Qualification & Certification of Nondestructive Testing Personnel*
- *AET-TRN-823-02, Training Implementation Matrix*
- *AET-IWD-823-03, Radiography of Assembled Pits*
- *AET-IWD-823-08, Upgrade of HMI and PLC for Microtron*
- *AET-IWA-823-05, Radiography of Objects with Microtron and/or Microfocus*
- *AET-OI-ND29-R01, Kodak B 2000 X-ray Film Processor*
- *AET-OI-ND27-R00, Viscom 225 kV Microfocus Operating Instructions*
- *AET-OI-ND07-R01, Scanditronix M22 Microtron Operating Instructions*

Interviews.

- TA-8-23 Training Manager
- ESA-AET Deputy Group Leader
- Director, Training Integration Office
- ESA-AET Safety Basis Manager
- ESA-WOI Training Team Leader
- ESA-WOI Performance-Based Training Specialist
- TA-8-23 Facility Representative

DISCUSSION

4.1 In interviews with facility management and training personnel, it was discovered that a Job/Task Analysis (JTA) of the 14 job positions identified in Attachment C, AET-TRN-823-01, R1, *Training Implementation Plan*, was performed. The JTA was performed based on guidance given in DOE-HDBK-1078-94, *A Systematic Approach to Training*, DOE-HDBK-1074-95, *Alternative Systematic Approaches to Training* and DOE-HDBK-1076-94, *Guide to Good Practice for Table Top Job Analysis*. While the guidance in these documents provides an acceptable approach to JTA, as evidenced by the JTA results documented, neither the Applied Engineering Technologies (AET) Group or the Engineering Sciences and Applications (ESA) Division have documented guidance; in the form of procedures or guides for performing JTA in a consistent manner. Without this guidance, TA-8-23 cannot guarantee consistent JTA that meets the intent of the requirements contained in DOE Order 5480.20A. No procedural guidance exists that if implemented would meet the intent of criteria 1. This criterion is not met.

4.2 AET-TRN-823-01, R1, DOE Order 5480.20A Training Implementation Plan states

“Weekly meetings are held with personnel from the NDT Team. Records of attendance, agendas, and topics discussed are maintained, as appropriate. These weekly meetings typically include lessons learned from LANL, the NNSA/DOE complex, and industry; formal and informal training sessions; safety issues; security issues; access control; customer interface issues; maintenance/crafts scheduling; quality control; and work processes.”

AET-TRN-823-03, R0, DOE Order 5480.20A Training Management Manual, section 6.5 Training Course Development states:

“The Authorization Basis Manager and Operations Coordinator collaborate with the Training Manager to review and establish quality training. This process ensures training is kept up to date to reflect changes to the facility, procedures, regulations, and quality assurance requirements as well as applicable industry operating experience.”

These are the only two documented references regarding the use of current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Order, and industry operating experience in establishing initial and continuing training. No procedural guidance exists that if implemented would meet the intent of criteria 2. This criterion is not met.

4.3 The AET Group does not have a training and qualification program for Technical Staff. No assessment of position duties and responsibilities has been performed nor is there any procedural guidance for performing these types of assessments. This criterion is not met.

CONCLUSION AND SUMMARY

There is a complete lack of procedural guidance that would ensure program content for competent job performance is identified, documented, and included in the training programs. This objective is not met.

BEST PRACTICES

4.1 The methodology used to perform the Job/Task Analysis of the 16 job positions currently at TA-8-23 meets the intent of DOE Order 5480.20A and should be documented so it can continued to be used in the future.

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

4.1 There is a complete lack of procedural guidance that would ensure program content for competent job performance is identified, documented, and included in the training programs.

Inspected by: _____ Larry Palmer Team Member	Approved by: _____ Lynn Maestas Team Leader
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**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-8**

Functional Area:	Design and Development of Training Programs	Criteria Met/Not Met:	Not Met
Objective Number:	5	Date:	04/23/04

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH

Documents Reviewed.

- AET-PLN-GEN-01, *Quality Assurance Plan*
- AET-TRN-823-03, *Training Management Manual*
- AET-PLN-823-01, *Training Implementation Plan*
- AET-RT-ND-01, *Radiographic Procedure for Pit Surveillance*
- AET-OI-823-11, *Two-Person Control of Special Nuclear Material*
- AET-OP-823002, *Radiography in a Shielded Installation*
- AET-OI-ND-28, *Densitometer (X-Rite Model 301)*
- AET-OI-ND-01, *General Instructions for Film Radiography*
- ESA-AET-HCP-823-02, Rev.0, *Hazard Control Plan, X-Ray Radiological Operations at*

TA-8-23

- AET-HCP-823-01, Rev. 0, Hazard Control Plan, High Explosives Operations at TA-8-23
- HSR1: 2004BT-03, Radiological Work Permit
- HSR1: 2004BT-02, Radiological Work Permit
- HSR1: 2004BT-01, Radiological Work Permit
- AET-TRN-ND32-R00, TA-8 Radiology Facility, Ludlum Model 3 with HP 190 Probe, On-the-Job Training Instruction and Evaluation
- AET-OI-ND32-R01, Ludlum Model 3 with HP 190 Probe Operating Instructions
- AET-WA-ND02-R04, ESA-AET, NDT Worker Authorization
- AET-QP-GEN-04, Records Management
- AET-QP-ND-01, Quality Procedure for Qualification & Certification of Nondestructive Testing Personnel
- AET-TRN-823-02, Training Implementation Matrix
- AET-IWD-823-03, Radiography of Assembled Pits
- AET-IWD-823-08, Upgrade of HMI and PLC for Microtron
- AET-IWA-823-05, Radiography of Objects with Microtron and/or Microfocus
- AET-OI-ND29-R01, Kodak B 2000 X-ray Film Processor
- AET-OI-ND27-R00, Viscom 225 kV Microfocus Operating Instructions
- AET-OI-ND07-R01, Scanditronix M22 Microtron Operating Instructions

Interviews.

- TA-8-23 Training Manager
- ESA-AET Deputy Group Leader
- Director, Training Integration Office
- ESA-AET Safety Basis Manager
- ESA-WOI Training Team Leader
- ESA-WOI Performance-Based Training Specialist
- TA-8-23 Facility Representative

DISCUSSION

- 5.1 There is no evidence of procedural guidance available that would ensure learning objectives are derived from tasks selected for training or that learning objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms. This criterion is not met.
- 5.2 There is no evidence of procedural guidance available that would ensure lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training. This criterion is not met.
- 5.3 There is no evidence of procedural guidance available that would ensure review, approval, and control requirements are established and utilized for all training materials. This criterion is not met.

- 5.4 There is no evidence of procedural guidance available that would ensure a continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.. This criterion is not met.

CONCLUSION AND SUMMARY

There is no evidence of procedural guidance available that would ensure training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. There is no evidence of procedural guidance available that would ensure the content of initial training prepares the trainee to perform the job for which the candidate is being trained. There is no evidence of procedural guidance available that would ensure the content of continuing training maintains and improves incumbent job performance. This Objective is not met.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

- 5.1 There is no evidence of procedural guidance available that would ensure training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted.
- 5.2 There is no evidence of procedural guidance available that would ensure the content of initial training prepares the trainee to perform the job for which the candidate is being trained.
- 5.3 There is no evidence of procedural guidance available that would ensure the content of continuing training maintains and improves incumbent job performance.

Inspected by: _____ Larry Palmer Team Member	Approved by: _____ Lynn Maestas Team Leader
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**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-8**

Functional Area:	Trainee Examinations and Evaluations	Criteria Met/Not Met:	Not Met
Objective Number:	6	Date:	4/23/04

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH

Documents Reviewed.

- AET-PLN-GEN-01, *Quality Assurance Plan*
- AET-TRN-823-03, *Training Management Manual*
- AET-PLN-823-01, *Training Implementation Plan*
- AET-RT-ND-01, *Radiographic Procedure for Pit Surveillance*
- AET-OI-823-11, *Two-Person Control of Special Nuclear Material*
- AET-OP-823002, *Radiography in a Shielded Installation*
- AET-OI-ND-28, *Densitometer (X-Rite Model 301)*
- AET-OI-ND-01, *General Instructions for Film Radiography*
- ESA-AET-HCP-823-02, Rev.0, *Hazard Control Plan, X-Ray Radiological Operations at TA-8-23*

- AET-HCP-823-01, Rev. 0, *Hazard Control Plan, High Explosives Operations at TA-8-23*
- HSR1: 2004BT-03, *Radiological Work Permit*
- HSR1: 2004BT-02, *Radiological Work Permit*
- HSR1: 2004BT-01, *Radiological Work Permit*
- AET-TRN-ND32-R00, *TA-8 RadiolOgraphy Facility, Ludlum Model 3 with HP 190 Probe, On-the-Job Training Instruction and Evaluation*
- AET-OI-ND32-R01, *Ludlum Model 3 with HP 190 Probe Operating Instructions*
- AET-WA-ND02-R04, *ESA-AET, NDT Worker Authorization*
- AET-QP-GEN-04, *Records Management*
- AET-QP-ND-01, *Quality Procedure for Qualification & Certification of Nondestructive Testing Personnel*
- AET-TRN-823-02, *Training Implementation Matrix*
- AET-IWD-823-03, *Radiography of Assembled Pits*
- AET-IWD-823-08, *Upgrade of HMI and PLC for Microtron*
- AET-IWA-823-05, *Radiography of Objects with Microtron and/or Microfocus*
- AET-OI-ND29-R01, *Kodak B 2000 X-ray Film Processor*
- AET-OI-ND27-R00, *Viscom 225 kV Microfocus Operating Instructions*
- AET-OI-ND07-R01, *Scanditronix M22 Microtron Operating Instructions*

Interviews.

- TA-8-23 Training Manager
- ESA-AET Deputy Group Leader
- Director, Training Integration Office
- ESA-AET Safety Basis Manager
- ESA-WOI Training Team Leader
- ESA-WOI Performance-Based Training Specialist
- TA-8-23 Facility Representative

DISCUSSION

- 6.1 AET-QP-ND-01, Rev. 0, *Written Practice for Qualification & Certification of Nondestructive Testing Personnel, Section 5.5 Examinations* states the requirements for Radiographer Level I, II, and III physical, general, specific examinations and a checklist for the practical examinations. This procedural guidance covers the development, implementation and scoring of examinations used to certify Level I, II and III Radiographers. There is no evidence of examinations being conducted for the qualification on specific radiographic machines such as the M22 Microtron or for qualifications such as crane operator or forklift operator. There is a lack of procedural guidance that would assure that if examinations were given they would meet the requirements set forth in DOE Order 5480.20A. This criterion is not met.
- 6.2 LIR-300-00-04.2, Attachment B, *Development Steps* states “*For required tests, write questions to objectives and validate the test.*” There is no evidence that Division or Group-wide procedures exist that ensure examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives,

administered consistently, controlled, and documented for facility specific operations. This criterion is not met.

- 6.3 There is no evidence that Division or Group-wide procedures exist that ensure the content of written and oral examinations for facility specific operations is changed at intervals sufficient to prevent compromise. This criterion is not met.
- 6.4 There is no evidence that Division or Group-wide procedures exist that ensure the development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled for facility specific operations. This criterion is not met.
- 6.5 There is no evidence that Division or Group-wide procedures exist that ensure remedial training and reevaluation are provided when examination or performance standards are not met for facility specific operations. This criterion is not met.

CONCLUSION AND SUMMARY

There is no evidence that Division or Group-wide procedures exist that ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs. This objective is not met.

FINDING

- 6.1 There is no evidence that Division or Group-wide procedures exist that ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Inspected by: _____ Larry Palmer Team Member	Approved by: _____ Lynn Maestas Team Leader
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**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-8**

Functional Area:	Training Program Evaluation	Criteria Met/Not Met:	Not Met
Objective Number:	7	Date:	4/23/04

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH

Documents Reviewed.

- AET-PLN-GEN-01, *Quality Assurance Plan*
- AET-TRN-823-03, *Training Management Manual*
- AET-PLN-823-01, *Training Implementation Plan*
- AET-RT-ND-01, *Radiographic Procedure for Pit Surveillance*
- AET-OI-823-11, *Two-Person Control of Special Nuclear Material*

- AET-OP-823002, *Radiography in a Shielded Installation*
- AET-OI-ND-28, *Densitometer (X-Rite Model 301)*
- AET-OI-ND-01, *General Instructions for Film Radiography*
- ESA-AET-HCP-823-02, Rev.0, *Hazard Control Plan, X-Ray Radiological Operations at TA-8-23*
- AET-HCP-823-01, Rev. 0, *Hazard Control Plan, High Explosives Operations at TA-8-23*
- HSR1: 2004BT-03, *Radiological Work Permit*
- HSR1: 2004BT-02, *Radiological Work Permit*
- HSR1: 2004BT-01, *Radiological Work Permit*
- AET-TRN-ND32-R00, *TA-8 Radiology Facility, Ludlum Model 3 with HP 190 Probe, On-the-Job Training Instruction and Evaluation*
- AET-OI-ND32-R01, *Ludlum Model 3 with HP 190 Probe Operating Instructions*
- AET-WA-ND02-R04, *ESA-AET, NDT Worker Authorization*
- AET-QP-GEN-04, *Records Management*
- AET-QP-ND-01, *Quality Procedure for Qualification & Certification of Nondestructive Testing Personnel*
- AET-TRN-823-02, *Training Implementation Matrix*
- AET-IWD-823-03, *Radiography of Assembled Pits*
- AET-IWD-823-08, *Upgrade of HMI and PLC for Microtron*
- AET-IWA-823-05, *Radiography of Objects with Microtron and/or Microfocus*
- AET-OI-ND29-R01, *Kodak B 2000 X-ray Film Processor*
- AET-OI-ND27-R00, *Viscom 225 kV Microfocus Operating Instructions*
- AET-OI-ND07-R01, *Scanditronix M22 Microtron Operating Instructions*

Interviews.

- TA-8-23 Training Manager
- ESA-AET Deputy Group Leader
- Director, Training Integration Office
- ESA-AET Safety Basis Manager
- ESA-WOI Training Team Leader
- ESA-WOI Performance-Based Training Specialist
- TA-8-23 Facility Representative

DISCUSSION

- 7.1 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps* outlines the three institutional steps in the Los Alamos National Laboratory's training program evaluation process. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of 5480.20A. There is no evidence of facility or Division procedural guidance available that would ensure this criterion and the intent of DOE Order 5480.20A are met. This criterion is not met.
- 7.2 There is no evidence of procedural guidance available that would ensure this criterion and the intent of DOE Order 5480.20A are met. This criterion is not met.

- 7.3 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps*, states that training personnel will “*Review trainee feedback on course and trainee learning*” and “*Revise training and tests, as required.*” This is the only guidance given regarding Level 1 & Level 2 evaluations that this assessor could find. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of 5480.20A. This criterion is not met.
- 7.4 There is no evidence of procedural guidance available that would ensure change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner or that changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.. This criterion is not met.
- 7.5 There is no evidence of procedural guidance available that would ensure improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems. This criterion is not met.
- 7.6 There is no evidence of procedural guidance available that would ensure training materials are maintained current, based upon the results of training program evaluations.. This criterion is not met.
- 7.7 There is no evidence of procedural guidance available that would ensure training facilities are evaluated to determine their effect on the training process.. This criterion is not met.

CONCLUSION AND SUMMARY

There is no evidence of procedural guidance available that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. This objective is not met.

FINDING

- 7.1 There is no evidence of procedural guidance available that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Inspected by: <u> Larry Palmer </u> Team Member	Approved by: <u> Lynn Maestas </u> Team Leader
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Attachment C
Group 3, TA-16 Weapons Engineering Tritium Facility (WETF)
Verification Forms

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL WETF**

FUNCTIONAL AREA: Training and Qualification	OBJECTIVE: TQ-1	OBJECTIVE MET	
		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

OBJECTIVE:

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s). (CORE REQUIREMENT 1, 3, 4, 5, and 6)

CRITERIA:

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification program(s).
4. Training records are maintained to support management information needs and to provide required historical data.

APPROACH:

- Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training
- Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control
- Selected individual training records
- Documents that define the goals, objectives and plan for implementing the training and qualification program

Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

RECORDS REVIEWED:

- ESA-WOI-FTA-WETF-R1, *Facility-Tenant Agreement for WETF*, 4/7/04
- LIR 300.00.04.2, *Laboratory Training: Essential Requirements*, Revised Date 3/29/04
- TSE-QMP, R7, *Quality Management Plan*, 4/12/04
- TSE-QP-02, R9, *Document Control*, 3/26/04

- TSE-TMP, R3, *Training Management Plan*, 2/2/04
- TSE-TRN-02, R2, *Training Qualification Standard*, 6/28/02
- TSE-TRN-05, R2, *Testing Procedure*, 3/31/04
- TSE-TRN-06, R2, *On-the-Job Training Instruction and Evaluation*, 4/12/04
- TSE-TRN-08, R1, *Tritium Operator Qualification/Re-qualification Program*, 4/12/04
- TSE-TRN-11, R2, *TSE Worker Hazard Control Plan Identification*, 4/12/04
- TSE-TRN-14, R2, *TSE Training Level Determination*, 4/14/04
- TSE-TRN-18, R0, *TSE Operator Re-qualification*, 10/29/03
- WETF-MI-TWTS-01, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-29, R7, *Tritium Operator Qualification Card*, 3/01/04
- WETF-TRN-46, R2, *WETF Subject Matter Expert List*, 2/11/04
- WETF-TRN-70, R1, *Surveillance of Inert and Oxygen Monitoring System On-the-Job Training Instruction and Evaluation*, 8/27/03
- WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, 3/10/04
- WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment*, 2/5/04
- WETF-TRN-102, R4, *Surveillance of Environmental Chamber Over Temperature Protection System (ECOPS) On-the-Job Training Instruction and Evaluation*, 3/5/04
- WETF-TRN-105, R2, *Surveillance Testing of Uninterruptible Power Supply On-the-Job Training Instruction and Evaluation*, 9/23/03
- WETF-TRN-114, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-NTTL-01, R2, *WETF NTTL Operator Initial Qualification Card*, 3/5/04
- WETF-TRN-NTTL-05, R0, *NTTL Task-to-Training Matrix*, 6/11/03
- TA-16 WETF Evacuation Drill Scenario
- Job Announcement for TEC FAC Operator, 4/2/04
- The Approved Training Integration Office Training Implementation Plan (TIM), 10/10/97
- The ESA-TSE Training Implementation Matrix (TIM)

INTERVIEWS

CONDUCTED:

- Training Lead
- Training Specialist
- Deputy Group Leader – Programs
- Group Leader, FWO-DX-ESA
- FSA5 Area Manager
- Deputy Director, Support Services (KSL)
- NTTL Operator
- WETF Operations Lead
- WETF Operator
- NTTL Project Leader
- Facility Manager

SHIFT PERFORMANCE OBSERVED:

N/A

DISCUSSION OF RESULTS:

There is evidence of strong line management ownership of training at the WETF. Deputy Group Leaders, Team Leaders, and other senior staff are knowledgeable and supportive of the Training and Qualification program. The major weakness noted in an otherwise robust and fully functional training program is a lack of adequate procedure and/or programmatic requirements and guidance. This lack of procedural documentation raises the issue of potential inconsistency in approach, level of rigor and discipline, and program execution. If the Training Lead suddenly was no longer available to manage and oversee the program, the person stepping in to replace her would have a very difficult time given the lack of specific program detail in the programmatic documentation.

- 1.1 Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).

This criterion is met.

WETF line management clearly owns and is deeply involved in the training and qualification of its staff. They provide the Training Lead with the necessary resources to allow her to perform her duties and ensure an effective training and qualification program is in place and functioning properly.

- 1.2 An organization/person within line management is responsible for the implementation of the training and qualification program(s).

This criterion is met.

The Training Department is a fully functional part of the WETF operations team. The department is visibly included on the WETF Organization Chart, falling under the Operational Quality Team. The Training Lead is clearly responsible for the development, implementation, maintenance, and evaluation of the WETF Training and Qualification Program.

- 1.3 Goals, objectives, and plans are in place to describe the implementation of the training and qualification program(s).

This criterion is not met.

A thorough review of 25 documents relative to the development, implementation, management, and execution of the WETF Training and Qualification Program revealed several opportunities for improvement. There is insufficient specificity in the existing WETF programmatic documentation to ensure consistency in approach, level of rigor and discipline, and execution of the Training and Qualification Program. While it is obvious that WETF has a robust and effective training and qualification program, the programmatic documentation for that program is weak. This appears to be the result of the Training Department attempting to superimpose a standards-based system over the previously existing expert-based system.

TQ 1.3.1 There is insufficient specificity in the existing WETF programmatic documentation to ensure consistency in approach, level of rigor and discipline, and execution of the Training and Qualification Program.

- 1.4 Training records are maintained to support management information needs and to provide required historical data.

This criterion is met.

The WETF makes use of the Laboratory's Employee Development System (EDS) as its official training records repository. The EDS is widely used Lab-wide and is very effective. On special case-by-case bases, some local records are maintained using appropriate secure storage methods.

CONCLUSION: The objective has been met.

There is abundant evidence that a robust training program is implemented at WETF and that it is well supported by both management and workers. Group Leaders work to provide the Training Department with the resources needed to facilitate strong and effective training. Group Leaders also pointed out that they are actively trying to hire another Trainer to assist in the work.

The only concern is that there appears to be an almost uniform lack of specificity in training programmatic documents. While it is obvious that training is being conducted and that the training program in general is well conceived and implemented, the programmatic documentation (e.g., Program Manual, implementing procedures) do not provide adequate documentation pertaining to the analysis, design, development, implementation, and feedback of a healthy training program.

ISSUE:

TQ 1.3.1 There is insufficient specificity in the existing WETF programmatic documentation to ensure consistency in approach, level of rigor and discipline, and execution of the Training and Qualification Program.

TEAM MEMBER: Stephen A. Arner	DATE: 4/23/04
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TEAM LEADER: WETF ORR Team Leader	DATE: 4/23/04
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**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL WETF**

FUNCTIONAL AREA: Training and Qualification	OBJECTIVE: TQ-2	OBJECTIVE MET	
		YES X	NO <input type="checkbox"/>

OBJECTIVE:

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties. (CORE REQUIREMENT 1, 3, 4, 5, and 6)

CRITERIA:

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH:

1. List of qualified instructors (classroom and OJT)
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification
3. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team
5. Selected training staff training records

RECORDS REVIEWED:

- ESA-WOI-FTA-WETF-R1, Facility-Tenant Agreement for WETF, 4/7/04
- LIR 300.00.04.2, Laboratory Training: Essential Requirements, Revised Date 3/29/04
- TSE-QMP, R7, Quality Management Plan, 4/12/04
- TSE-QP-02, R9, Document Control, 3/26/04
- TSE-TMP, R3, Training Management Plan, 2/2/04
- TSE-TRN-02, R2, Training Qualification Standard, 6/28/02
- TSE-TRN-05, R2, Testing Procedure, 3/31/04
- TSE-TRN-06, R2, On-the-Job Training Instruction and Evaluation, 4/12/04

- TSE-TRN-08, R1, *Tritium Operator Qualification/Requalification Program*, 4/12/04
- TSE-TRN-11, R2, *TSE Worker Hazard Control Plan Identification*, 4/12/04
- TSE-TRN-14, R2, *TSE Training Level Determination*, 4/14/04
- TSE-TRN-18, R0, *TSE Operator Requalification*, 10/29/03
- WETF-MI-TWTS-01, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-29, R7, *Tritium Operator Qualification Card*, 3/01,04
- WETF-TRN-46, R2, *WETF Subject Matter Expert List*, 2/11/04
- WETF-TRN-70, R1, *Surveillance of Inert and Oxygen Monitoring System On-the-Job Training Instruction and Evaluation*, 8/27/03
- WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, 3/10/04
- WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment*, 2/5/04
- WETF-TRN-102, R4, *Surveillance of Environmental Chamber Over Temperature Protection System (ECOPS) On-the-Job Training Instruction and Evaluation*, 3/5/04
- WETF-TRN-105, R2, *Surveillance Testing of Uninterruptible Power Supply On-the-Job Training Instruction and Evaluation*, 9/23/03
- WETF-TRN-114, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-NTTL-01, R2, *WETF NTTL Operator Initial Qualification Card*, 3/5/04
- WETF-TRN-NTTL-05, R0, *NTTL Task-to-Training Matrix*, 6/11/03
- TA-16 WETF Evacuation Drill Scenario
- Job Announcement for TEC FAC Operator, 4/2/04
- The Approved Training Integration Office Training Implementation Plan (TIM), 10/10/97
- The ESA-TSE Training Implementation Matrix (TIM)

INTERVIEWS CONDUCTED:

- Training Lead
- Training Specialist
- Deputy Group Leader – Programs
- Group Leader, FWO-DX-ESA
- FSA5 Area Manager
- Deputy Director, Support Services (KSL)
- NTTL Operator
- WETF Operations Lead
- WETF Operator
- NTTL Project Leader
- Facility Manager

SHIFT PERFORMANCE OBSERVED:

N/A

DISCUSSION OF RESULTS:

The training staff (i.e., Training Lead, Training Specialist, and SME designated OJT Instructors/Evaluators) are all required to possess the requisite technical and training knowledge, skills, and abilities in order to conduct training activities. WETF has a good program in place and it appears to be functioning well. The only comment is that the requirements of this program, although discussed globally in TSE-TMP, R3, *Training Management Plan*, lack sufficient specificity to ensure that someone new to the WETF training and qualification program would know and understand the requirements.

2.1 The training staff has and maintains the education, experience, and technical qualifications for their respective positions.

This criterion has been met.

The Training Lead has a Master's Degree in Organizational Learning and Instructional Technology and the Training Specialist has a Bachelor of Business Administration in Information Technology. As such, both have the education and experience necessary for them to perform their duties and responsibilities. However, neither of these actually conducts training at WETF. Virtually all technical training is accomplished using on-the-job training (OJT). OJT instructors and evaluators are subject matter experts (SME) and are selected to conduct training in their area(s) of expertise. They maintain their skills via the facility's continuing training program.

2.2 A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.

This criterion has been met.

Section 6.2 of LIR 300.00.04.2, *Laboratory Training: Essential Requirements*, requires, "All personnel involved in providing training for qualification or certification programs shall become TSQP qualified." The LIR goes on to list the specific training requirements necessary to complete to become TSQP qualified. This program is implemented by the Training Integration Office (TIO). "All personnel" includes those SMEs performing duties as OJT instructors. Prior to performing OJT Instructor/Evaluator duties, SMEs are required to first complete the requirements of Section 6.2 of LIR 300.00.04.2.

2.3 A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

This criterion has been met.

Through TIO, all LANL training professionals participate in on-going PBT designed to upgrade and enhance training skills. This program is conducted external to WETF by the TIO. This program is required by Section 5.10 of LIR 300.00.04.2, *Laboratory Training: Essential Requirements*, and is implemented at WETF.

CONCLUSION: The Objective has been met.

Through a combination of education, experience, and training, the WETF Training Department staff and those subject matter experts (SME) who are serving as OJT Instructor/Evaluators possess the requisite skills and knowledge to effectively perform their assigned duties and responsibilities.

ISSUE:

None

TEAM MEMBER: Stephen A. Arner	DATE: 4/23/04
TEAM LEADER: WETF ORR Team Leader	DATE: 4/23/04

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL WETF**

FUNCTIONAL AREA: Training and Qualification	OBJECTIVE: TQ-3	OBJECTIVE MET	
		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

OBJECTIVE:

Trainees meet the minimum requirements for entry into the training program. (CORE REQUIREMENT 1, 3, 4, 5, and 6)

CRITERIA:

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position
2. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

RECORDS REVIEWED:

- ESA-WOI-FTA-WETF-R1, *Facility-Tenant Agreement for WETF*, 4/7/04
- LIR 300.00.04.2, *Laboratory Training: Essential Requirements*, Revised Date 3/29/04
- TSE-QMP, R7, *Quality Management Plan*, 4/12/04
- TSE-QP-02, R9, *Document Control*, 3/26/04
- TSE-TMP, R3, *Training Management Plan*, 2/2/04
- TSE-TRN-02, R2, *Training Qualification Standard*, 6/28/02
- TSE-TRN-05, R2, *Testing Procedure*, 3/31/04
- TSE-TRN-06, R2, *On-the-Job Training Instruction and Evaluation*, 4/12/04
- TSE-TRN-08, R1, *Tritium Operator Qualification/Re-qualification Program*, 4/12/04
- TSE-TRN-11, R2, *TSE Worker Hazard Control Plan Identification*, 4/12/04
- TSE-TRN-14, R2, *TSE Training Level Determination*, 4/14/04
- TSE-TRN-18, R0, *TSE Operator Re-qualification*, 10/29/03
- WETF-MI-TWTS-01, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-29, R7, *Tritium Operator Qualification Card*, 3/01/04
- WETF-TRN-46, R2, *WETF Subject Matter Expert List*, 2/11/04
- WETF-TRN-70, R1, *Surveillance of Inert and Oxygen Monitoring System On-the-Job Training Instruction and Evaluation*, 8/27/03
- WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, 3/10/04

- WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment, 2/5/04*
- WETF-TRN-102, R4, *Surveillance of Environmental Chamber Over Temperature Protection System (ECOPS) On-the-Job Training Instruction and Evaluation, 3/5/04*
- WETF-TRN-105, R2, *Surveillance Testing of Uninterruptible Power Supply On-the-Job Training Instruction and Evaluation, 9/23/03*
- WETF-TRN-114, R0, *TWTS Oxygen Supply Cut-Off, 4/13/04*
- WETF-TRN-NTTL-01, R2, *WETF NTTL Operator Initial Qualification Card, 3/5/04*
- WETF-TRN-NTTL-05, R0, *NTTL Task-to-Training Matrix, 6/11/03*
- TA-16 WETF Evacuation Drill Scenario
- Job Announcement for TEC FAC Operator, 4/2/04
- The Approved Training Integration Office Training Implementation Plan (TIM), 10/10/97
- The ESA-TSE Training Implementation Matrix (TIM)
- Sample Job Posting
- Applicant Screening Worksheet
- AM 107, *External Hiring*
- AM 108, *Internal Transfers*
- AM 728, *Reliability Programs*

INTERVIEWS CONDUCTED:

- Training Lead
- Training Specialist
- HR Specialist
- Deputy Group Leader – Programs
- Group Leader, FWO-DX-ESA
- FSA5 Area Manager
- Deputy Director, Support Services (KSL)
- NTTL Operator
- WETF Operations Lead
- WETF Operator
- NTTL Project Leader
- Facility Manager

SHIFT PERFORMANCE OBSERVED:

N/A

DISCUSSION OF RESULTS:

As would be expected at any major contractor organization doing business with the Department of Energy, LANL employees a well-defined and rigorous process when hiring and/or promoting personnel. Human Resources (HR) personnel are deeply involved in the process and ensure that all minimum requirements are properly identified satisfied before anyone is actually hired.

3.1 Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.

This criterion is met.

Entry-level requirements are generally the re-advertisement of previous job advertisements. The hiring official provides the appropriate job advertisement to the HR Specialist. The HR Specialist reviews the draft job advertisement and asks the hiring official a series of questions to ensure that the draft adequately covers any changes that may have occurred to the position. The HR Specialist reviews the provided information and utilizes several job aids to ensure that the position has been categorized in accordance with the LANL position classifications for the job series and level. While the matrices that are used to categorize each position appear standardized across LANL, a formal procedure does not seem to exist that formalizes this process and define how they are to be used.

3.2 Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.

This criterion is met.

LANL employs a formal and very rigorous process when recruiting and hiring employees. This is largely a HR function as opposed to a WETF Group Management function, although Group Management play critical roles in the process. Education, required skills, and desired skills are prescribed in a Job Advertisement. The job criteria (both required and desired) are in turn placed on the applicant screening worksheet. Generally, if a candidate does not meet the minimum requirements of the job posting, the application is not forwarded to the hiring official for consideration. However, in an interview with an IIR Specialist, if an applicant does not fully meet one of the required elements (e.g., Q Clearance) their application *might* be forwarded to the hiring official if other aspects of their application deserved consideration.

3.3 Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

This criterion is met.

A process to review and revise entry-level requirements was not observed. The WETF Training Lead was unaware of any past situations that resulted in the need to review and revise entry-level requirements based on trainee performance. However, in an interview, an HR specialist described a process where there would be a discussion between the HR Specialist and the hiring official that might lead to the revision of entry-level requirements based on changes to the position or past performance. This process is not formally documented though.

CONCLUSION: The Objective has been met.

The hiring and/or promotion process, along with the attendant need to ensure all minimum requirements are satisfied for entry into the position/program is very formal and rigorous as would be expected from a major government contractor. It is through the hiring process itself that all minimum requirements are verified to be met.

ISSUE:

None.

TEAM MEMBER: Stephen A. Arner	DATE: 4/23/04
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TEAM LEADER: WETF ORR Team Leader	DATE: 4/23/04
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**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL WETF**

FUNCTIONAL AREA: Training and Qualification	OBJECTIVE: TQ-4	OBJECTIVE MET	
		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

OBJECTIVE:

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate. (CORE REQUIREMENT 1, 3, 4, 5, and 6)

CRITERIA:

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH:

1. Copies of facility- or organization-specific Job and Task Analysis implementing procedures
2. The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position
3. The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position
4. Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

RECORDS REVIEWED:

- ESA-WOI-FTA-WETF-R1, *Facility-Tenant Agreement for WETF*, 4/7/04
- LIR 300.00.04.2, *Laboratory Training: Essential Requirements*, Revised Date 3/29/04
- TSE-QMP, R7, *Quality Management Plan*, 4/12/04
- TSE-QP-02, R9, *Document Control*, 3/26/04
- TSE-TMP, R3, *Training Management Plan*, 2/2/04
- TSE-TRN-02, R2, *Training Qualification Standard*, 6/28/02
- TSE-TRN-05, R2, *Testing Procedure*, 3/31/04

- TSE-TRN-06, R2, *On-the-Job Training Instruction and Evaluation*, 4/12/04
- TSE-TRN-08, R1, *Tritium Operator Qualification/Re-qualification Program*, 4/12/04
- TSE-TRN-11, R2, *TSE Worker Hazard Control Plan Identification*, 4/12/04
- TSE-TRN-14, R2, *TSE Training Level Determination*, 4/14/04
- TSE-TRN-18, R0, *TSE Operator Re-qualification*, 10/29/03
- WETF-MI-TWTS-01, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-29, R7, *Tritium Operator Qualification Card*, 3/01/04
- WETF-TRN-46, R2, *WETF Subject Matter Expert List*, 2/11/04
- WETF-TRN-70, R1, *Surveillance of Inert and Oxygen Monitoring System On-the-Job Training Instruction and Evaluation*, 8/27/03
- WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, 3/10/04
- WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment*, 2/5/04
- WETF-TRN-102, R4, *Surveillance of Environmental Chamber Over Temperature Protection System (ECOPS) On-the-Job Training Instruction and Evaluation*, 3/5/04
- WETF-TRN-105, R2, *Surveillance Testing of Uninterruptible Power Supply On-the-Job Training Instruction and Evaluation*, 9/23/03
- WETF-TRN-114, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-NTTL-01, R2, *WETF NTTL Operator Initial Qualification Card*, 3/5/04
- WETF-TRN-NTTL-05, R0, *NTTL Task-to-Training Matrix*, 6/11/03
- TA-16 WETF Evacuation Drill Scenario
- Job Announcement for TEC FAC Operator, 4/2/04
- The Approved Training Integration Office Training Implementation Plan (TIM), 10/10/97
- The ESA-TSE Training Implementation Matrix (TIM)

INTERVIEWS CONDUCTED:

- Training Lead
- Training Specialist
- Deputy Group Leader – Programs
- Group Leader, FWO-DX-ESA
- FSA5 Area Manager
- Deputy Director, Support Services (KSL)
- NTTL Operator
- WETF Operations Lead
- WETF Operator
- NTTL Project Leader
- Facility Manager

SHIFT PERFORMANCE OBSERVED:

OJT Instruction and Evaluation session (O2 Cutout)

DISCUSSION OF RESULTS:

All of the elements of an effective training and qualification program are in place for the WETF Training and Qualification program. What is missing is the programmatic documentation that ties the whole process together. The intent of the Systematic Approach to Training (SAT) is to have a "continuous loop" that ties all five phases of the SAT approach together. In order for this to happen, the program must be fully documented via a system of governing policies and procedures.

4.1 The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.

This criterion is met.

Although four of the reviewed documents, i.e., LIG300-01-04.0, *Laboratory Training, Qualification, and Certification*, TSE-TMP, R3, *Training Management Plan*, WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, and WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, either addressed the issue of job analysis at a very superficial level, or detailed the results of an analysis, no document was found that provided clear, succinct direction and/or requirements for conducting and documenting job analyses. In discussions with the WETF Training Lead, it was found that the well-defined and implemented Hazard Control Plan (HCP) process is used to identify specific facility and/or experiment training requirements. After identifying and defining the work scope and all known hazards associated with that scope, the next step in the HCP process is to identify specific training requirements for the positions identified as the ones that will be performing the scope of work. A specific HCP is developed to support that unique scope of work. Although the process and requirements for both initial and continuing training are generally understood, these programs are not clearly identified in applicable documents. While it is clear that initial and continuing training take place, no document could be produced that succinctly defined and codified the requirements for these programs with sufficient detail to provide a clear understanding on how they work based solely on what was written. This appears to be an example of one of the pitfalls that may be encountered when retrofitting a standards-based system over a previously existing expert-based system.

Initially, there seemed to be a hole through which the training and qualification program for the deployed Facility Waste Operations (FWO) Facility Manager for WETF had fallen. Specifically, there was no WETF-specific training and qualification program for the deployed Facility Manager. In an interview with the Training Lead, this fact was confirmed. However, in subsequent interviews with senior FWO staff (i.e., Group Leader, FWO-DX-ESA; FSA5 Area Manager; Deputy Director, Support Services (KSL)), this was demonstrated not to be the case. The deployed Facility Manager is "out of the loop" (i.e., can make no decision relative to the AB) with anything having to do with the WETF Authorization Basis (AB), Technical Safety Requirements (TSR), etc. Any work at WETF that impacts areas such as these is strictly controlled by WETF management. The deployed Facility Manager acts as the "gate keeper" for craft support to WETF; a liaison between the facility and the organization (KSL) that provides craft support to LANL facilities. The initial question regarding the deployed Facility Manager's training and qualification could easily have been avoided had there been a documented analysis of the duties and responsibilities of the position and the resultant required training.

TQ 4.1.1 There is no defined process at WETF that will ensure a consistent and systematic approach to job analysis and the resultant development of appropriate learning objectives.

4.2 Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.

This criterion is met.

The procedures and related documents reviewed by the Assessors were, in general, well-written, clear, and succinct. Although lacking in specific detail in many critical areas, the documents provided a good overview description of WETF's training program. The documents referenced applicable requirements and drivers in appropriate places. After reading the documents provided, one is left with a reasonably clear picture of WETF's approach to training and qualification. Having said that though, the documents do not provide sufficient specificity to provide anyone not already possessing an expert level knowledge of how WETF's training and qualification program works to independently work within their system. On-the-job training (OJT), which comprises the bulk of the technical training conducted at WETF, does not use the standard approach in OJT design and development. Specifically, lesson plans that the OJT instructor would use to teach the skill are missing. Instead, reference is made to one or more maintenance instructions (or equivalent documents) which the instructor, a SME for the process/job/task/system, uses as the lesson plan. The lack of an approved lesson plan opens the door to inconsistent delivery of the training materials which could lead to inconsistent mastery of learning objectives. A specific example of inconsistency was demonstrated during the observed OJT session. At one point, the trainee pressed an incorrect button. The trainee noted his error but instead of saying anything, he released the button and pressed the correct one. The instructor did not say anything, leading the observer to believe that the error had been missed. When the OJT was completed and the instructor was debriefing the trainee, he mentioned the error. The lack of pre-defined performance standards allowed this to occur. At a minimum, what should have happened was that the instructor should have stopped and corrected the trainee when the error occurred. A more complete OJT package containing increased detail and pre-defined performance criteria could have turned this into a more effective learning experience.

TQ 4.2.1 OJT lesson materials lack adequate lesson plan detail to ensure consistent delivery of the required training. *NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 6.1.1 and Form 2 Item TQ6-1. By correcting Issue 6.1.1, Issue 4.2.1 will also be corrected. Therefore, this issue (i.e., TQ 4.2.1) will not have a corresponding Form 2.*

4.3 Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

This criterion is not met.

Currently, the WETF does not have a training and qualification program for its Technical Staff personnel. Although not trained and qualified under a training and qualification program specifically titled "Technical Staff," the personnel who would normally fall within the scope of Technical Staff are trained and qualified to the extent necessary to ensure safe and effective performance of job duties. The duties and responsibilities of these personnel are known and specific training requirements have been established. The issue is that the Training Department has not programmatically defined technical staff positions and specified a training program that meets the intent of DOE Order 5480.20A.

TQ 4.3.1 Currently, the WETF does not have a training and qualification program for its Technical Staff personnel.

CONCLUSION: The Objective has been met.

Although WETF's Training and Qualification program is fully and effectively implemented, the programmatic documentation is insufficient to provide one with a clear understanding of how the program works. Without doubt, individual positions have been analyzed and effective training developed and implemented. The weakness lies in being unable to determine *how* the training needs were determined. This raises questions related to the "systematic" part of the Systematic Approach to Training required by DOE Order 5480.20A.

ISSUE:

- TQ 4.1.1 There is no defined process at WETF that will ensure a consistent and systematic approach to job analysis and the resultant development of appropriate learning objectives.
- TQ 4.2.1 OJT lesson materials lack adequate lesson plan detail to ensure consistent delivery of the required training. ***NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 6.1.1 and Form 2 Item TQ6-1. By correcting Issue 6.1.1, Issue 4.2.1 will also be corrected. Therefore, this issue (i.e., TQ 4.2.1) will not have a corresponding Form 2.***
- TQ 4.3.1 Currently, the WETF does not have a training and qualification program for its Technical Staff personnel.

TEAM MEMBER: Stephen A. Arner	DATE: 4/23/04
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TEAM LEADER: WETF ORR Team Leader	DATE: 4/23/04
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**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL WETF**

FUNCTIONAL AREA: Training and Qualification	OBJECTIVE: TQ-5	OBJECTIVE MET	
		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

OBJECTIVE:

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance. (CORE REQUIREMENT 1, 3, 4, 5, and 6)

CRITERIA:

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved
2. Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current
3. Existing lesson plans and/or OJT guides for training selected technical staff positions
4. Documentation of completed continuing training
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

RECORDS REVIEWED:

- ESA-WOI-FTA-WETF-R1, *Facility-Tenant Agreement for WETF*, 4/7/04
- LIR 300.00.04.2, *Laboratory Training: Essential Requirements*, Revised Date 3/29/04
- TSE-QMP, R7, *Quality Management Plan*, 4/12/04
- TSE-QP-02, R9, *Document Control*, 3/26/04

- TSE-TMP, R3, *Training Management Plan*, 2/2/04
- TSE-TRN-02, R2, *Training Qualification Standard*, 6/28/02
- TSE-TRN-05, R2, *Testing Procedure*, 3/31/04
- TSE-TRN-06, R2, *On-the-Job Training Instruction and Evaluation*, 4/12/04
- TSE-TRN-08, R1, *Tritium Operator Qualification/Re-qualification Program*, 4/12/04
- TSE-TRN-11, R2, *TSE Worker Hazard Control Plan Identification*, 4/12/04
- TSE-TRN-14, R2, *TSE Training Level Determination*, 4/14/04
- TSE-TRN-18, R0, *TSE Operator Re-qualification*, 10/29/03
- WETF-MI-TWTS-01, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-29, R7, *Tritium Operator Qualification Card*, 3/01/04
- WETF-TRN-46, R2, *WETF Subject Matter Expert List*, 2/11/04
- WETF-TRN-70, R1, *Surveillance of Inert and Oxygen Monitoring System On-the-Job Training Instruction and Evaluation*, 8/27/03
- WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, 3/10/04
- WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment*, 2/5/04
- WETF-TRN-102, R4, *Surveillance of Environmental Chamber Over Temperature Protection System (ECOPS) On-the-Job Training Instruction and Evaluation*, 3/5/04
- WETF-TRN-105, R2, *Surveillance Testing of Uninterruptible Power Supply On-the-Job Training Instruction and Evaluation*, 9/23/03
- WETF-TRN-114, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-NTTL-01, R2, *WETF NTTL Operator Initial Qualification Card*, 3/5/04
- WETF-TRN-NTTL-05, R0, *NTTL Task-to-Training Matrix*, 6/11/03
- TA-16 WETF Evacuation Drill Scenario
- Job Announcement for TEC FAC Operator, 4/2/04
- The Approved Training Integration Office Training Implementation Plan (TIM), 10/10/97
- The ESA-TSE Training Implementation Matrix (TIM)

INTERVIEWS CONDUCTED:

- Training Lead
- Training Specialist
- Deputy Group Leader – Programs
- Group Leader, FWO-DX-ESA
- FSA5 Area Manager
- Deputy Director, Support Services (KSL)
- NTTL Operator
- WETF Operations Lead
- WETF Operator
- NTTL Project Leader
- Facility Manager

SHIFT PERFORMANCE OBSERVED:

OJT Evaluation

DISCUSSION OF RESULTS:

The training program developed and implemented at WETF does a good job of teaching the initial and continuing knowledge and skills necessary for personnel to safely and effectively perform their duties. As has been documented in other Objectives for this ORR, the weak link in an otherwise good training and qualification program is the lack of detail and specificity in programmatic documentation.

5.1 Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.

This criterion is met.

The OJT Instructor/Evaluator documents reviewed included learning (i.e., enabling) objectives that appeared adequate for the material being taught. The objectives reviewed were uniform in their approach, i.e., they specified observable and measurable behavior/knowledge requirements. Although learning objectives exist, how they came into existence is unclear since there are no procedural guidelines and/or requirements that define the development of learning objectives. Normally, the tasks selected for training is a function of the Analysis process, one of the five elements of the SAT methodology required by DOE Order 5480.20A. However, WETF does not have a defined Analysis process documented in any of their training programmatic procedures. The tasks selected for training are identified in the Hazard Control Procedure (HCP) and appear largely to be a function of Subject Matter Expert (SME) experience and knowledge. Without a defined Analysis process, consistency becomes a potential issue.

5.1.1 Although learning objectives are present in the training materials reviewed, there is no WETF training programmatic document that defines the process for developing learning objectives. *NOTE: This issue is included as a part of Issue 4.1.1 and is fully and completely addressed there. It will be resolved by Issue Number 4.1.1 and Form 2 Item TQ4-1. By correcting Issue 4.1.1, Issue 5.1.1 will also be corrected. Therefore, this issue (i.e., TQ 5.1.1) will not have a corresponding Form 2.*

5.2 Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.

This criterion is met.

Almost all of the training conducted at WETF is of the on-the-job training (OJT) nature. OJT is a formal mode of training and requires formal approved lesson plans to assure consistency in training delivery. Although WETF has numerous developed and approved OJT Instruction/Evaluation documents that cover the full range of WETF work activities for which training is required, none of them contain a lesson plan or equivalent materials. Rather, they merely reference a work instruction (equivalent) document that is used by the Instructor as the "lesson plan." There are no instructions or guidance to either the trainee or instructor relative to the *training* phase of OJT. The bulk of the document is geared toward the *evaluation* phase. The evaluation phase contains learning objectives which become a checklist for the instructor to measure mastery of the material taught. Since there are no performance standards that define the minimum acceptable knowledge/skill level for the OJT Evaluation, whether or not the trainee passes appears to be a subjective decision of the SME. The current structure of the OJT programs raises concerns relative consistency in rigor and discipline, delivery, and evaluation.

5.2.1 Lesson plans are not developed and used for the various OJT Instructor/Evaluator documents.

NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 6.1.1 and Form 2 Item TQ6-1. By correcting Issue 6.1.1, Issue 5.2.1 will also be corrected. Therefore, this issue (i.e., TQ 5.2.1) will not have a corresponding Form 2.

5.3 Review, approval, and control requirements are established and utilized for all training materials.

This criterion is not met.

Although WETF has several training program procedures, none specify requirements pertaining to reviewing, approving, and controlling training materials. While it is obvious that training materials are reviewed and approved, the "how to" element of this process is not currently defined in any document to the degree necessary to ensure consistency in approach and review/approval criteria. This appears to be another example of the remnants of the legacy from a previously existing expert-based system that had been used to define, implement, and manage the training and qualification activities at WETF. Recently, in an effort to move towards a standards-based system, significant improvements in the overall documentation infrastructure necessary to define and implement an effective training and qualification program have been made by WETF. In the process of developing documents that define existing processes, at times the authors assumed the readers of the documents possessed an expert level of knowledge of the process being described. There are lapses in logic and flow with the reader at times wondering how the process went from "Point A" to "Point B."

5.3.1 There is no programmatic documentation specifying the review, approval, and control requirements for training materials. **NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 1.3.1 and Form 2 Item TQ1-3. By correcting Issue 1.3.1, Issue 5.3.1 will also be corrected. Therefore, this issue (i.e., TQ 5.3.1) will not have a corresponding Form 2.**

5.4 A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

This criterion is met.

A continuing training program is implemented, but not specifically defined in training programmatic documents. Specifically, none of the documents provided gave any guidance pertaining to designing, implementing, and/or evaluating a continuing training program, although WETF training programmatic documents contain brief sections that describe continuing training at a very high level. It is clear that such a program exists, it just does not seem to be written down anywhere.

5.4.1 A continuing training program is implemented, but not specifically defined in training programmatic documents. **NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 1.3.1 and Form 2 Item TQ1-3. By correcting Issue 1.3.1, Issue 5.4.1 will also be corrected. Therefore, this issue (i.e., TQ 5.4.1) will not have a corresponding Form 2.**

CONCLUSION: The Objective is met.

WETF has recently begun an extensive effort to upgrade their programmatic documentation, including those documents that define and control their Training and Qualification Program. If WETF's Training and Qualification Program documentation (e.g. the Training Program Manual) were written at a greater level of detail, assuming that the reader does not know much if anything about their program, many of the questions and concerns arising from this ORR could have been avoided. Although not a specific requirement of DOE Order 5480.20A, the development of an adequate number of programmatic/procedural documents containing sufficient specificity such that consistency in approach, content, level of rigor and discipline, etc., is certainly one of the intents of Section 2 of Chapter I. WETF has made substantial progress in upgrading their overall procedural infrastructure, and this continues to be a work in progress.

ISSUE:

- 5.1.1 Although learning objectives are present in the training materials reviewed, there is no WETF training programmatic document that defines the process for developing learning objectives. **NOTE: This issue is included as a part of Issue 4.1.1 and is fully and completely addressed there. It will be resolved by Issue Number 4.1.1 and Form 2 Item TQ4-1. By correcting Issue 4.1.1, Issue 5.1.1 will also be corrected. Therefore, this issue (i.e., TQ 5.1.1) will not have a corresponding Form 2.**
- 5.2.1 Lesson plans are not developed and used for the various OJT Instructor/Evaluator documents. **NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 6.1.1 and Form 2 Item TQ6-1. By correcting Issue 6.1.1, Issue 5.2.1 will also be corrected. Therefore, this issue (i.e., TQ 5.2.1) will not have a corresponding Form 2.**
- 5.3.1 There is no programmatic documentation specifying the review, approval, and control requirements for training materials. **NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 1.3.1 and Form 2 Item TQ1-3. By correcting Issue 1.3.1, Issue 5.3.1 will also be corrected. Therefore, this issue (i.e., TQ 5.3.1) will not have a corresponding Form 2.**
- 5.4.1 A continuing training program is implemented, but not specifically defined in training programmatic documents. **NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 1.3.1 and Form 2 Item TQ1-3. By correcting Issue 1.3.1, Issue 5.4.1 will also be corrected. Therefore, this issue (i.e., TQ 5.4.1) will not have a corresponding Form 2.**

TEAM MEMBER: Stephen A. Arner	DATE: 4/23/04
TEAM LEADER: WETF ORR Team Leader	DATE: 4/23/04

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL WETF**

FUNCTIONAL AREA: Training and Qualification	OBJECTIVE: TQ-7	OBJECTIVE MET	
		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

OBJECTIVE:

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs. (CORE REQUIREMENT 1, 3, 4, 5, and 6)

CRITERIA:

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations
3. Selected examinations
4. Selected individual training records

RECORDS REVIEWED:

- ESA-WOI-FTA-WETF-R1, Facility-Tenant Agreement for WETF, 4/7/04
- LIR 300.00.04.2, Laboratory Training: Essential Requirements, Revised Date 3/29/04
- TSE-QMP, R7, Quality Management Plan, 4/12/04
- TSE-QP-02, R9, Document Control, 3/26/04
- TSE-TMP, R3, Training Management Plan, 2/2/04
- TSE-TRN-02, R2, Training Qualification Standard, 6/28/02
- TSE-TRN-05, R2, Testing Procedure, 3/31/04
- TSE-TRN-06, R2, On-the-Job Training Instruction and Evaluation, 4/12/04
- TSE-TRN-08, R1, Tritium Operator Qualification/Re-qualification Program, 4/12/04
- TSE-TRN-11, R2, TSE Worker Hazard Control Plan Identification, 4/12/04
- TSE-TRN-14, R2, TSE Training Level Determination, 4/14/04

- TSE-TRN-18, R0, *TSE Operator Re-qualification*, 10/29/03
- WETF-MI-TWTS-01, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-29, R7, *Tritium Operator Qualification Card*, 3/01/04
- WETF-TRN-46, R2, *WETF Subject Matter Expert List*, 2/11/04
- WETF-TRN-70, R1, *Surveillance of Inert and Oxygen Monitoring System On-the-Job Training Instruction and Evaluation*, 8/27/03
- WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, 3/10/04
- WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment*, 2/5/04
- WETF-TRN-102, R4, *Surveillance of Environmental Chamber Over Temperature Protection System (ECOPS) On-the-Job Training Instruction and Evaluation*, 3/5/04
- WETF-TRN-105, R2, *Surveillance Testing of Uninterruptible Power Supply On-the-Job Training Instruction and Evaluation*, 9/23/03
- WETF-TRN-114, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-NTTL-01, R2, *WETF NTTL Operator Initial Qualification Card*, 3/5/04
- WETF-TRN-NTTL-05, R0, *NTTL Task-to-Training Matrix*, 6/11/03
- TA-16 WETF Evacuation Drill Scenario
- Job Announcement for TEC FAC Operator, 4/2/04
- The Approved Training Integration Office Training Implementation Plan (TIM), 10/10/97
- The ESA-TSE Training Implementation Matrix (TIM)

INTERVIEWS CONDUCTED:

- Training Lead
- Training Specialist
- Deputy Group Leader – Programs
- Group Leader, FWO-DX-ESA
- FSA5 Area Manager
- Deputy Director, Support Services (KSL)
- NTTL Operator
- WETF Operations Lead
- WETF Operator
- NTTL Project Leader
- Facility Manager

SHIFT PERFORMANCE OBSERVED:

OJT Evaluation

DISCUSSION OF RESULTS:

Since almost all training conducted within WETF is formal on-the-job training (OJT) which includes a hands-on performance evaluation as part of the learning experience, it is very safe to say that trainees are examined on a consistent and regular basis to ensure that they have mastered the knowledge and skills required by the learning objectives so that they may work efficiently and safely at their jobs.

7.1 Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.

This criterion is met.

WETF Training does not currently have any programmatic document that establishes, specifies, or otherwise identifies the requirements for developing, reviewing, approving, revising, and controlling examinations. When discussed with the Training Lead, the fact that WETF currently only has a single

written examination, i.e., WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment*, that is used to measure knowledge of the TA-16 Emergency Operating Procedure. The only other examinations used at WETF are the performance evaluations used in conjunction with on-the-job training (OJT). Again, there are no programmatic requirements relative to developing, reviewing, approving, revising, and controlling performance evaluations.

7.1.1 WETF Training does not currently have any programmatic document that establishes, specifies, or otherwise identifies the requirements for developing, reviewing, approving, revising, and controlling examinations. **NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 1.3.1 and Form 2 Item TQ1-3. By correcting Issue 1.3.1, Issue 7.1.1 will also be corrected. Therefore, this issue (i.e., TQ 7.1.1) will not have a corresponding Form 2.**

7.2 Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.

This criterion is met.

The written examination (1) and the OJT performance evaluations reviewed (3) are all based on learning objectives. A written examination was not administered during this ORR so no comments relative to the administration of written examinations will be made. However, an actual OJT performance evaluation was observed. The subject matter expert (SME)/Evaluator administered the performance evaluation exactly as written in the approved training packet. In discussing the evaluation with the SME/Evaluator following the performance evaluation, he stated that he performs the evaluation exactly as written and approved, never varying. Per the requirements of TSE-QP-02, R9, blank written examinations and performance evaluations are maintained by Operational Quality (equivalent to Document Control). Completed examinations and performance evaluations are maintained under locked storage in Training.

7.3 The content of written and oral examinations is changed at intervals sufficient to prevent compromise.

This criterion is not met.

The content of written examinations at WETF is not changed and exams are therefore subject to compromise. The written examination referenced above currently exists in one single version only. It is a 36-question examination composed a combination of multiple choice, short essay, matching, true/false, and short answer questions. It is infrequently administered and was therefore thought to be sufficient in its single version form by WETF.

Due to the nature of the performance evaluations associated with the OJT conducted at WETF (i.e., evaluate performance of a maintenance instruction or equivalent document), there can only be one way to conduct the process and therefore only one performance evaluation. Therefore, the use of only a single version performance evaluation is justified in this case.

7.3.1 The content of written examinations at WETF is not changed and exams are therefore subject to compromise.

7.4 Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.

This criterion is met.

Per the requirements of TSE-QP-02, R9, blank written examinations and performance evaluations are maintained by Operational Quality (equivalent to Document Control). Completed examinations and performance evaluations are maintained under locked storage in Training.

7.5 Remedial training and reevaluation are provided when examination or performance standards are not met.

This criterion is met.

If a trainee makes an error when performing OJT, the instructor immediately corrects the error and instructs (i.e., remediates) the trainee on the proper action. During the performance evaluation phase of OJT, depending on the nature of the error (e.g., potentially equipment or life threatening, inconsequential), the SME/Evaluator immediately assumes control by preventing the trainee taking the action, verbally directs the trainee to stop, or allows the trainee to perform the action and "learn from his mistake." In all cases, the trainee is remediated prior to attempting the performance evaluation again.

CONCLUSION: The Objective has been met.

The knowledge and skill of WETF personnel are regularly evaluated/tested to ensure they possess and maintain the required knowledge and skills to perform their job. This is demonstrated in the fact that virtually all WETF training is done using the OJT and performance evaluations. The OJT program addresses all WETF job functions for which technical training is required. In this manner, the trainee receives instruction from a SME on the actual equipment in the field under actual field conditions. After training, the trainee is then evaluated on how well he/she performs the task. Hands-on training such as this is widely recognized as the most effective.

ISSUE:

7.1.1 WETF Training does not currently have any programmatic document that establishes, specifies, or otherwise identifies the requirements for developing, reviewing, approving, revising, and controlling examinations. NOTE: This issue is fully and completely addressed and will be resolved by Issue Number 1.3.1 and Form 2 Item TQ1-3. By correcting Issue 1.3.1, Issue 7.1.1 will also be corrected. Therefore, this issue (i.e., TQ 7.1.1) will not have a corresponding Form 2.

7.3.1 The content of written examinations at WETF is not changed and exams are therefore subject to compromise.

TEAM MEMBER: Stephen A. Arner	DATE: 4/23/04
TEAM LEADER: WETF ORR Team Leader	DATE: 4/23/04

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL WETF**

FUNCTIONAL AREA: Training and Qualification	OBJECTIVE: TQ-8	OBJECTIVE MET	
		YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

OBJECTIVE:

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. (CORE REQUIREMENT 1, 3, 4, 5, and 6)

CRITERION/CRITERIA:

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH:

1. Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness

Training evaluation documentation selected training materials.

RECORDS REVIEWED:

- ESA-WOI-FTA-WETF-R1, *Facility-Tenant Agreement for WETF*, 4/7/04
- LIR 300.00.04.2, *Laboratory Training: Essential Requirements*, Revised Date 3/29/04
- TSE-QMP, R7, *Quality Management Plan*, 4/12/04
- TSE-QP-02, R9, *Document Control*, 3/26/04
- TSE-TMP, R3, *Training Management Plan*, 2/2/04

- TSE-TRN-02, R2, *Training Qualification Standard*, 6/28/02
- TSE-TRN-05, R2, *Testing Procedure*, 3/31/04
- TSE-TRN-06, R2, *On-the-Job Training Instruction and Evaluation*, 4/12/04
- TSE-TRN-08, R1, *Tritium Operator Qualification/Re-qualification Program*, 4/12/04
- TSE-TRN-11, R2, *TSE Worker Hazard Control Plan Identification*, 4/12/04
- TSE-TRN-14, R2, *TSE Training Level Determination*, 4/14/04
- TSE-TRN-18, R0, *TSE Operator Re-qualification*, 10/29/03
- WETF-MI-TWTS-01, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-29, R7, *Tritium Operator Qualification Card*, 3/01/04
- WETF-TRN-46, R2, *WETF Subject Matter Expert List*, 2/11/04
- WETF-TRN-70, R1, *Surveillance of Inert and Oxygen Monitoring System On-the-Job Training Instruction and Evaluation*, 8/27/03
- WETF-TRN-87, R2, *WETF Tritium Operator Qualification Task-to-Training Matrix*, 3/10/04
- WETF-TRN-88, R3, *WETF Emergency Operating Response Assessment*, 2/5/04
- WETF-TRN-102, R4, *Surveillance of Environmental Chamber Over Temperature Protection System (ECOPS) On-the-Job Training Instruction and Evaluation*, 3/5/04
- WETF-TRN-105, R2, *Surveillance Testing of Uninterruptible Power Supply On-the-Job Training Instruction and Evaluation*, 9/23/03
- WETF-TRN-114, R0, *TWTS Oxygen Supply Cut-Off*, 4/13/04
- WETF-TRN-NTTL-01, R2, *WETF NTTL Operator Initial Qualification Card*, 3/5/04
- WETF-TRN-NTTL-05, R0, *NTTL Task-to-Training Matrix*, 6/11/03
- TA-16 WETF Evacuation Drill Scenario
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- The Approved Training Integration Office Training Implementation Plan (TIM), 10/10/97
- The ESA-TSE Training Implementation Matrix (TIM)

INTERVIEWS CONDUCTED:

- Training Lead
- Training Specialist
- Deputy Group Leader – Programs
- Group Leader, FWO-DX-ESA
- FSA5 Area Manager
- Deputy Director, Support Services (KSL)
- NTTL Operator
- WETF Operations Lead
- WETF Operator
- NTTL Project Leader
- Facility Manager

SHIFT PERFORMANCE OBSERVED:

N/A

DISCUSSION OF RESULTS:

The fifth Phase of the systematic approach to training (SAT) methodology required by DOE Order 5480.20A is Feedback. The Feedback Phase is unique among the other four Phases in that it plays a part in all Phases. It is through feedback that we learn of the effectiveness of the training program, its materials, and its instructors. It is through feedback that the program is revised to incorporate necessary changes to improve its effectiveness. It is through feedback that any training program is assured that it will always meet the needs of its intended audience.

8.1 A comprehensive evaluation of individual training programs is conducted by qualified individuals on

a periodic basis to identify program strengths and weaknesses.

This criterion is not met.

Evaluation of training effectiveness is not currently being done. The Training Lead stated that a Level 1 evaluation program has recently been implemented, but so recently that there are not enough data to determine training effectiveness. The Training Lead had developed and implemented a Level 3 evaluation program. But due to increased work load, insufficient staff, and a variety of other reasons, the Level 3 evaluation program fell into disuse.

TQ 8.1.1 A comprehensive evaluation of individual training programs is not being conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.

8.2 Instructional skills and technical competencies of instructors are evaluated regularly.

This criterion is not met.

Instructional skills and technical competencies of instructors are not being evaluated. This is a factor of a lack of not evaluating training effectiveness. The technical competencies of instructors is based on the fact that they are designated subject matter experts (SME) for the particular subject/skill being taught and are therefore, by definition, technically competent. However, the technical competence of technical instructors must be periodically and objectively assessed to ensure effective and accurate training.

TQ 8.2.1 Instructional skills and technical competencies of instructors are not being evaluated.

8.3 Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.

This criterion is not met.

Since there is no evaluation of training program effectiveness, there is no feedback from trainees or their supervisors during or after training regarding training effectiveness. In an interview, the Training Lead stated that she has received no "constructive comments" relative to training.

TQ 8.3.1 Feedback from trainee performance during training and feedback from former trainees and their supervisors is not being used to evaluate and refine the training program.

8.4 Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.

This criterion is met.

Virtually all of the training accomplished at WETF is of the on-the-job (OJT) variety and is conducted by designated SMEs. An effective program of ensuring that Training is integrally involved in ensuring training materials accurately reflect facility and/or procedure changes is in place and fully functional. Changes to procedures and/or the facility are evaluated using the form in TSE-TRN-14. Although it is obvious that the system is working, there are no procedural requirements specifying how the system is used or at what point Training should become involved in the process.

8.5 Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.

This criterion is met.

Initial and continuing training programs are maintained current and accurately reflect plant conditions. As discussed in 8.4, this is largely a function of using SMEs as the primary means of conducting training at WETF. As noted previously, although it is obvious that such a program exists and is functional, specific details on implementation are lacking in procedure and/or programmatic documents.

8.6 Training materials are maintained current, based upon the results of training program evaluations.

This criterion is met.

As discussed above, training materials are maintained current, but not as a result of training program evaluations.

8.7 Training facilities are evaluated to determine their effect on the training process.

This criterion is met.

All technical training at WETF takes place in the actual work place via OJT. Accordingly, formal "training facilities" (e.g., classrooms, laboratories, etc.) do not exist. But, the OJT being conducted is being done in the actual work place using the actual equipment and is therefore training of the most effective kind.

CONCLUSION: This Objective is met.

The intent of Objective 8 has been satisfied although a formal program to evaluate training effectiveness has not been functional in the past. The Training Lead has recently implemented a Level 1 evaluation program and is committed to developing and implementing Level 2 and Level 3 evaluation programs using the Kirkpatrick Model, or an equivalent one. It is obvious that that the training is being accomplished and that it is meeting the needs of the workers and the facility. The fact that the training materials are kept current testifies to the attention being given training. The lack of a training effectiveness evaluation program is of concern, but it is not a fatal flaw.

ISSUE:

- TQ 8.1.1 A comprehensive evaluation of individual training programs is not being conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
- TQ 8.2.1 Instructional skills and technical competencies of instructors are not being evaluated.
- TQ 8.3.1 Feedback from trainee performance during training and feedback from former trainees and their supervisors is not being used to evaluate and refine the training program.

TEAM MEMBER: Stephen A. Arner	DATE: 4/23/04
TEAM LEADER: WETF ORR Team Leader	DATE: 4/23/04

Attachment E
Group 4 Facilities
Assessment Report

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Report

For
Los Alamos National Laboratory
FWO-WMF, RRES, and LANSCE Divisions Nuclear Facilities

(Group 4)

Signature Sheet

Original signed by
Gerry Schlapper DOE LASO

Original signed by
H. Matt Jones, Epsilon Systems Solutions, Inc.
Team Member

Original signed by
Stephen A. Arner, Epsilon Systems Solutions, Inc.
Team Member

Original signed by
Lawrence Palmer, Epsilon Systems Solutions, Inc.
Team Member

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ATTACHMENTS

ATTACHMENT A	Nuclear Facility Training and Qualification Assessment Plan Appendix 1 Criteria and Review Approach Document Appendix 2 Sample Verification Form
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ATTACHMENT C	RRES Verification Forms
ATTACHMENT D	LANSCE Verification Forms

EXECUTIVE SUMMARY

At the direction of the Manager National Nuclear Safety Administration/ Los Alamos Site Office (NNSA/LASO) and in coordination with the Senior Technical Safety Advisor LASO, a plan for the assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities to the requirements of DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities* was developed. The plan is included as Attachment A. Per the approved assessment plan, the assessment is being conducted for groups of facilities and in two phases. The first of these phases is a high level or programmatic level review. A phase 1 assessment of Risk Reduction and Environmental Stewardship (RRES), Los Alamos Neutron Science Center (LANSCE), and Facility and Waste Operations (FWO) Division nuclear facilities, the fourth and final Phase 1 group of facilities, was conducted during the period of May 11 through May 14, 2004.

The continuing issue of significance that lies at the root of many of the issues identified later in this report, is that none of the programs reviewed presented the necessary documented program process guidance as required by DOE Order 5480.20A. The Order requires that the training and qualification program be documented, approved, and that these approved documents form the basis for the management of the program. Although the FWO division presented significant training materials in documented form, i.e. lesson plans, OJT guides, etc., without the documented process guidance, the training program is managed via an expert based approach, not a standards based one as the order directs.

The divisions reviewed showed clear management understanding for roles and responsibilities, but those roles and responsibilities are not present by objective evidence due to the lack of the required documentation. All divisions indicated, to their credit, some degree of recognition that such documentation was needed and in fact had the beginnings of several procedures for the training process in various levels of development.

The team feels that it is commendable that action is being taken, but cautions the individual divisions from developing the whole program in isolation of other divisions at the Laboratory. If this is permitted, the consistency of programs across the Laboratory would suffer, making management difficult, and significantly increasing the cumulative costs.

Several repeat issues related to laboratory wide support programs to the training programs reviewed were re-confirmed. Examples include the lack of entry-level requirements that are directly supportive of the Order requirements as a condition of being entered into the training and qualification program. Another example is the instructor-training program resides at the laboratory level, but there has not been presented any documented processes for executing the program against requirements.

The assessment plan contains seven objectives for review. These objectives and supporting criteria were selected from DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*. Objective 6 from DOE-STD-1070-94 was not included in the Phase 1 assessment. A summary of the team's assessment of each objective is provided in

the body of the report and individual Verification Forms are included as Attachments B, C, and D for FWO, RRES and LANSCE respectively.

Overall there were eight (8) findings for FWO, ten (10) findings for RRES, and eight (8) findings for LANSCE. Summaries of those findings are included in Table 1 *Findings Summary*.

Table 1. Finding Summary

Finding #	Findings
FWO Nuclear Facilities	
1.1	The FWO Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A.
2.1	The laboratory wide Instructor Training Program lacks formal documentation describing the process of instructor qualification with regards to the instructor's assigned duties.
2.2	Formal process documentation that describes an instructor continuing training program which addresses any weaknesses in instructional duty performance does not exist.
3.1	Evidence does not exist that entry-level requirements have basis in analyzed job requirements.
3.2	The necessary process documentation describing the process of evaluating entry-level requirements based upon training and job performance does not exist.
4.1	There is no procedural requirement/guidance that prescribes the development and implementation of a Technical Staff training and qualification program that meets the intent and requirements contained in DOE Order 5480.20A.
6.1	Training and Qualification program procedures are not at the necessary prescriptive level to ensure a standards-based program is in place, that meets the intent of DOE Order 5480.20A.
7.1	The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.
RRES Nuclear Facilities	
1.1	The RRES-RANT-WCR Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A.
2.1	There is not evidence of formal process documentation describing the training and qualification of training staff based upon assigned jobs and duties.
2.2	No evidence was presented that describes the details of a continuing training program for training staff.
3.1	Formal processes for establishing entry-level requirements based upon job requirements or for updating entry-level requirements based upon training and job performance do not exist.
4.1	There is a lack of procedural guidance/direction relative to job and/or task analysis.

4.2	There is a lack of procedural guidance/direction relative to initial and continuing training.
5.1	The programmatic documentation supporting RRES' training and qualification program are incomplete and lack the required level of prescriptiveness/specificity that will ensure predictable and consistent training that enhances worker performance and safety
5.2	The lack of adequate program description and guidance in relative to the review and approval of training program documentation may result in inaccurate, incomplete, and/or ineffective training program materials being issued for use.
6.1	Division or Group-wide procedures do not contain the necessary guidance to ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.
7.1	The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.
	LANSCE Nuclear Facilities
1.1	The LANSCE Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A.
2.1	There is not evidence of a continuing training program for instructional staff that accounts for instructional performance weakness or trainee performance results.
3.1	There is no evidence of a documented process for the establishment, maintenance, or update to entry-level requirements based upon analyzed job requirements or job performance.
4.1	There is a lack of procedural guidance/direction relative to job and/or task analysis.
4.2	There is a lack of procedural guidance/direction relative to initial and continuing training leading to reliance upon subjective decisions by technical SMEs.
5.1	There is a lack of adequate program description and guidance in approved programmatic documents relative to a continuing training program. This has the potential to adversely impact an otherwise good training and qualification program by permitting incomplete, inaccurate, untimely, and/or ineffective continuing training.

6.1	LANSCE Division procedures do not provide the guidance necessary to ensure individual trainees are examined and/or evaluated on a consistent and regular basis. Therefore, there is no objective assurance that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.
7.1	There is no evidence of procedural guidance that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance.

1.0 Introduction

At the direction of the Manager National Nuclear Safety Administration/ Los Alamos Site Office (NNSA/LASO) and in coordination with the Senior Technical Safety Advisor LASO an assessment of the training and qualification programs for Los Alamos National Laboratory (LANL) nuclear facilities has commenced in mid February 2004. The Assessment Plan included as Attachment A, requires that the assessment be conducted in two phases. The first of these phases, Phase 1, is a high level or programmatic level review. Phase 2 requires an in depth review of all facets of the implementation of the requirements of DOE Order 5480.20A in each LANL nuclear facility.

A Phase 1 assessment of the RRES, LANSCE, and FWO Division nuclear facilities, the fourth and final Phase 1 group of facilities, was conducted during the period of May 11 through May 14, 2004.

2.0 Purpose

This assessment is the first part of a larger assessment that has been designed to evaluate the effectiveness and consistency in implementation of the Los Alamos National Laboratory (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

3.0 Scope

This report contains the results of the Phase 1 assessment of the FWO, RRES, and LANSCE Nuclear Facilities Training and Qualifications Programs.

4.0 Sequence of Activities

This assessment consisted of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review. This was followed by a week on-site in Los Alamos to interview line and training management and training staff as well as review other documents that were not identified or provided initially. The team used the Criteria and Review Approach Document to guide the review.

A Verification Form was prepared for each objective in the CRAD to document the basis for the conclusions reached concerning the objective and criteria. Findings identified during the review of the individual CRAD are discussed in detail on the associated Verification Form. Individual Verification Forms are included as Attachment B and C.

5.0 Assessment Results

The lack of programmatic documents with sufficient specificity relative to the various aspects of a mature training program remains the principle finding. Without this documentation, the potential for inadequate, inaccurate, untimely, or incomplete training is of primary concern, not withstanding the Order requirement to have such a documented and approved program.

While the Assessors' overall conclusion is that management owns and is responsible for the training and qualification of its personnel, they continue to have a concern that the potential exists for personnel, e.g., FWO, who are deployed into the facility for extended periods of time not to be properly trained and qualified for work specific to the facility assigned. This is largely due to both the programmatic line and FWO management approach that the other division has the "training ownership" responsibility. This perception by the Assessors is bolstered by the fact that no formal "facility specific technical training" for long-term deployed FWO personnel readily apparent, although such training is clearly within the intent and direction of the Order.

Programmatic documentation necessary to fully meet the requirements and intent of DOE Order 5480.20A is not in place. . During the course of the assessment it became apparent that many of the areas examined are not well defined. This finding is consistent with the results of the previous three assessments. Specifically, this comment targets the:

- Instructor Qualification and Instructor continuing training program. (Objective 2)
- Entry-level requirements (Objective 3)
- Formal Job and Task Analysis (Objective 4)
- Training Design, Development and Implementation (Objective 5)
- Development, approval, security, administration, and maintenance of examinations. (Objective 6)
- Comprehensive training program evaluation, (i.e., identification of improvements, development of corrective actions and implementation and follow-up of corrective actions.) (Objective 7)

In most cases, the documentation reviewed did not contain adequate guidance for a standards-based program, which meets the requirements and intent of DOE O 5480.20A.

A summary of the results of the assessment of LANL's status in developing and maintaining a program that would meet the Objectives established in DOE Standard 1070-94 is provided below. The detailed discussion that expands on this summary is contained in the objective-specific Verification Forms. Verification Forms are included as Attachment B, C, and D for FWO, RRES, and LANSCE Divisions respectively.

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

FWO Nuclear Facilities

Although FWO management appears to own the training for its personnel, an overall coordinated approach is difficult to identify, although they appear proactive in trying to identify and implement required training. There exists very high-level documentation that states management responsibility for the training and qualification program elements for the facility, but these documents lack sufficient specificity to assure a consistent approach to training. The existing program appears to rely on expert-based knowledge of the overall training and qualification program as opposed to a standards-based program. The potential for lack of consistent implementation of training opens the door to inconsistent approaches, which, in turn, leads to potentially incomplete and/or inadequate training.

The conclusion is that this Objective is not fully met at the programmatic level due to lack of an approved documented training program.

RRES Nuclear Facilities

RRES-RANT-WCR management is actively engaged in the training and qualification for their personnel. They appear proactive in trying to identify and implement required training. There exists very high-level documentation that states management responsibility for the training and qualification program elements for the facility, but these documents lack sufficient specificity to assure a consistent approach to training. The existing program appears to rely on expert-based knowledge of the overall training and qualification program as opposed to a standards-based program. The potential for lack of consistent implementation of training opens the door to inconsistent approaches, which, in turn, leads to potentially incomplete and/or inadequate training.

The conclusion is that this Objective is not fully met at the programmatic level due to lack of an approved documented training program.

LANSCE Nuclear Facilities

There exists very high-level documentation that states management responsibility for the training and qualification program elements for the facility. However, these documents lack sufficient specificity to assure a consistent approach to training. The existing program appears to rely on expert-based knowledge of the overall training and qualification program as opposed to a standards-based program. The potential for lack of consistent implementation of training opens the door to inconsistent approaches which, in turn, leads to potentially incomplete and/or inadequate training.

The conclusion is that this Objective is not fully met at the programmatic level due to lack of an approved documented training program.

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

FWO Nuclear Facilities

The FWO Division has training staff that have completed the laboratory-wide instructor training. What is lacking is the formal process documentation describing the training and qualification of training staff based upon assigned jobs and duties. No evidence was presented that describes the details of a continuing training program for training staff.

This Objective is not fully met.

RRES Nuclear Facilities

The RRES Division has training staff that have completed the laboratory-wide instructor training. What is lacking is the formal process documentation describing the training and qualification of training staff based upon assigned jobs and duties. No evidence was presented that describes the details of a continuing training program for training staff.

This Objective is not fully met.

LANSCE Nuclear Facilities

Training staff members are required to attend the Laboratory wide instructor-training program, however there is no evidence of a documented process for establishing this training or the requirements to be declared a qualified instructor. There is no documented continuing training program for instructional staff members, based upon instructional performance or trainee performance.

This Objective is not fully met.

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

FWO Nuclear Facilities

Although there is evidence that entry-level requirements are established in the Job Advertisements for new hires and transferees, and stated in the qualification Standards reviewed, there is lack of formal relationship between these requirements and the individuals being considered for entry into the training program. Entry-level requirements appeared to be verbatim from the order suggesting minimal analysis of actual entry-level requirements for entry into the training program. No formal process documentation was presented that describes this process and the process of periodically

assessing the adequacy of entry-level requirements for the various positions based upon performance indicators.

Thus this objective is not fully met

RRES Nuclear Facilities

Although entry-level requirements are considered, there is a lack of process definition that defines how these requirements are derived and used based upon the analysis of job requirements. There is also a lack of process definition on entry-level requirements as they relate to performance indicators, and the subsequent changes that may be warranted.

This Objective is not met.

LANSCE Nuclear Facilities

Due to lack of formality, this objective is not met. There is no documented process control over the establishment, maintenance, and updating of job entry-level requirements based upon position training or job performance.

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

FWO Nuclear Facilities

FWO has a documented training and qualification program for its various elements. The documents reviewed by the Assessors are consistent in approach, level of detail, and rigor, however, they rely heavily upon individual interpretation to execute. They, to a lesser degree than other organizations reviewed, still require additional attention to be adequate in meeting the requirements of DOE Order 5480.20A.

It is obvious that jobs are analyzed to identify required training. The process for conducting job and task analyses is documented. In discussions with key staff, Assessors learned that the job and task analysis process is not only understood by Training staff personnel, but also by line management. The results of the analysis process are used to develop learning objectives, and from them, the necessary learning materials.

Although in discussions with key staff, credit was taken for having a training program for Technical Staff, Assessors found no document that codified or prescribed that program. DOE Order 5480.20A contains specific requirement relative to the training and qualification of Technical Staff personnel and FWO management acknowledged those requirements as being met. However, the lack of procedural guidance relative to Technical Staff training and qualification raises questions relative to the program's consistency, adequacy, and/or effectiveness.

Objective 4 and Criteria 1 and 2 are met. Criterion 3 is not met.

RRES Nuclear Facilities

The Assessors are concerned that the formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. Unless RRES takes the initiative to develop prescriptive guidance relative to conducting and documenting job and task analyses, it runs the risk of having ineffective training developed and implemented. Since the very foundation of training lies upon the bedrock of effective analysis, inconsistent, incomplete, and/or poorly documented job and task analyses can have a deleterious impact on an otherwise good training and qualification program.

The Assessors are further concerned that inconsistencies in training are possible given the lack of specific procedural guidance. Although both programs are implemented and functioning at this time, at some point in the future, attrition will take its toll on those RRES personnel who are intimately knowledgeable of how the initial and continuing training programs function. At that time, unless adequate prescriptive guidance is in place, the potential exists for program degradation. The concern is that there is no document that succinctly and adequately prescribes RRES' initial and/or continuing training programs.

The Assessors are further concerned that the new RRES training programmatic documents being developed in preparation for RRES' new role will be inadequate due to their lack of specificity and/or prescriptive guidance. The Assessors realize that this particular concern is outside the realm of the current assessment and offer this only as an observation.

Objective 4 and Criteria 1 and 2 are met. Criterion 3 is not met.

LANSCE Nuclear Facilities

The Assessors are concerned that the formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. Unless LANSCE takes the initiative to develop prescriptive guidance relative to conducting and documenting job and task analyses, it runs the risk of having ineffective training developed and implemented. Since the very foundation of training lies upon the bedrock of effective analysis, inconsistent, incomplete, and/or poorly documented job and task analyses can have a deleterious impact on an otherwise good training and qualification program.

The Assessors are further concerned that inconsistencies in training are possible given the lack of specific procedural guidance. This is especially true given the characteristics of

LANSCE's initial and continuing training programs described in facility documents. Although Assessors find that LANSCE provides high effective, facility mission-specific training. The concern is that there is no document that succinctly and adequately prescribes LANSCE's initial and/or continuing training programs.

Neither Objective 4 nor Criteria 1 and 2 are met. Criterion 3 was not assessed and therefore, no conclusion can be made for it at this time.

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

FWO Nuclear Facilities

The documents provided to the Assessors for review were, for the most part well written, sufficiently specific, prescriptive where necessary, and easy to understand. However, in some instances (e.g., development of training materials) the documents were written at a very high "descriptive" level as opposed to a more detailed "prescriptive" level. Another example of where documentation seemed weak was in the development of training materials. Despite the fact that the training materials reviewed were of a high quality and were supported by learning objectives, appropriate references, etc., none of the documents provided to the Assessors contained guidance of sufficient specificity and detail to support development of such materials. This has the potential to, over time as attrition takes its toll, result in a gradual degradation in training program quality, rigor, and discipline.

Objective 5 and Criteria 1, 2, 3, and 4 are met.

RRES Nuclear Facilities

The documents provided to the Assessors for review were, for the most part well written, and easy to understand. However, these documents tended to be written at a "descriptive" level as opposed to a more detailed "prescriptive" level. Often times, the documents appeared to merely restate the requirements of DOE Order 5480.20A as opposed to giving guidance and/or direction relative to their implementation. Many of the concerns and/or questions raised by the Assessors over the course of the assessment could have been avoided had the programmatic documents contained more prescriptive detail. The Assessors are concerned that the above-referenced lack of specificity has the potential to cause inconsistent approach to training analysis, design, development, implementation, and evaluation in both the classroom and OJT settings.

The Assessors are also concerned that the lack of specific requirements pertaining to the review, approval, and control requirements for training program documents and/or materials can lead to inaccurate training materials being issued for use. This, in turn, opens the door to worker performance problems.

Objective 5 and Criteria 1, 2, and 4 are met. Criterion 3 is not met.

LANSCE Nuclear Facilities

The documents provided to the Assessors for review were, for the most part well written, and easy to understand. However, these documents tended to be written at a very high "descriptive" level as opposed to a more detailed "prescriptive" level. Many of the concerns and/or questions raised by the Assessors over the course of the assessment could have been avoided had the programmatic documents contained more prescriptive detail.

The Assessors are concerned that the above-referenced lack of specificity has the potential to cause inconsistent approach to training analysis, design, development, implementation, and evaluation in both the classroom and OJT settings. For example, continuing training is a critical element of maintaining one's qualification status. Yet, LANSCE does not seem to have a document, or even a section within an existing document that actually prescribes continuing training program requirements.

The Assessors are also concerned that the lack of documented job and task analyses and the lack of effective learning objectives may have a deleterious impact on training activities. For now, the fact that most of the LANSCE 7 personnel have been in their positions for quite some time assures safe and competent operation. However, because the LANSCE training and qualification program requirements largely do not exist on paper, and it is only a matter of time before attrition begins to take its toll on the facility's level of existing expertise, the Assessors are concerned that overall continued training program quality and consistency is at risk.

Objective 5 and Criteria 1, 2, 3, and 4 are not met.

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

FWO Nuclear Facilities

Division & Group procedures available for review contain minimal guidance for the implementation of written and oral examinations and performance evaluations that met the intent of a DOE Order 5480.20A compliant training and qualification program. However, the intent of DOE Order 5480.20A is to produce training and qualification

programs that are standard based (i.e., prescriptive procedures) versus an expert-based system that relies primarily on the knowledge and skills of individual training staff personnel. The procedures reviewed for the FMU-6 organization are not at the necessary prescriptive level to ensure a standards-based program is in place.

This objective is met.

RRES Nuclear Facilities

The Risk Reduction and Environmental Stewardship Division (RRES) is responsible for the technical operations at the WCRR Facility, RANT Facility and the MDAs. Division or Group-wide procedures do not contain the necessary guidance to ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

This objective is not met.

LANSCE Nuclear Facilities

LANSCE Division has made the decision to use "Structured Mentoring" as the primary means of training and qualification for 1L Target Facility Operators. This determination was made based on using a graded approach for OJT as outlined in DOE-HDBK-1074-95, *Alternative Systematic Approaches to Training*. The use of structured mentoring is an acceptable approach for low-hazard tasks. However, the approved procedures provided do not provide the guidance necessary to ensure that a Structured Mentoring program is implemented with the consistency and effectiveness intended by DOE Order 5480.20A.

LANSCE Division approved procedures, which guide the implementation of the 1L Target Facility Operator training and qualification program do not provide the guidance necessary to ensure this objective is implemented with the consistency and effectiveness intended by DOE Order 5480.20A.

This objective is not met.

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

FWO Nuclear Facilities

The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

This objective is not met.

RRES Nuclear Facilities

The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

This objective is not met.

LANSCE Nuclear Facilities

There is no evidence of procedural guidance available that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

This objective is not met.

6.0 Conclusion

The team has concluded that the primary deficiency is the lack of formal approved process guidance documentation. The documentation that was reviewed did not contain adequate guidance for a process-based program, which meets the requirements and intent of DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*. All Divisions need to develop Program documentation that describes the processes associated with a Systematic Approach to Training, which has been approved by the appropriate management. Such documentation would remove much of the ambiguity and lack of definition that exists in the Programs reviewed.

The team has also concluded that a position-specific formal training and qualification program for FWO personnel matrixed to the responsible division with the overall responsibility for the safe operation of the facility does not exist. Further, there is confusion about which organization is responsible for the training and qualification of the FWO deployed personnel in the facility. Neither the FWO nor the Divisions are taking responsibility for ensuring that the FWO personnel who are deployed into the facility are properly trained and qualified to perform their job functions at that facility.

This conclusion parallels those assessments of previous groups of facilities.

Attachment A
Nuclear Facility Training and Qualification
Assessment Plan

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LOS ALAMOS SITE OFFICE

Nuclear Facility Training and Qualification
Assessment Plan

January – June 2004

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ATTACHMENTS

- Appendix 1: Criteria and Review Approach Document
- Appendix 2: Sample Assessment Verification Forms

Los Alamos Site Office
Nuclear Facility Training and Qualification Program
Assessment Plan

1.0 INTRODUCTION

The Manager, National Nuclear Security Administration, Los Alamos Site Office (NNSA/LASO), is committed to ensuring a safe and healthful work environment consistent with applicable regulations, orders, and policies for NNSA/LASO, contractors, and users at NNSA/LASO facilities. An effective Contractor Nuclear Facility Training and Qualification Program is critical to establishing and maintaining that environment.

1.1 Purpose

At the direction of the Manager, this assessment will evaluate the effectiveness and consistency in implementation of the Los Alamos National Laboratory (LANL) nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE O 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

1.2 Scope

The assessment will examine the line organization's effectiveness in defining and implementing the programmatic elements of nuclear facility training and qualification program.

1.3 Sequence of Activities

The assessment will consist primarily of document reviews and interviews with the line organization managers and training managers responsible for implementing a training and qualification program that is compliant with DOE O 5480.20A in their respective nuclear facilities. Each nuclear facility will be evaluated independently. The review will consist of two major activities. First, a high-level review of the programmatic elements of the LANL nuclear facility personnel training and qualification program; and second, a more detailed assessment of the implementation of the program and its effectiveness.

1.3.1 High Level Review

This review consists of a preliminary review of documents identified and requested two weeks prior to the date of a scheduled on-site review, followed by a one-day on-site visit to each facility. The team will use the Criteria and Review Approach Document (CRAD) (Appendix 1), to guide the review.

A Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

Each area defined in the CRAD is intended to guide the evaluation of the status of implementation of an effective nuclear facility training and qualification program. As such, the Verification Form discussion of the results will include information concerning the status of implementation.

At the conclusion of the on-site review, the team will analyze the data collected and as necessary request additional data from the appropriate LANL organization. The team will submit the results of the individual facility reviews to the Manager, LASO, and the LANL organizations being evaluated as they are completed. Once data has been collected from all facilities, the team will develop a draft of the final assessment report communicating the assessment team's findings and evaluation of the LANL training and qualification program for nuclear facility personnel and submit it to LANL to verify the accuracy of the findings. The final report will then be submitted to the Manager, LASO. The report will state the team's conclusion as to the status of implementation of an effective nuclear facility training and qualification program across the LANL organizations based on the evidence of the high-level review. It will provide a detailed listing of all findings and areas for improvement as well as identify any noteworthy practices the team observed.

1.3.2 Detailed Assessment

At the completion of the high-level review, areas identified in the review as weak or non-compliant will be evaluated in much greater detail to determine the extent of the weakness. In addition, the Laboratory's status in meeting each objective and supporting criteria in DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*, will be evaluated. The detailed assessment will rely much more heavily on observing training activities, interviewing instructors and line organization technical staff, detailed reviews of training material content as compared to current facility status, etc. A new formal CRAD will be developed for use in the detailed assessment.

As in the high-level review, a Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Continuation sheets to the Verification Forms may be used. Findings identified during the review of the individual CRAD that warrant the attention of the Senior Technical Advisor or Manager, NNSA/LASO, will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Appendix 2.

The reporting process for the Detailed Assessment final report will follow the same report sequence as that described for the high-level review.

2.0 ASSESSMENT OBJECTIVES

As stated, the review will be conducted using the CRAD. The detailed listing of evaluation criteria for the high-level review is provided in Appendix 1, Criteria and Review Approach Document. The assessment team will evaluate each Laboratory organization conducting work in nuclear facilities to determine their status in meeting the following objectives.

2.1 Objective 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

2.2 Objective 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

2.3 Objective 3

Trainees meet the minimum requirements for entry into the training program.

2.4 Objective 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

2.5 Objective 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

2.6 Objective 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

2.7 Objective 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

3.0 ADMINISTRATION

3.1 Meetings and Presentations

The assessment will be an open process with the goal of maximizing the opportunity to achieve a full understanding of the effectiveness of the Laboratory's nuclear facility training and qualification program.

The Team Leader will conduct an out brief with the LASO Senior Technical Advisor. The briefing will include the findings of the team and the basis for any recommendations that will be made to the Manager concerning implementation of the nuclear facility training and qualification program.

3.2 Documentation

The assessment will be guided by the CRAD. The documentation will be structured in a manner to show that the elements of the CRAD were evaluated and that the criteria were met or what aspects of the criteria were found to be deficient. The purpose of the documentation is to provide information concerning details of the review to individuals who did not witness the review.

In order that the schedule for assessment is maintained and the draft report complete prior to dissolution of the team, each team member will document his/her work as it is conducted. This means daily input to the Verification Forms. Each reviewer will be provided with a preliminary Form 1 containing the objective and criteria for each CRAD. In the event that issues of noteworthy or questionable practices are identified, they will be documented within the Verification Forms. If the final report to the Manager, NNSA/LASO, recommends technical direction to organizations, those actions will be supported by detailed information on the Verification Forms. The team members are responsible for ensuring that the Form 1s do not contain Classified or Unclassified Controlled Nuclear Information (UCNI).

3.3 Team Composition

The team consists of the following individuals:

Team Leader	Gerry Schlapper, DOE LASO
Team Members	Grady Petty, Epsilon Systems Solutions, Inc. Steve Arner, Epsilon Systems Solutions, Inc. Larry Palmer, Epsilon Systems Solutions, Inc. Bill Lapsansky, Epsilon Systems Solutions, Inc. Mark Schares, Epsilon Systems Solutions, Inc. Matt Jones, Epsilon Systems solutions, Inc.

4.0 SCHEDULE

For planning purposes, the projected schedule for the nuclear facility training and qualification program assessment at LANL is as follows:

Los Alamos Site Office Contractor Training Review

Group	Request for Documents	Documents Due	Onsite	Facility Report
Group 1 TA-55, CMR	Feb. 17	Feb. 24	Mar. 08-12	Mar. 12-19
Group 2 TA-18	Mar. 08	Mar. 15	Mar. 29-Apr. 02	Apr. 02-09
Group 3 TA-8 WETF	Apr. 05	Apr. 12	Apr. 19-26	Apr. 26-May 01
Group 4 RANT/ WCRR/ MDA TA-54 (Area G, RLW) TA-53 (LANSCE)	Apr. 26	May 03	May 10-17	May 17-24

Draft Summary Report June 01

Final Summary Report June 18

APPENDIX 1

Criteria and Review Approach Document

Appendix 1 Criteria and Review Approach Document

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

Criteria

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

Approach

Document Review

- Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training
- Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control
- Selected individual training records
- Documents that define the goals, objectives and plan for implementing the training and qualification program
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Criteria

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

Approach

Document Review

- List of qualified instructors (classroom and OJT)
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team
- Selected training staff training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

Criteria

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

Approach

Document Review

- Copies of facility- or organization-specific Job and Task Analysis implementing procedures
- The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position
- The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position
- Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

Approach

Document Review

- Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved
- Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current
- Existing lesson plans and/or OJT guides for training selected technical staff positions
- Documentation of completed continuing training
- Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Criteria

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

Approach

Document Review

- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations
- Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations
- Selected examinations
- Selected individual training records

Interviews

- Line organization training representative
- Facility/Organization Training Manager

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Criteria

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

Approach

Document Review

- Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness
- Training evaluation documentation
- Selected training materials

Interviews

- **Line organization training representative**
- **Facility/Organization Training Manager**

Appendix 2
Sample Verification Form

APPENDIX 2
Sample Verification Form

Functional Area:		Criteria Met/Not Met:	
Objective Number:		Date:	

OBJECTIVE

CRITERIA

APPROACH

Documents Reviewed

Interviews

DISCUSSION

CONCLUSION AND SUMMARY

FINDING

NA

Inspected by:		Approved by:	
	Team Member		Team Leader

Attachment B
Group 4, FWO Nuclear Facility
Verification Forms

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of FWO**

Functional Area:	Management and Administration of Training and Qualification Programs	Criteria Met/Not Met:	Not Met
Objective Number:	1	Date:	5/12/2004

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility missions(s)

CRITERIA

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

APPROACH

Documents Reviewed

- LIR300-00-04, *Laboratory Training :Essential Requirements*, Rev. Date 3/29/2004
- LIG300-00-04, *Laboratory Training: Graded and systematic Approach to Activity-Level Training (On-the-Job training and In-the -Field Training)*, Rev. Date 3/29/2004
- POLICY-WFM-032, R.0, Training Policy for RANT, WCRR, RLWTF, and AREA G Facilities, dated 5/12/2004

Interviews

The following individuals were interviewed relative to this objective:

- Division Training Manager
- FMU-6 Group Leader
- FWO-WFM Facility Manager
- Acting Training Team Lead
- Director TIO

DISCUSSION

- 1.1 In discussions with key staff, Assessors found that FWO line management are active players in the overall training process. They review and approve all training related materials and are actively engaged in analyzing existing and/or new tasks to determine training requirements.
- 1.2 The overall FWO organization does not lend itself to easily determining who maintains overall responsibility for the training and qualification of FWO staff, including craft personnel. This issue has been a topic of discussion throughout this series of LANL assessments and was finally adequately identified during the WETF ORR. After some digging at FWO, including interviews with key staff, Assessors learned that the structure identified during the WETF ORR is, in fact, the one used throughout FWO. As such, Assessors are comfortable that FWO senior management owns training. However, there is a concern the level of that ownership.
- 1.3 FWO has a Training Manager that maintains overall responsibility for ensuring that FWO staff are trained and qualified. Additionally, each of the FWO facilities has one or more dedicated personnel assigned to training. However, having said that, the Assessors noted that there did not appear to be coordinated approach and/or effort among the facilities. The fact that they have formally designated training staffs is well documented, but the fact that who actually "owns" training for FWO appears to be a well-guarded secret causes some concern. Assessors asked several key staff, including training personnel, who that person is and were unable to receive a consistent response. It was only after some additional research by one Assessor that the final answer was determined.
- 1.4 A unified and consistent approach to ensuring that all FWO personnel are trained and qualified is not readily apparent.
- 1.5 In a manner that is somewhat consistent with the other LANL facilities that have been assessed thus far, the documentation for FWO's training and qualification is weak. Specifically, it assumes the reader already knows and understands the training and qualification process for FWO because it lacks sufficient specificity for an independent non-FWO person to understand how the program functions. This is another LANL example of overlaying a standards-based approach onto an existing expert-based program. Although the responsibility is defined, the processes and methods to be used that are associated with the management and execution of a systematically developed training and qualification program are incomplete.
- 1.6 FWO uses the LANL-wide Employee Development System (EDS) as its training records program. The EDS is capable of producing a wide range of training related reports/records including individual training plans, qualification records, training records, etc. EDS appears adequate for its intended purpose.

CONCLUSION AND SUMMARY

Although FWO management appears to own the training for its personnel, an overall coordinated approach is difficult to identify, although they appear proactive in trying to identify and implement required training. There exists very high level documentation that states management responsibility for the training and qualification program elements for the facility, but these documents lack sufficient specificity to assure a consistent approach to training. The existing program appears to rely on expert-based knowledge of the overall training and qualification program as opposed to a standards-based program. The potential for lack of consistent implementation of training opens the door to inconsistent approaches which, in turn, leads to potentially incomplete and/or inadequate training

The conclusion is that this Objective is not fully met at the programmatic level do to lack of an approved documented training program.

FINDING

1.2 The FWO Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL FWO-WFM**

Functional Area:	Development and Qualification of Training Staff	Criteria Met/Not Met:	Not Met
Objective Number:	2	Date:	5/12/04

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH

Documents Reviewed

- LIR300-00-04, *Laboratory Training :Essential Requirements*, Rev. Date 3/29/2004
- LIG300-00-04, *Laboratory Training: Graded and systematic Approach to Activity-Level Training (On-the-Job training and In-the -Field Training)*, Rev. Date 3/29/2004
- POLICY-WFM-032, R.0, Training Policy for RANT, WCRR, RLWTF, and AREA G Facilities, dated 5/12/2004

Interviews

- Division Training Manager
- FMU-6 Group Leader
- FWO-WFM Facility Manager
- Acting Training Team Lead
- Director TIO

DISCUSSION

- 2.1 The training staff at FWO-WFM consists of a Facility Training Manager, several training specialists, and facility personnel who perform on-the-job training (OJT). These individuals possess the appropriate technical knowledge for the function they perform, and have completed Laboratory required training staff training plans for the functions that they perform.
- 2.2 The Laboratory has an established Training Staff Qualification Program (TSQP). The management of the TSQP is the responsibility of the Training Integration Office (TIO) and applies Laboratory wide.

What is lacking, is the degree of formality and process definition for the execution of a training staff qualification program at the Laboratory and facility level that meets the requirements of DOE Order 5480.20A.

- 2.3 There is no evidence that a training staff continuing training program has been established at the facility to ensure training staff maintains and improves performance of assigned instructional duties. No formal process or policy was evident that required periodic instructor evaluation and subsequent remedial or mentoring action if needed.

CONCLUSION AND SUMMARY

The FWO Division has training staff that have completed the laboratory wide instructor training. What is lacking is the formal process documentation describing the training and qualification of training staff based upon assigned jobs and duties. No evidence was presented that describes the details of a continuing training program for training staff.

This Objective is not fully met.

FINDING

- 2.1 The laboratory wide Instructor Training Program lacks formal documentation describing the process of instructor qualification with regards to the instructor's assigned duties.
- 2.2 Formal process documentation that describes an instructor continuing training program which addresses any weaknesses in instructional duty performance does not exist.

Inspected by:	H. Matt Jones	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of FWO-WFM**

Functional Area:	Trainee Entry-Level Requirements	Criteria Met/Not Met:	Not Met
Objective Number:	3	Date:	5/12/04

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

CRITERIA

7. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
8. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
9. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH

Documents Reviewed.

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- Qualification Standards (QS-WMF-00X, Various Positions)
- Qualification Standards (QS-TWISP-00X, Various Positions)

Interviews

- Division Training Manager
- FMU-6 Group Leader
- FWO-WFM Facility Manager
- Acting Training Team Lead

DISCUSSION

- 3.1 A review of various qualification standards associated with those positions within FWO (sample from Solid Waste Operations and the TWISP operations activities) contains specific position entry-level requirements, and thus meets the requirements of the Order. In addition, the laboratory wide Human Resource position or job advertisement process for positions being hired or filled from within contains entry-level requirements, which are approved by the hiring manager. Although there exists no formal process for identification of entry-level requirements changes based upon performance evaluations for the various positions associated with nuclear operations, a means does exist for management involvement in determination of entry-level requirements. There have been job and task analyses performed, but no evidence that the results were used in the training process, notably here, establishing entry-level requirements.
- 3.2 Based upon the presence of entry-level requirements being a part of the hiring/transfer process within the human resources group, and that the hiring manager has input, the basis for ensuring only personnel possessing those requirements fill those positions is evident.
- 3.3 The reviewed qualification standards state the entry-level requirement verbatim from the Order. The means to meet the intent of the order that entry-level requirements be updated periodically based upon performance is present, but not formally documented and there is not evidence that entry-level requirements as stated in the Qualification Standards are changed based upon performance evaluation. This is a weakness for incumbent employees because there is no evidence entry-level requirements in the qualification standard are specifically assessed for modification based upon performance evaluation results. However, because the manager has input to the entry-level requirements that appear in the hiring/transfer process through the job advertisement, the opportunity does exist for the manager to influence entry-level requirements for new hires or transfers based upon his or her knowledge of entry-level requirement deficiencies associated with performance deficiencies.

CONCLUSION AND SUMMARY

Although there is evidence that entry-level requirements are established in the Job Advertisements for new hires and transferees, and stated in the qualification Standards reviewed, there is lack of formal relationship between these requirements and the individuals being considered for entry into the training program. Entry-level requirements appeared to be verbatim from the order suggesting minimal analysis of actual entry-level requirements for entry into the training program. No formal process documentation was presented that describes this process and the process of periodically assessing the adequacy of entry-level requirements for the various positions based upon performance indicators.

FINDING

- 3.1 Evidence does not exist that entry-level requirements have basis in analyzed job requirements.
- 3.2 The necessary process documentation describing the process of evaluating entry-level requirements based upon training and job performance does not exist.

Inspected by:	H. Matt Jones	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of FWO-WFM**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	4	Date:	05/12/04

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH

Documents Reviewed

Interviews

- Training Specialist (3)
- RRES Operations Supervisor
- RRES Division Training Manager
- Solid Waste Operations Group Leader
- Solid Waste Operations Acting Group Leader
- Authorization Basis Team Member
- Training Coordinator (2)
- RLWTF Operations Team Leader
- TA 54 Writer/Editor
- RLWTF Process Engineer
- FMU-6/FWO-SWO Acting QA Officer
- FWO Division Training and Qualification Manager
- Acting Training Lead

DISCUSSION

- 4.1 The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. The requirement and process for conducting analyses of job requirements is delineated in PLAN-WFM-002, R.1, *Training Management Plan*. The process for conducting an analysis of a job requirement is well-written, succinct, and easy to understand.
- 4.2 DOE Order 5480.20A, Chapter 1, Section 7.b. (1)-(5), presents an overview discussion of the training requirements and process endorsed by the Order. Section 7 states, "Training to support qualification and certification programs shall be based on a systematic approach to training." Paragraphs (1) – (5) thoroughly discuss the five elements composing a systematic approach to training (SAT). PLAN-WFM-002, R.1, *Training Management Plan*, presents a thorough discussion of the elements of a SAT approach and prescribes the processes to use for its implementation.
- 4.3 In discussions with key staff, Assessors found that FWO line management are active players in the overall training process. They review and approve all training related materials and are actively engaged in analyzing existing and/or new tasks to determine training requirements.
- 4.4 Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training. It is obvious that FWO has well-established and functional initial and continuing training programs. The requirements and processes specified in PLAN-WFM-002, R.1, lend themselves to the development and implementation of effective initial and continuing training programs.
- 4.5 The FWO documents and training materials reviewed by the Assessors contained adequate reference to applicable regulatory and programmatic requirements documents. These references served to heighten the awareness of why a particular activity is being trained on.
- 4.6 In discussions with key staff, Assessors learned that certain elements of FWO have a formally designated Technical Staff function that meets the intent of Technical Staff as discussed in DOE Order 5480.20A. Assessors further learned from their discussions with key staff that the training program for FWO Technical Staff is structured along the lines of, and meets the intent of the requirements contained in the Order. However, none of the documents provided to the Assessors for review contained any descriptive or prescriptive sections dealing with the training and qualification of Technical Staff.

CONCLUSION AND SUMMARY

FWO has a documented training and qualification program for its various elements. The documents reviewed by the Assessors are consistent in approach, level of detail, and rigor, however, they rely heavily upon individual interpretation to execute. They, to a lesser degree than other organizations reviewed, still require additional attention to be adequate in meeting the requirements of

DOE Order 5480.20A.

It is obvious that jobs are analyzed to identify required training. The process for conducting job and task analyses is documented. In discussions with key staff, Assessors learned that the job and task analysis process is not only understood by Training staff personnel, but also by line management. The results of the analysis process are used to develop learning objectives, and from them, the necessary learning materials.

Although in discussions with key staff, credit was taken for having a training program for Technical Staff, Assessors found no document that codified or prescribed that program. DOE Order 5480.20A contains specific requirement relative to the training and qualification of Technical Staff personnel and FWO management acknowledged those requirements as being met. However, the lack of procedural guidance relative to Technical Staff training and qualification raises questions relative to the program's consistency, adequacy, and/or effectiveness.

Objective 4 and Criteria 1 and 2 are met. Criterion 3 is not met.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

4.1 There is no procedural requirement/guidance that prescribes the development and implementation of a Technical Staff training and qualification program that meets the intent and requirements contained in DOE Order 5480.20A.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of FWO-WFM**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Met
Objective Number:	5	Date:	05/12/04

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH

Documents Reviewed.

Interviews.

- Training Specialist (3)
- RRES Operations Supervisor
- RRES Division Training Manager
- Solid Waste Operations Group Leader
- Solid Waste Operations Acting Group Leader
- Authorization Basis Team Member
- Training Coordinator (2)
- RLWTF Operations Team Leader
- TA 54 Writer/Editor

- RLWTF Process Engineer
- FMU-6/FWO-SWO Acting QA Officer
- FWO Division Training and Qualification Manager
- Acting Training Lead

DISCUSSION

- 5.1 Although PLAN-WFM-002, R.1, *Training Management Plan*, makes numerous references to how learning objectives are used and how examination questions must be linked to specific learning objectives, Assessors could find no document or portion of a document that describes the development of learning objectives. PLAN-WFM-002, R.1, does list as one of its references DOE-STD-1005-92, *DOE Guideline: Guide to Good Practices for Developing Learning Objectives*, but there is no reference to its use elsewhere in the document. As a side note, upon looking this reference on the DOE site for documents, one finds that this standard is no longer listed, but has been replaced by DOE-HDBK-1200-97, same title.
- 5.2 Training materials reviewed by Assessors contain learning objectives. These learning objectives are measurable, describe applicable knowledge and/or skills, and are specific to the subject being trained. However, the process used to develop the learning objectives is unknown to the Assessors. This appears to be an example of attempting to overlay a standards-based system on a long-standing, effective, expert-based system. The lack of procedural guidance relative to the development and use of learning objectives raises the question of how consistency can be assured.
- 5.3 The lesson plans and other training materials reviewed by the Assessors were well organized, contained appropriate measurable learning objectives that were supported by the training material, and were suited for the applicable training platform. Given the quality of the reviewed training materials, Assessors were somewhat surprised at the lack of specific procedural guidance and/or direction governing the development of training materials. PLAN-WFM-002, R.1, addresses the development of lesson plans and related training materials, but at a fairly high level. Unless one already knows and understands the training development process, one would have difficulty developing good lesson plans/training materials using just the guidance in PLAN-WFM-002, R.1. In discussions with key personnel, Assessors determined that line management is integrally involved in the training development process. However, the lack of procedural guidance opens the door to inconsistent application of requirements, inconsistent detail, and inconsistent rigor and discipline in the design and development processes. This, in turn, opens the door to inconsistent job performance.
- 5.4 The OJT materials reviewed by Assessors are tailored to facility-specific needs and are prepared and approved by SMEs who are qualified on the particular task being trained and who have completed the required LANL training to be OJT Instructor/Evaluators.
- 5.5 PLAN-WFM-002, R.1, and AP-WFM-002, R.6, *Document Management*, both establish review, approval, and control requirements relative to training materials. Assessors found adequate evidence that these requirements are implemented for all training materials.

5.6 A continuing training program is implemented and is supported by appropriate procedural guidance and documentation. Requalification requirements and periodicities for applicable positions are known and an automated system exists to “warn” incumbents that a current qualification is near to lapsing. Available evidence and documentation suggest that the continuing training program described programmatically is functional and effective.

CONCLUSION AND SUMMARY

Objective 5 and Criteria 1, 2, 3, and 4 are met.

The documents provided to the Assessors for review were, for the most part well written, sufficiently specific, prescriptive where necessary, and easy to understand. However, in some instances (e.g., development of training materials) the documents were written at a very high “descriptive” level as opposed to a more detailed “prescriptive” level. Another example of where documentation seemed weak was in the development of training materials. Despite the fact that the training materials reviewed were of a high quality and were supported by learning objectives, appropriate references, etc., none of the documents provided to the Assessors contained guidance of sufficient specificity and detail to support development of such materials. This has the potential to, over time as attrition takes its toll, result in a gradual degradation in training program quality, rigor, and discipline.

FINDING

5.1 Although the documents reviewed by the Assessors were, for the most part, complete, well written, and easy to understand, in some instances they were written at too high a level so as to be “descriptive” as opposed to “prescriptive.” By writing programmatic documents in a prescriptive manner, many of the difficulties related to interpretation, consistency, and approach are eliminated. This results in consistent and predictable results which in turn lends itself to an increase in overall training program effectiveness.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of FWO-WFM**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Met
Objective Number:	6	Date:	5/14/04

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH

Documents Reviewed.

- POLICY-WFM-032, R.0, *Training Policy for RANT, WCRR, RLW, and AREA G Facilities*
- PLAN-WFM-002, R.1, *Training Management Plan*
- PLAN-WFM-045, R.0, *FMU-6/SWO Worker Qualification Program*
- AP-WFM-045, R.0, *FMU-6/SWO Worker Qualification*
- QS-WFM-001, R.2, *FMU-6/SWO Manager*
- QS-WFM-002, R.0, *FMU-6/SWO Supervisor*
- QS-WFM-003, R.0, *FMU-6/SWO Operator-General*

Interviews.

- Training Specialist (3)
- RRES Operations Supervisor
- RRES Division Training Manager
- Solid Waste Operations Group Leader
- Solid Waste Operations Acting Group Leader
- Authorization Basis Team Member
- Training Coordinator (2)
- RLWTF Operations Team Leader
- TA 54 Writer/Editor
- RLWTF Process Engineer
- FMU-6/FWO-SWO Acting QA Officer
- FWO Division Training and Qualification Manager
- Acting Training Lead

DISCUSSION

- 6.1 PLAN-WFM-002, R.1, *Training Management Plan, Section 8.5.6, Evaluation* requires performance evaluations for qualifications. Reviewed Qualification Standards provide guidance on the administration of these performance evaluations as well as guidance on conducting oral examinations. This criterion is met.
- 6.2 Procedures and qualification standards reviewed provide adequate guidance that ensures written examinations based on learning objectives, administered consistently, controlled, and documented for facility specific operations. Procedures and qualification standards reviewed do not contain specific requirements that the content of oral examinations or performance evaluations are based on learning objectives. Procedures and qualification standards reviewed provide adequate guidance that ensures oral examinations and performance evaluations are administered consistently, controlled and documented. This criterion is met.
- 6.3 Procedures reviewed do not contain the necessary guidance to ensure that the content of written and oral examinations for facility specific operations is changed at intervals sufficient to prevent compromise. This criterion is not met.
- 6.4 Division or Group-wide procedures do not contain the necessary guidance to ensure the development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled for facility specific operations. This criterion is not met.
- 6.5 Procedures and qualification standards reviewed contain the necessary guidance to ensure remedial training and reevaluations are provided when examination or performance standards are not met for facility specific operations. This criterion is met.

CONCLUSION AND SUMMARY

Division & Group procedures available for review contain minimal guidance for the implementation of written and oral examinations and performance evaluations that met the intent of a DOE Order 5480.20A compliant training and qualification program. However, the intent of DOE Order 5480.20A is to produce training and qualification programs that are standard based (i.e., prescriptive procedures) versus an expert-based system that relies primarily on the knowledge and skills of individual training staff personnel. The procedures reviewed for the FMU-6 organization are not at the necessary prescriptive level to ensure a standards-based program is in place. This objective is met.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

- 6.1 Training and Qualification program procedures are not at the necessary prescriptive level to ensure a standards-based program is in place, that meets the intent of DOE Order 5480.20A

FINDING

None

Inspected by:	Lawrence Palmer	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of FWO-WFM**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	7	Date:	5/14/04

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH

Documents Reviewed.

- POLICY-WFM-032, R.0, *Training Policy for RANT, WCRR, RLW, and AREA G Facilities*
- PLAN-WFM-002, R.1, *Training Management Plan*
- PLAN-WFM-045, R.0, *FMU-6/SWO Worker Qualification Program*
- AP-WFM-045, R.0, *FMU-6/SWO Worker Qualification*
- QS-WFM-001, R.2, *FMU-6/SWO Manager*
- QS-WFM-002, R.0, *FMU-6/SWO Supervisor*
- QS-WFM-003, R.0, *FMU-6/SWO Operator-General*

Interviews.

- Training Specialist (3)
- RRES Operations Supervisor
- RRES Division Training Manager
- Solid Waste Operations Group Leader
- Solid Waste Operations Acting Group Leader
- Authorization Basis Team Member
- Training Coordinator (2)
- RLWTF Operations Team Leader
- TA 54 Writer/Editor
- RLWTF Process Engineer
- FMU-6/FWO-SWO Acting QA Officer
- FWO Division Training and Qualification Manager
- Acting Training Lead

DISCUSSION

- 7.1 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps* outlines the three institutional steps in the Los Alamos National Laboratory's training program evaluation process. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of 5480.20A.
- 7.2 PLAN-WFM-002, R.1, *Training Management Manual, Section 8.10, Evaluation of Training Effectiveness* states: "**NOTE:** The following requirements are highly desirable for an effective program; however, if resources are limited, priority is given to developing quality training materials and maintaining worker qualification. Therefore, compliance with this section is suggested but not required unless resources are available." DOE Order 5480.20A, 1.7.b (5) requires "Evaluation and revision of the training based on the performance of trained personnel in the job setting." Therefore the guidance given in this procedure is in non-compliance with the requirements set forth in DOE Order 5480.20A.
- 7.3 Furthermore, the requirements contained in section 8.10 of PLAN-WFM-002, R.1 do not contain the necessary prescriptive level of detail required to ensure a comprehensive training

evaluation program is implemented to meet the requirement and intention of DOE Order 5480.20A. This criterion is not met.

- 7.2 There is no evidence of procedural guidance available that would ensure this criterion and the intent of DOE Order 5480.20A are met. This criterion is not met.
- 7.3 See comments for 7.1.3 above. This criterion is not met.
- 7.4 See comments for 7.1.3 above. This criterion is not met.
- 7.5 See comments for 7.1.3 above. This criterion is not met.
- 7.6 See comments for 7.1.3 above. This criterion is not met.
- 7.7 There is no evidence of procedural guidance available that would ensure training facilities are evaluated to determine their effect on the training process. This criterion is not met.

CONCLUSION AND SUMMARY

The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. This objective is not met.

FINDING

- 7.1 The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Inspected by:	Lawrence Palmer	Approved by:	Gerry Schlapper
	Team Member		Team Leader

Attachment C
Group 4, RRES Nuclear Facility
Verification Forms

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-46-RRES**

Functional Area:	Management and Administration of Training and Qualification Programs	Criteria Met/Not Met:	Not Met
Objective Number:	1	Date:	5/12/2004

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility missions(s)

CRITERIA

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

APPROACH

Documents Reviewed.

- QP-00-003, R.1, *Training*
- QP-5.3, R.3 (including ICNs 1 and 2), *Readiness Planning and Review*
- QP-2.1, R.2 (including ICN 1), *Personnel Qualification and Selection Process*
- QP-2.2, R.1 (including ICNs 1, 2, and 2A), *Personnel Orientation and Training*
- RRES-TRNG-PROG-DOC, R.0 (DRAFT), *Training, Qualification, and Certification Program Document for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-SFS-PROC, R.0 (DRAFT), *Site/Facility-Specific Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-OJT-PROC, R.0 (DRAFT), *On-the-Job Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*

Interviews.

The following individuals were interviewed relative to this objective:

- Division Training Manager
- Training Coordinator, RRES-ECR
- Training Specialist/5480.20A Specialist
- Deputy Division Leader – Operations

DISCUSSION

- 1.1 RRES is in a state of major change necessitated by reorganization and realignment of responsibilities. As such, a new training organization is in the “stand up” mode. The fact that RRES management has taken the proactive approach to training and allocated funding and labor resources to address the need of training and qualification is commendable. The newly evolving training organization appears to be adequate for RRES. They are in the process of developing the suite of documentation that will define the new RRES training and qualification program.
- 1.2 In interviews with key personnel, it was obvious that line management owns training at RRES-RANT-WCR. They were adequately knowledgeable and conversant regarding the status of the various training and qualification programs supporting RRES-RANT-WCR to demonstrate that they were involved and actively monitored training.
- 1.3 Each of the facilities has one or more dedicated personnel assigned to training. It is obvious that they have undergone numerous assessments in the past based on their energetic participation in the meetings with the Assessment Team. However, having said that, the Assessors noted that there did not appear to be coordinated approach and/or effort among the facilities. The fact that they have formally designated training staffs is well documented. A unified and consistent approach to ensuring that all RRES-RANT-WCR personnel are trained and qualified was not readily apparent.
- 1.4 In a manner that is somewhat consistent with the other LANL facilities that have been assessed thus far, the documentation for RRES-RANT-WCR is weak. Specifically, it assumes the reader already knows and understands the training and qualification process for RRES-RANT-WCR because it lacks sufficient specificity for an independent non-RRES-RANT-WCR person to understand how the program functions. This is another LANL example of overlaying a standards-based approach onto an existing expert-based program. Although the responsibility is defined, the processes and methods to be used that are associated with the management and execution of a systematically developed training and qualification program are incomplete.
- 1.5 RRES-RANT-WCR uses the LANL-wide Employee Development System (EDS) as its training records program. The EDS is capable of producing a wide range of training related reports/records including individual training plans, qualification records, training records, etc. EDS appears adequate for its intended purpose.

CONCLUSION AND SUMMARY

RRES-RANT-WCR management is actively engaged in the training and qualification for their personnel. They appear proactive in trying to identify and implement required training. There exists very high level documentation that states management responsibility for the training and qualification program elements for the facility, but these documents lack sufficient specificity to assure a consistent approach to training. The existing program appears to rely on expert-based knowledge of the overall training and qualification program as opposed to a standards-based program. The potential for lack of consistent implementation of training opens the door to inconsistent approaches which, in turn, leads to potentially incomplete and/or inadequate training

The conclusion is that this Objective is not fully met at the programmatic level do to lack of an approved documented training program.

FINDING

1.1 The RRES-RANT-WCR Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-46-RRES**

Functional Area:	Development and Qualification of Training Staff	Criteria Met/Not Met:	Not Met
Objective Number:	2	Date:	5/12/04

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH

Documents Reviewed.

- LIR300-00-04, *Laboratory Training :Essential Requirements*, Rev. Date 3/29/2004
- LIG300-00-04, *Laboratory Training: Graded and systematic Approach to Activity-Level Training (On-the-Job training and In-the –Field Training)*, Rev. Date 3/29/2004
- QP-00-003, R.1, *Training*
- QP-5.3, R.3 (including ICNs 1 and 2), *Readiness Planning and Review*
- QP-2.1, R.2 (including ICN 1), *Personnel Qualification and Selection Process*
- QP-2.2, R.1 (including ICNs 1, 2, and 2A), *Personnel Orientation and Training*
- RRES-TRNG-PROG-DOC, R.0 (DRAFT), *Training, Qualification, and Certification Program Document for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-SFS-PROC, R.0 (DRAFT), *Site/Facility-Specific Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-OJT-PROC, R.0 (DRAFT), *On-the-Job Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*

Interviews.

The following individuals were interviewed relative to this objective:

- Division Training Manager
- Training Coordinator, RRES-ECR

- Training Specialist/5480.20A Specialist
- Deputy Division Leader – Operations

DISCUSSION

2.1 The training staff for the Risk Reduction and Environmental Stewardship (RRES) consists of a Training and Qualification Team lead, Training Specialists and Coordinators, and subject Matter Experts who perform on-the-job training (OJT). These individuals possess the appropriate technical knowledge for the function they perform, and have completed Laboratory required training staff training plans for the functions that they perform.

2.2 The Laboratory has an established Training Staff Qualification Program (TSQP). The management of the TSQP is the responsibility of the Training Integration Office (TIO) and applies Laboratory wide.

What is lacking, is the degree of formality and process definition for the execution of a training staff qualification program that integrates the Laboratory and facility level that meets the requirements of DOE Order 5480.20A.

2.3 There is no evidence that a training staff continuing training program has been established at the facility to ensure training staff maintains and improves performance of assigned instructional duties. No formal process or policy was evident that required periodic instructor evaluation and subsequent remedial or mentoring action if needed.

CONCLUSION AND SUMMARY

The RRES Division has training staff that have completed the laboratory-wide instructor training. What is lacking is the formal process documentation describing the training and qualification of training staff based upon assigned jobs and duties. No evidence was presented that describes the details of a continuing training program for training staff.

This Objective is not fully met.

FINDING

- 2.1 There is not evidence of formal process documentation describing the training and qualification of training staff based upon assigned jobs and duties.
- 2.2 No evidence was presented that describes the details of a continuing training program for training staff.

Inspected by:	H. Matt Jones	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-46-RRES**

Functional Area:	Trainee entry-Level Requirements	Criteria Met/Not Met:	Not Met
Objective Number:	3	Date:	5/12/04

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

CRITERIA

- 1 Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
- 2 Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
- 3 Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH

Documents Reviewed.

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- QP-00-003, R.1, *Training*
- QP-5.3, R.3 (including ICNs 1 and 2), *Readiness Planning and Review*
- QP-2.1, R.2 (including ICN 1), *Personnel Qualification and Selection Process*
- QP-2.2, R.1 (including ICNs 1, 2, and 2A), *Personnel Orientation and Training*
- RRES-TRNG-PROG-DOC, R.0 (DRAFT), *Training, Qualification, and Certification Program Document for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-SFS-PROC, R.0 (DRAFT), *Site/Facility-Specific Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-OJT-PROC, R.0 (DRAFT), *On-the-Job Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*

Interviews

The following individuals were interviewed relative to this objective:

- Division Training Manager
- Training Coordinator, RRES-ECR
- Training Specialist/5480.20A Specialist

- Deputy Division Leader – Operations

DISCUSSION

- 3.1 Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements. Entry-level requirements are provided as part of job advertisements.

Based on the discussions with RRES the entry-level requirements appear to generally exceed the DOE O 5480.20A entry-level requirements. However, a standardized process to ensure that entry-level requirements are established in accordance with DOE O 5480.20A was not evident.

Formal position descriptions were not evident in the process. Based on understanding of the laboratory Job Advertisement Process, the best descriptor of each employee's responsibilities is the Job Advertisement under which they were hired. The lack of formality in this process is compounded during the development of each employee's training, qualification, and certification.

- 3.2 Education, required skills, and desired skills are prescribed in each Job Advertisement, which is a Laboratory-wide process governed by the Human Resources organization, applicants that do not meet the required job criteria are not considered. There was no evidence that the required job criteria did not meet the DOE O 5480.20 criteria, but a defined and documented process within the RRES Division Training program, was not observed to ensure that personnel selected for the operating organization met the DOE O 5480.20A prescribed entry-level requirements nor those requirements that would be the result of analyzing job requirements..
- 3.3 A formal process to review and revise entry-level requirements, based upon performance evaluations was not observed. However, by virtue of the hiring manager's ability to prescribe entry-level requirements in the Job Advertisement, the opportunity to adjust entry-level requirements based upon his or her needs is available. Again this process is not formally defined.

CONCLUSION AND SUMMARY

Although entry-level requirements are considered, there is a lack of process definition that defines how these requirements are derived and used based upon the analysis of job requirements. There is also a lack of process definition on entry-level requirements as they relate to performance indicators, and the subsequent changes that may be warranted.

This Objective is not met.

FINDING

3.1 Formal processes for establishing entry-level requirements based upon job requirements or for updating entry-level requirements based upon training and job performance do not exist.

Inspected by:	H Matt Jones	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-46-RRES**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	4	Date:	05/13/04

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH

Documents Reviewed

- QP-00-003, R.1, *Training*
- QP-5.3, R.3 (including ICNs 1 and 2), *Readiness Planning and Review*
- QP-2.1, R.2 (including ICN 1), *Personnel Qualification and Selection Process*
- QP-2.2, R.1 (including ICNs 1, 2, and 2A), *Personnel Orientation and Training*
- RRES-TRNG-PROG-DOC, R.0 (DRAFT), *Training, Qualification, and Certification Program Document for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-SFS-PROC, R.0 (DRAFT), *Site/Facility-Specific Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-OJT-PROC, R.0 (DRAFT), *On-the-Job Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*

Interviews.

- Division Training Manager
- Training Coordinator, RRES-ECR
- Training Specialist/5480.20A Specialist
- Deputy Division Leader – Operations

DISCUSSION

- 4.1 Currently, the Risk Reduction and Environmental Stewardship Division (RRES) is responsible for the Material Disposal Activity (MDA), the Waste Characterization and Repackaging Facility (WCRRF), and the Radioassay and Non-Destructive Testing Facility (RANT). In essence, RRES personnel are “tenants” on facilities “owned” by the Facility Waste Operations Division (FWO). RRES is responsible for ensuring its personnel are technically trained and qualified to perform their assigned duties within their respective facilities. FWO is responsible for providing the training necessary for RRES personnel to gain access to, and safely work within FWO facilities. In the near future, this relationship will change significantly in that RRES will become the facility “owner” and FWO will become the “tenant.” In preparation for this significant change in mission and responsibility, RRES is in the process of developing a suite of training program related procedures and related documents that will prescribe the new training and qualification program requirements. These documents are all in draft form at this time and not officially part of the assessment, but were reviewed by the Assessors at the request of RRES Training staff. The draft documents appear to conform to the general trend found in other LANL facilities, i.e., they describe the program but do not prescribe any of the “how to’s” associated with implementing requirements. The documents appear to assume the reader already possesses an expert level of knowledge and knows how to proceed. As documented elsewhere, this approach is somewhat flawed in that not everyone has the same level of knowledge in all things.
- 4.2 In meetings with key personnel, Assessors learned that the determination of training requirements is tied directly to the results of an analysis of that particular job and/or task function. Of concern to the Assessors is the fact that none of the documents provided to the Assessors for review contained any prescriptive or even descriptive guidance on how to conduct job and/or task analyses. The fact that analyses are done is not in question. Rather, the lack of formal programmatic documentation mandating their performance and specifying how they are accomplished and how the results are documented and ultimately used is the concern. Although there is an informal memo that outlines the job and task analysis process, the process has not been incorporated into formal programmatic documentation.
- 4.3 Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training. The requirement for both initial and continuing training requirements is established and promulgated in appropriate programmatic documentation. However, although the requirement is established programmatically, what is missing is the “how to” element; a vital and necessary component of a complete programmatic documentation package. Absent clear, succinct, and appropriate instructions relative to how specific requirements are conducted or performed, the door is opened for inconsistent approaches to meeting requirements, which leads to inconsistent and/or

unpredictable results, which leads to ineffective or inconsistent training, which ultimately impacts worker performance.

- 4.4 The initial and continuing training program materials reviewed contained applicable references to appropriate regulatory and other types of guidance. But, as mentioned previously, how/why those references were included is unclear to the Assessors. How training materials are developed (e.g., learning objectives, lesson content, applicable references, performance criteria, etc.) appears based on a previously existing expert-based system. It is obvious that considerable effort has been expended in preparing programmatic documentation to move the training and qualification program away from the previous expert-based system to a standards-based system. However, it seems that the developers of the programmatic documentation assume an expert-based knowledge as they prepare the new programmatic documentation. The procedures and related documents reviewed by the Assessors are, in general, well-written, clear, and succinct, but seem to be lacking in specific detail in many critical areas. The documents do not provide sufficient specificity to provide anyone not already possessing an expert level knowledge of how RRES' training and qualification program works with sufficient detail to independently understand and/or work within their program.
- 4.5 It is unclear to the Assessors whether RRES has a formally designated Technical Staff as described in DOE Order 5480.20A. The Assessors could not find any reference to the training and qualification program for RRES Technical Staff.

CONCLUSION AND SUMMARY

Objective 4 and Criteria 1 and 2 are met. Criterion 3 is not met.

The Assessors are concerned that the formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. Unless RRES takes the initiative to develop prescriptive guidance relative to conducting and documenting job and task analyses, it runs the risk of having ineffective training developed and implemented. Since the very foundation of training lies upon the bedrock of effective analysis, inconsistent, incomplete, and/or poorly documented job and task analyses can have a deleterious impact on an otherwise good training and qualification program.

The Assessors are further concerned that inconsistencies in training are possible given the lack of specific procedural guidance. Although both programs are implemented and functioning at this time, at some point in the future, attrition will take its toll on those RRES personnel who are intimately knowledgeable of how the initial and continuing training programs function. At that time, unless adequate prescriptive guidance is in place, the potential exists for program degradation. The concern is that there is no document that succinctly and adequately prescribes RRES' initial and/or continuing training programs.

The Assessors are further concerned that the new RRES training programmatic documents being developed in preparation for RRES' new role will be inadequate due to their lack of specificity and/or prescriptive guidance. The Assessors realize that this particular concern is outside the realm of

the current assessment and offer this only as an observation.

FINDING

- 4.1 There is a lack of procedural guidance/direction relative to job and/or task analysis.
- 4.2 There is a lack of procedural guidance/direction relative to initial and continuing training.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-46-RRES**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	5	Date:	05/14/04

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH

Documents Reviewed.

- QP-00-003, R.1, *Training*
- QP-5.3, R.3 (including ICNs 1 and 2), *Readiness Planning and Review*
- QP-2.1, R.2 (including ICN 1), *Personnel Qualification and Selection Process*
- QP-2.2, R.1 (including ICNs 1, 2, and 2A), *Personnel Orientation and Training*
- RRES-TRNG-PROG-DOC, R.0 (DRAFT), *Training, Qualification, and Certification Program Document for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-SFS-PROC, R.0 (DRAFT), *Site/Facility-Specific Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*
- RRES-TRNG-OJT-PROC, R.0 (DRAFT), *On-the-Job Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel*

Interviews.

- Division Training Manager
- Training Coordinator, RRES-ECR
- Training Specialist/5480.20A Specialist
- Deputy Division Leader – Operations

DISCUSSION

- 5.1 The development and use of learning objectives as a part of a Systematic Approach to Training (SAT) process is specifically required by DOE Order 5480.20A, Chapter I, Section 7. b. (2). Supporting this requirement, Assessors found learning objectives as an integral part of the developed training materials that were reviewed. The learning objectives reviewed were uniformly consistent, were measurable, and adequately supported and directed the training topic at hand. However, how the learning objectives were developed is unclear since the Assessors could not find any procedural guidance (prescriptive or descriptive) relative to developing learning objectives. This lack of programmatic requirements/guidance opens the door to inconsistent approaches, development, and application of learning objectives. This, in turn, sets the stage for inconsistent and/or ineffective training activities for RRES.
- 5.2 The training materials reviewed supported the stated learning objectives and facilitated effective training. They were well developed and organized and “flowed” from basic concepts to more advanced skills and application of knowledge. However, similarly to the learning objectives, the Assessors could find no programmatic documentation that described or prescribed the development of lesson materials. The fact that effective lesson plans / materials have been developed and are implemented is not an issue. The concern centers on the lack of documentation that prescribes and describes how such lesson materials are designed and developed. Absent such guidance, RRES runs the risk of having ineffective and/or inaccurate training materials which of course relates directly to having an adequately trained and qualified work force.
- 5.3 The OJT materials reviewed were well-developed, contained adequate learning objectives, and specified predefined performance criteria for all performance activities. See 5.2.1 for comments relative to how these materials were developed.
- 5.4 Although all of the training materials, including the programmatic documentation reviewed were approved, none of the training programmatic documents provided to the Assessors specified requirements pertaining to reviewing, approving, and controlling training materials. It is unclear to the Assessors whether the review and approval requirements for training materials are contained within the document referenced for the FWO organization, i.e., AP-WFM-002, R.6. If this is the case, RRES documents should take credit for this requirement and specifically reference it. If this is not the case, RRES should prescribe the review and approval process for its training materials within its programmatic documentation.
- 5.5 A continuing training program is implemented. However, none of the documents provided to the Assessors provided any guidance pertaining to designing, implementing, and/or evaluating a continuing training program. This lack of programmatic requirements is of

concern to the Assessors in that in lieu of such guidance, inconsistent approaches and/or implementation for a continuing training program become possible.

CONCLUSION AND SUMMARY

Objective 5 and Criteria 1, 2, and 4 are met. Criterion 3 is not met.

The documents provided to the Assessors for review were, for the most part well written, and easy to understand. However, these documents tended to be written at a "descriptive" level as opposed to a more detailed "prescriptive" level. Often times, the documents appeared to merely restate the requirements of DOE Order 5480.20A as opposed to giving guidance and/or direction relative to their implementation. Many of the concerns and/or questions raised by the Assessors over the course of the assessment could have been avoided had the programmatic documents contained more prescriptive detail. The Assessors are concerned that the above-referenced lack of specificity has the potential to cause inconsistent approach to training analysis, design, development, implementation, and evaluation in both the classroom and OJT settings.

The Assessors are also concerned that the lack of specific requirements pertaining to the review, approval, and control requirements for training program documents and/or materials can lead to inaccurate training materials being issued for use. This, in turn, opens the door to worker performance problems.

FINDING

- 5.1 The programmatic documentation supporting RRES' training and qualification program are incomplete and lack the required level of perceptiveness/specificity that will ensure predictable and consistent training that enhances worker performance and safety.
- 5.2 The lack of adequate program description and guidance in relative to the review and approval of training program documentation may result in inaccurate, incomplete, and/or ineffective training program materials being issued for use.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-46-RRES**

Functional Area:	Trainee Examination and Evaluation	Criteria Met/Not Met	Not Met
Objective Number:	6	Date:	5/14/04

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH

Documents Reviewed.

- QP-00-003, R.1, Training
- QP-5.3, R.3 (including ICNs 1 and 2), Readiness Planning and Review
- QP-2.1, R.2 (including ICN 1), Personnel Qualification and Selection Process
- QP-2.2, R.1 (including ICNs 1, 2, and 2A), Personnel Orientation and Training
- RRES-TRNG-PROG-DOC, R.0 (DRAFT), Training, Qualification, and Certification Program Document for RRES Division Environmental Nuclear Site/Facility Personnel
- RRES-TRNG-SFS-PROC, R.0 (DRAFT), Site/Facility-Specific Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel

- RRES-TRNG-OJT-PROC, R.0 (DRAFT), On-the-Job Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel

Interviews.

- Division Training Manager
- Training Coordinator, RRES-ECR
- Training Specialist/5480.20A Specialist
- Deputy Division Leader – Operations

DISCUSSION

- 6.1 Division or Group-wide procedures do not contain the necessary guidance to ensure that examinations given they would met the requirements set forth in DOE Order 5480.20A. This criterion is not met.
- 6.2 Division or Group-wide procedures do not contain the necessary guidance that ensure examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented for facility specific operations. This criterion is not met.
- 6.3 Division or Group-wide procedures do not contain the necessary guidance to ensure that the content of written and oral examinations for facility specific operations is changed at intervals sufficient to prevent compromise. This criterion is not met.
- 6.4 Division or Group-wide procedures do not contain the necessary guidance to ensure the development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled for facility specific operations. This criterion is not met.
- 6.5 Division or Group-wide procedures do not contain the necessary guidance to ensure remedial training and re-evaluations are provided when examination or performance standards are not met for facility specific operations. This criterion is not met.

CONCLUSION AND SUMMARY

The Risk Reduction and Environmental Stewardship Division (RRES) is responsible for the technical operations at the WCRR Facility, RANT Facility and the MDAs. Division or Group-wide procedures do not contain the necessary guidance to ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs. This objective is not met.

FINDING

6.1 Division or Group-wide procedures do not contain the necessary guidance to ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Inspected by:	Lawrence Palmer	Approved by:	Gerry Schlapper
	Team Member		Team Leader

Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-46-RRES

Functional Area:	Training Program Evaluation	Criteria Met/Not Met	Not Met
Objective Number:	7	Date:	5/14/04

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH

Documents Reviewed

- QP-00-003, R.1, Training
- QP-5.3, R.3 (including ICNs 1 and 2), Readiness Planning and Review
- QP-2.1, R.2 (including ICN 1), Personnel Qualification and Selection Process
- QP-2.2, R.1 (including ICNs 1, 2, and 2A), Personnel Orientation and Training
- RRES-TRNG-PROG-DOC, R.0 (DRAFT), Training, Qualification, and Certification Program

Document for RRES Division Environmental Nuclear Site/Facility Personnel

- RRES-TRNG-SFS-PROC, R.0 (DRAFT), Site/Facility-Specific Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel
- RRES-TRNG-OJT-PROC, R.0 (DRAFT), On-the-Job Training Procedure for RRES Division Environmental Nuclear Site/Facility Personnel

Interviews.

- Division Training Manager
- Training Coordinator, RRES-ECR
- Training Specialist/5480.20A Specialist
- Deputy Division Leader – Operations

DISCUSSION

- 7.1 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps* outlines the three institutional steps in the Los Alamos National Laboratory's training program evaluation process. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of 5480.20A. 53 FMM 300-00-03, *TA-53 Training Manual* does not provide the necessary prescriptive procedural guidance to ensure a comprehensive training evaluation program is implemented to meet the requirement and intention of DOE Order 5480.20A. This criterion is not met.
- 7.2 There is no evidence of procedural guidance available that would ensure this criterion and the intent of DOE Order 5480.20A are met. This criterion is not met.
- 7.3 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps*, states that training personnel will "*Review trainee feedback on course and trainee learning*" and "*Revise training and tests, as required.*" This is the only guidance given regarding Level 1 & Level 2 evaluations that this assessor could find. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of 5480.20A. This criterion is not met.
- 7.4 There is no evidence of procedural guidance available that would ensure change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner or that changes in job scope are evaluated to determine the need for revision of initial and continuing training programs. This criterion is not met.
- 7.5 There is no evidence of procedural guidance available that would ensure improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems. This criterion is not met.
- 7.6 There is no evidence of procedural guidance available that would ensure training materials are maintained current, based upon the results of training program evaluations.. This criterion is not met.

- 7.7 There is no evidence of procedural guidance available that would ensure training facilities are evaluated to determine their effect on the training process.. This criterion is not met.

CONCLUSION AND SUMMARY

The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. This objective is not met.

FINDING

- 7.1 The procedural guidance available lacks the necessary prescriptive-level of detail required that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Inspected by:	Lawrence Palmer	Approved by:	Gerry Schlapper
	Team Member		Team Leader

Attachment D
Group 4, LANSCE Nuclear Facility
Verification Forms

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANSCE**

Functional Area:	Management and Administration of Training and Qualification Programs	Criteria Met/Not Met:	Not Met
Objective Number:	1	Date:	5/12/2004

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility missions(s)

CRITERIA

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.

Training records are maintained to support management information needs and to provide required historical data.

APPROACH

Documents Reviewed.

- LANSCE TIM (not dated/unapproved)
- 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*
- 53FIR 300-06.0, *Providing Institutional and Facility Training*
- 53FIR 300-00-07, *Facility Level Performance Based Training (DRAFT)*
- 53FMM 300-00-03, *Training Manual*
- LANSCE Local Document, *Record Keeping and Document Control*
- Form 28, *Expert-Based Qualification Form*
- Representative EDS Training Record
- LANSCE-7-OP-1-5.01, *1L Target Facility Operator Qualification Card*
- List of 1L Target Operators
- Los Alamos Memorandum, *1L Target Facility Operator Provisional Qualification in the Case of Michael Baumgartner, 150791*
- LIR 308-00-02, *Records Management*
- LANSCE Document, *Nuclear Facility Qualification Programs at TA-53*
- TA-53 Training Questionnaire

Interviews.

The following individuals were interviewed relative to this objective:

- Training Team Leader
- LANSCE 7 Acting Group Leader
- LANSCE 10 Acting Group Leader
- Issues Management Coordinator
- Technical Administrative Specialist
- Training Specialist, Training Integration Office (TIO)/TIM Coordinator

DISCUSSION

- 1.1 In interviews with key personnel, it was obvious that line management owns training at LANSCE. They were adequately knowledgeable and conversant regarding the status of LANSCE's training and qualification program to demonstrate that they were involved and actively monitored training.
- 1.2 Literally the day before the Assessors arrived, LANSCE's new Training Manager assumed his duties. For obvious reasons, he deferred to his predecessor for all training process/records type questions. The Assessors have no concerns or issues at this time relative to the abilities of the new Training Manager. However, during the Phase II assessment activities, Assessors will be expecting a much higher knowledge level since he will have had a few months on the job by then.
- 1.3 In a manner that is somewhat consistent with the other LANL facilities that have been assessed thus far, the documentation for LANSCE is weak. Specifically, it assumes the reader already knows and understands the training and qualification process for LANSCE because it lacks sufficient specificity for an independent non-LANSCE person to understand how the program functions. This is another LANL example of overlaying a standards-based approach onto an existing expert-based program. Although the responsibility is defined, the processes and methods to be used that are associated with the management and execution of a systematically developed training and qualification program are incomplete.
- 1.4 LANSCE uses the LANL-wide Employee Development System (EDS) as its training records program. The EDS is capable of producing a wide range of training related reports/records including individual training plans, qualification records, training records, etc. EDS appears adequate for its intended purpose.

CONCLUSION AND SUMMARY

There exists very high level documentation that states management responsibility for the training and qualification program elements for the facility. However, these documents lack sufficient specificity to assure a consistent approach to training. The existing program appears to rely on expert-based knowledge of the overall training and qualification program as opposed to a standards-based program. The potential for lack of consistent implementation of training opens the door to inconsistent approaches which, in turn, leads to potentially incomplete and/or

inadequate training

The conclusion is that this Objective is not fully met at the programmatic level do to lack of an approved documented training program.

FINDING

1.1 The LANSCE Facility Training Program does not include training management and process guidance documents of sufficient detail to ensure consistent program execution in accordance with DOE Order 5480.20A.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-53-LANSCE**

Functional Area:	Development and Qualification of Training Staff	Criteria Met/Not Met:	Not Met
Objective Number:	2	Date:	5/12/04

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH

Documents Reviewed.

- LIR300-00-04, *Laboratory Training :Essential Requirements*, Rev. Date 3/29/2004
- LIG300-00-04, *Laboratory Training: Graded and systematic Approach to Activity-Level Training (On-the-Job training and In-the -Field Training)*, Rev. Date 3/29/2004
- LANSCE TIM
- 53 FMM 300-00-03, 3/9/00, TA-53 Training Manual

Interviews.

- Division Training Manager
- Former Division training Manager
- Acting Group leader
- Director ITO

DISCUSSION

- 2.1 The LANCE Training Manual and LIR 300-00-04, states training and qualification requirements for training staff. The LANSCE training staff consists of a Divisional Training Manager, Training specialists and Coordinators, and SMEs who perform on-the-job training (OJT).
- 2.2 Section 6.2 of LIR 300.00.04.2, Laboratory Training: Essential Requirements, requires, "All personnel involved in providing training for qualification or certification programs shall become TSQP qualified." The LIR goes on to list the specific training requirements necessary to complete to become TSQP qualified. The Training Integration Office (TIO) implements this program. "All personnel" includes those SMEs performing duties as OJT instructors. Prior to performing OJT Instructor/Evaluator duties, SMEs are required to first complete the requirements of Section 6.2 of LIR 300.00.04.2.
- 2.3 Through TIO, all LANL training professionals participate in on-going PBT designed to upgrade and enhance training skills. This program is conducted external to LANSCE by the TIO. This program is required by Section 5.10 of LIR 300.00.04.2, Laboratory Training: Essential Requirements. However there is no division level evidence that training professionals are evaluated and that the results of those evaluations have any influence on continuing training to improve instructional and program execution performance.

CONCLUSION AND SUMMARY

Training staff members are required to attend the Laboratory wide instructor training program, however there is no evidence of a documented process for establishing this training or the requirements to be declared a qualified instructor. There is no documented continuing training program for instructional staff members, based upon instructional performance or trainee performance.

FINDING

- 2.1 There is not evidence of a continuing training program for instructional staff that accounts for instructional performance weakness or trainee performance results.

Inspected by:	H. Matt Jones	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-53-LANSCE**

Functional Area:	Trainee entry-Level Requirements	Criteria Met/Not Met:	Not Met
Objective Number:	3	Date:	5/12/04

OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

CRITERIA

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH

Documents Reviewed.

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- LIR300-00-04, *Laboratory Training :Essential Requirements*, Rev. Date 3/29/2004
- LIG300-00-04, *Laboratory Training: Graded and systematic Approach to Activity-Level Training (On-the-Job training and In-the –Field Training)*, Rev. Date 3/29/2004
- LANSCE TIM
- 53 FMM 300-00-03, 3/9/00, TA-53 Training Manual

Interviews

- Division Training Manager
- Former Division training Manager
- Acting Group leader
- Director ITO

DISCUSSION

3.1 Entry-level requirements are provided as part of job advertisements. These have some basis and are provided by the hiring manager, but lack discipline in the manner they are established.

Based on the discussions, the entry-level requirements appear to generally exceed the DOE O 5480.20A entry-level requirements. However, a standardized process to ensure that entry-level requirements are established in accordance with DOE O 5480.20A was not observed.

3.2 The caliber of individuals in the operating organization seems to meet or exceed the Order min requirements, (a part of Phase 2 assessment) but again there is no documented process for evaluating the analyzed job requirements and the methods for formally establishing those requirements based upon job duties. There are not documented job descriptions for the operating positions.

3.3 There was no evidence of a documented process for training and job performance as a basis for validating and or updating the existing entry-level requirements.

CONCLUSION AND SUMMARY

Due to lack of formality, this objective is not met. There is no documented process control over the establishment, maintenance, and updating of job entry-level requirements based upon position training or job performance.

FINDING

3.1 There is no evidence of a documented process for the establishment, maintenance, or update to entry-level requirements based upon analyzed job requirements or job performance.

Inspected by:	H. Matt Jones	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-53-LANSCE**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	4	Date:	05/11/04

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Criteria

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH

Documents Reviewed

- LANSCE TIM (not dated/unapproved)
- 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*
- 53FIR 300-06.0, *Providing Institutional and Facility Training*
- 53FIR 300-00-07, *Facility Level Performance Based Training (DRAFT)*
- 53FMM 300-00-03, *Training Manual*
- LANCSE Local Document, *Record Keeping and Document Control*
- Form 28, *Expert-Based Qualification Form*
- Representative EDS Training Record
- LANSCE-7-OP-1-5.01, *1L Target Facility Operator Qualification Card*
- List of 1L Target Operators
- Los Alamos Memorandum, *1L Target Facility Operator Provisional Qualification in the Case of Michael Baumgartner, 150791*
- LIR 308-00-02, *Records Management*
- LANSCE Document, *Nuclear Facility Qualification Programs at TA-53*
- TA-53 Training Questionnaire

Interviews.

- Training Team Leader
- LANSCE 7 Acting Group Leader
- LANSCE 10 Acting Group Leader
- Issues Management Coordinator
- Technical Administrative Specialist
- Training Specialist, Training Integration Office (TIO)/TIM Coordinator

DISCUSSION

- 4.1 DOE Order 5480.20A, Chapter 1, Paragraphs 4.a. and 4.b. discuss Personnel Selection Requirements. Even though not specifically required, Paragraphs 4.a. and 4.b. imply the use of "position descriptions" that specify facility-specific entry level education and experience levels in the hiring process. There are no approved facility position-specific position description documents that define either the minimum entry level requirements or the duties and responsibilities for any of the LANSCE positions. In interviews with key personnel, Assessors learned that if a position had to be filled, line management would prepare a "job ad" that contained all of the position's duties and responsibilities as well as all entry-level requirements. While minimum education and experience requirements do in fact exist as evidenced in the "job ads," it was unclear to the Assessors how these minimum education and experience requirements were determined.
- 4.2 DOE Order 5480.20A, Chapter 1, Section 7.b. (1)-(5), presents an overview discussion of the training requirements and process endorsed by the Order. Section 7 states, "Training to support qualification and certification programs shall be based on a systematic approach to training." Paragraphs (1) – (5) thoroughly discuss the five elements composing a systematic approach to training (SAT). Even applying a graded approach, the SAT methodology applies all five elements. Although 53FMM 300-00-03, *Training Manual*, Section 9.2, discusses the SAT approach at a very high and superficial level, none of the documents provided to the Assessors actually prescribe the various "how to" elements associated with each of the five SAT elements. Although three of the reviewed documents, i.e., LIG300-01-04.0, *Laboratory Training, Qualification, and Certification*, TA18-TRA-PLN-0077, Rev 1, *TA-18 Training Program Plan*, and the LACEF Training Modules document either addressed the issue of job analysis at a very superficial level, or detailed the results of an analysis, the
- 4.3 Although the results of job and/or task analyses form the basis upon which all other SAT program elements are established, Assessors found no document that provided clear, succinct direction and/or requirements for conducting and documenting job analyses. It is unclear to the Assessors how this most basic and vital of all of the SAT elements is accomplished uniformly and consistently at LANSCE. Additionally, 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*, and 53FMM 300-00-03, *Training Manual*, seem to contradict each other relative to the requirements to document the results of job and/or task analyses.
- 4.4 In discussions with key staff, Assessors found that LANSCE uses the implemented Hazard Control Plan (HCP), the Integrated Work Document (IWD), and/or other similar processes to identify specific facility and/or experiment training requirements. After identifying and

defining the work scope and all known hazards associated with that scope, the next step in the process is to identify specific training requirements for the positions identified as the ones that will be performing the scope of work. The Assessors found no document that prescribed or even described this process.

- 4.5 The procedures and related documents reviewed by the Assessors were, in general, well-written, clear, and succinct, but were lacking in specific detail in many critical areas. The documents do not provide sufficient specificity to provide anyone not already possessing an expert level knowledge of how LANSCE's training and qualification program works with sufficient detail to independently understand and/or work within their program.
- 4.6 Although Section 9, Training Program Development, of 53FMM 300-00-03, *Training Manual*, contained only a single sentence dealing with LANSCE's approach to training development (i.e., "Training programs for TA-53 are developed in accordance with standard practices for PBT."), Section 7 of 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*, provided a much more complete discussion of how both initial and continuing training program content is established. However, this appears to be a very subjective process that relies almost exclusively on the judgment of a designated technical Subject Matter Expert (SME). None of the documents provided to the Assessors describe or prescribe how this is accomplished. Furthermore, it is unclear what criteria are used to designate someone as a technical SME. This appears to be another subjective process. In both of these examples, the question of consistency arises.
- 4.7 Initial training requirements are not clearly identified in applicable LANSCE documents. Sections 7.1 and 7.2 of 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*, provides a very brief discussion of the process used to determine initial training requirements. The described process relies exclusively on the subjective judgment of a technical SME. Furthermore, documentation of this process is precluded, or made optional at best. No document could be produced that succinctly defines and codifies the process.
- 4.8 Continuing training requirements are not clearly identified in applicable LANSCE documents. Section 7.4 of 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*, provides a very brief discussion of the process used to determine continuing training requirements. One concern of the Assessors is that the last sentence of the first paragraph of Section 7.4, i.e., "Re-training on a periodic basis is called 'continuing training.'" is not consistent with the standard definition of "continuing training," nor does it meet the intent or requirements of DOE Order 5480.20A. Similarly to the initial training requirements determination, the described process for determining continuing training requirements relies on the subjective judgment of a technical SME. The process described in Section 7.4 seems at odds with the requirements outlined in 53FMM 300-00-03, *Training Manual*. No document could be produced that succinctly defines and codifies the process.
- 4.9 The training and qualification program for Technical Staff was not reviewed as part of this assessment and therefore no comments or conclusions are warranted.

CONCLUSION AND SUMMARY

Neither Objective 4 nor Criteria 1 and 2 are met. Criterion 3 was not assessed and therefore, no conclusion can be made for it at this time.

The Assessors are concerned that the formal process used to conduct and document a formal analysis of both a job and a task is not procedurally (or equivalent document) prescribed. Unless LANSCE takes the initiative to develop prescriptive guidance relative to conducting and documenting job and task analyses, it runs the risk of having ineffective training developed and implemented. Since the very foundation of training lies upon the bedrock of effective analysis, inconsistent, incomplete, and/or poorly documented job and task analyses can have a deleterious impact on an otherwise good training and qualification program.

The Assessors are further concerned that inconsistencies in training are possible given the lack of specific procedural guidance. This is especially true given the characteristics of LANSCE's initial and continuing training programs described in facility documents. Although Assessors find that LANSCE provides high effective, facility mission-specific training. The concern is that there is no document the succinctly and adequately prescribes LANSCE's initial and/or continuing training programs.

BEST PRACTICES

None

OPPORTUNITIES FOR IMPROVEMENT

None

FINDING

- 4.1 There is a lack of procedural guidance/direction relative to job and/or task analysis.
- 4.2 There is a lack of procedural guidance/direction relative to initial and continuing training leading to a reliance upon subjective decisions by technical SMEs.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-53-LANSCE**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	5	Date:	05/11/04

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Criteria

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH

Documents Reviewed

- LANSCE TIM (not dated/unapproved)
- 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*
- 53FIR 300-06.0, *Providing Institutional and Facility Training*
- 53FIR 300-00-07, *Facility Level Performance Based Training (DRAFT)*
- 53FMM 300-00-03, *Training Manual*
- LANSCE Local Document, *Record Keeping and Document Control*
- Form 28, *Expert-Based Qualification Form*
- Representative EDS Training Record
- LANSCE-7-OP-1-5.01, *1L Target Facility Operator Qualification Card*
- List of 1L Target Operators
- Los Alamos Memorandum, *1L Target Facility Operator Provisional Qualification in the Case of Michael Baumgartner, 150791*
- LIR 308-00-02, *Records Management*
- LANSCE Document, *Nuclear Facility Qualification Programs at TA-53*
- TA-53 Training Questionnaire

Interviews

- Training Team Leader
- LANSCE 7 Acting Group Leader
- LANSCE 10 Acting Group Leader
- Issues Management Coordinator
- Technical Administrative Specialist
- Training Specialist, Training Integration Office (TIO)/TIM Coordinator

DISCUSSION

5.1 The development and use of learning objectives as a part of a Systematic Approach to Training (SAT) process is specifically required by DOE Order 5480.20A, Chapter I, Section 7. b. (2). Although referenced in Section 9.2 of 53FMM 300-00-03, Training Manual, Assessors could find no other references or requirements for the development and use of learning objective in the documents provided to the Assessors. Similarly, Assessors could find no developed learning objectives.

5.2 Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training. The training materials reviewed supported the stated learning objectives and facilitated effective training.

5.3 OJT materials are tailored to facility-specific needs and are prepared and approved by SMEs who are qualified on the particular task being trained.

5.4 None of the documents provided to the Assessors specified requirements pertaining to reviewing, approving, and controlling training materials.

5.5 A continuing training program is implemented. However, none of the documents provided to the Assessors provided any guidance pertaining to designing, implementing, and/or evaluating a continuing training program. One concern of the Assessors is that the last sentence of the first paragraph of Section 7.4, i.e., "Re-training on a periodic basis is called 'continuing training.'" is not consistent with the standard definition of "continuing training," nor does it meet the intent or requirements of DOE Order 5480.20A.

CONCLUSION AND SUMMARY

Objective 5 and Criteria 1, 2, 3, and 4 are not met.

The documents provided to the Assessors for review were, for the most part well written, and easy to understand. However, these documents tended to be written at a very high "descriptive" level as opposed to a more detailed "prescriptive" level. Many of the concerns and/or questions raised by the Assessors over the course of the assessment could have been avoided had the programmatic documents contained more prescriptive detail.

The Assessors are concerned that the above-referenced lack of specificity has the potential to cause inconsistent approach to training analysis, design, development, implementation, and evaluation in both the classroom and OJT settings. For example, continuing training is a critical element of maintaining one's qualification status. Yet, LANSCE does not seem to have a document, or even a section within an existing document that actually prescribes continuing training program requirements.

The Assessors are also concerned that the lack of documented job and task analyses and the lack of effective learning objectives may have a deleterious impact on training activities. For now, the fact that most of the LANSCE 7 personnel have been in their positions for quite some time assures safe and competent operation. However, because the LANSCE training and qualification program requirements largely do not exist on paper, and it is only a matter of time before attrition begins to take its toll on the facility's level of existing expertise, the Assessors are concerned that overall continued training program quality and consistency is at risk.

OPPORTUNITIES FOR IMPROVEMENT

Although the documents reviewed by the Assessors were, for the most part, complete, well written, and easy to understand, they tended to be written “descriptively” as opposed to “prescriptively.” By writing programmatic documents in a prescriptive manner, many of the difficulties related to interpretation, consistency, and approach are eliminated. This lends itself to an increase in overall training program effectiveness.

FINDING

5.1 There is a lack of adequate program description and guidance in approved programmatic documents relative to a continuing training program. This has the potential to adversely impact an otherwise good training and qualification program by permitting incomplete, inaccurate, untimely, and/or ineffective continuing training.

Inspected by:	Stephen A. Arner	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
Assessment of LANL TA-53-LANSCE**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met:	Not Met
Objective Number:	6	Date:	5/14/04

OBJECTIVE 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH

Documents Reviewed

- LANSCE TIM (not dated/unapproved)
- 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*
- 53FIR 300-06.0, *Providing Institutional and Facility Training*
- 53FIR 300-00-07, *Facility Level Performance Based Training (DRAFT)*
- 53FMM 300-00-03, *Training Manual*
- LANSCE Local Document, *Record Keeping and Document Control*
- Form 28, *Expert-Based Qualification Form*
- Representative EDS Training Record
- LANSCE-7-OP-1-5.01, *IL Target Facility Operator Qualification Card*

- List of 1L Target Operators
- Los Alamos Memorandum, *1L Target Facility Operator Provisional Qualification in the Case of Michael Baumgartner, 150791*
- LIR 308-00-02, Records Management
- LANSCE Document, *Nuclear Facility Qualification Programs at TA-53*
- TA-53 Training Questionnaire

Interviews

- Training Team Leader
- LANSCE 7 Acting Group Leader
- LANSCE 10 Acting Group Leader
- Issues Management Coordinator
- Technical Administrative Specialist
- Training Specialist, Training Integration Office (TIO)/TIM Coordinator

DISCUSSION

- 6.1 The *LANSCE Facility Matrix, DOE Order 5480.20A Training Implementation Matrix Chapter 1, General Requirements, 1.07.d.1.c Response* states "After completion of the analysis, it was determined that 1L operators or their supervisors needed no periodic examinations on specific activities, as they perform those activities on a regular basis and, therefore, maintain proficiency. For facility-level or institutional-level training, quizzes and examinations are required, as described in 53 FIR 300-00-07, *Facility-level Performance-Based Training, Approval and Evaluation at TA-53.*"

The majority of the training conducted for 1L Target Facility Operators is in the form of "Structured Mentoring" which uses an informal method of performance evaluations combined with oral questions during the instructional phase of task qualification. The requirements for "Structured Mentoring" at LANSCE is described in 53 FIR 300-03.2.0, *Worker Authorization and Work-Level Training at TA-53, Section 7.9 Providing and documenting structured mentoring.* Section 7.9 does not provide the guidance necessary to ensure that a Structured Mentoring program is implemented with the consistency and effectiveness intended by DOE Order 5480.20A.

In interviews with LANSCE training and line management, the assessors were told that no written examinations were conducted for 1L Target Facility Operators.

Procedures provided for review do not provide the evidence necessary to ensure that this criteria can be met in a consistent and auditable manner consistent with the intent of DOE Order 5480.20A. This criterion is not met.

- 6.2 LIR-300-00-04.2, Attachment B, *Development Steps* states "For required tests, write questions to objectives and validate the test." 53 FIR 300-00-07, *Facility-level Performance-Based Training, Approval and Evaluation at TA-53 (DRAFT), Section 7.24, Develop quiz instrument* states: "If a quiz is necessary, develop questions (and answers) consistent with the objectives. Base the format on the action verbs of the objectives." 53 FMM 300-00-03, *TA-53 Training Manual, Section 13.1 Written*

Examinations states "Group Management with the LANSCE Training Officer determines a recommended passing score for any individual written examination." Section 13.2 Performance Evaluations states "Performance evaluations are based upon SME observation of a candidate's mastery of items presented in the job performance portion of the Initial Qualification or Requalification." Section 13.2 of 53 FMM 300-00-03 also states: The candidate's performance during a qualification/requalification training demonstration(s) and his or her response to knowledge objectives shall be documented."

Procedural documentation exists that require written examinations are based on learning objectives, but do not require performance evaluations or oral questions to be based on learning objectives. Although section 13.2 of 53 FMM 300-00-03 talks about documenting the candidates performance during training demonstration(s), the requirements of what, when, where, and how are not documented. There is no evidence that Division or Group-wide procedures exist that ensure examinations and OJT performance evaluations are administered consistently and controlled consistent with the intent of DOE Order 5480.20A.

Available procedures reviewed do not provide the guidance necessary to ensure that this criterion can be met or ensure it would be met in a consistent and auditable manner. This criterion is not met.

- 6.3 There is no evidence that Division or Group-wide procedures exist that ensure the content of written and oral examinations for facility specific operations is changed at intervals sufficient to prevent compromise. This criterion is not met.
- 6.4 There is no evidence that Division or Group-wide procedures exist that ensure the development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled for facility specific operations. This criterion is not met.
- 6.5 Approved procedures provide minimal guidance with regards to the requirements for remedial training and reevaluation. This criterion is met.

CONCLUSION AND SUMMARY

LANSCE Division has made the decision to use "Structured Mentoring" as the primary means of training and qualification for 1L Target Facility Operators. This determination was made based on using a graded approach for OJT as outlined in DOE-HDBK-1074-95, *Alternative Systematic Approaches to Training*. The use of structured mentoring is an acceptable approach for low-hazard tasks. However, the approved procedures provided do not provide the guidance necessary to ensure that a Structured Mentoring program is implemented with the consistency and effectiveness intended by DOE Order 5480.20A.

LANSCE Division approved procedures, which guide the implementation of the 1L Target Facility Operator training and qualification program do not provide the guidance necessary to ensure this objective is implemented with the consistency and effectiveness intended by DOE

Order 5480.20A. This objective is not met.

FINDING

6.1 LANSCE Division procedures do not provide the guidance necessary to ensure individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Inspected by:	Lawrence Palmer	Approved by:	Gerry Schlapper
	Team Member		Team Leader

**Verification Form for LSAO Nuclear Facility Training Program
 Assessment of LANL TA-53-LANSCE**

Functional Area:	Nuclear Facility Training	Criteria Met/Not Met	Not Met
Objective Number:	7	Date:	5/14/04

OBJECTIVE 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH

Documents Reviewed.

- LANSCE TIM (not dated/unapproved)
- 53FIR 300-03.1.0, *Worker Authorization and Work-level Training at TA-53*
- 53FIR 300-06.0, *Providing Institutional and Facility Training*
- 53FIR 300-00-07, *Facility Level Performance Based Training (DRAFT)*
- 53FMM 300-00-03, *Training Manual*
- LANSCE Local Document, *Record Keeping and Document Control*

- Form 28, *Expert-Based Qualification Form*
- Representative EDS Training Record
- LANSCE-7-OP-1-5.01, *1L Target Facility Operator Qualification Card*
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- TA-53 Training Questionnaire

Interviews.

- Training Team Leader
- LANSCE 7 Acting Group Leader
- LANSCE 10 Acting Group Leader
- Issues Management Coordinator
- Technical Administrative Specialist
- Training Specialist, Training Integration Office (TIO)/TIM Coordinator

DISCUSSION

- 7.1 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps* outlines the three institutional steps in the Los Alamos National Laboratory's training program evaluation process. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of 5480.20A. 53 FMM 300-00-03, *TA-53 Training Manual* does not provide the necessary prescriptive procedural guidance to ensure a comprehensive training evaluation program is implemented to meet the requirement and intention of DOE Order 5480.20A. This criterion is not met.
- 7.2 There is no evidence of procedural guidance available that would ensure this criterion and the intent of DOE Order 5480.20A are met. This criterion is not met.
- 7.3 Procedure LIR 300-00-04.2, Attachment B, *Evaluation Steps*, states that training personnel will "*Review trainee feedback on course and trainee learning*" and "*Revise training and tests, as required.*" This is the only guidance given regarding Level 1 & Level 2 evaluations that this assessor could find. The guidance given lacks the detail necessary to ensure that a comprehensive training evaluation program is implemented to meet the requirement and intention of 5480.20A. This criterion is not met.
- 7.4 There is no evidence of procedural guidance available that would ensure change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner or that changes in job scope are evaluated to determine the need for revision of initial and continuing training programs. This criterion is not met.
- 7.5 There is no evidence of procedural guidance available that would ensure improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems. This criterion is not

met.

- 7.6 There is no evidence of procedural guidance available that would ensure training materials are maintained current, based upon the results of training program evaluations.. This criterion is not met.
- 7.7 There is no evidence of procedural guidance available that would ensure training facilities are evaluated to determine their effect on the training process.. This criterion is not met.

CONCLUSION AND SUMMARY

There is no evidence of procedural guidance available that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge. This objective is not met.

FINDING

- 7.1 There is no evidence of procedural guidance that would ensure a systematic evaluation of training effectiveness and its relation to on-the-job performance.

Inspected by:	Lawrence Palmer	Approved by:	Gerry Schlapper
	Team Member		Team Leader

SEPARATION

PAGE

NATIONAL NUCLEAR SECURITY ADMINISTRATION

LIVERMORE SITE OFFICE

Nuclear Facilities Training and Qualification Programs
Assessment Report

For
Lawrence Livermore National Laboratory

August 3, 2004

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Signature Page

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EXECUTIVE SUMMARY

At the direction of the Livermore Site Office (LSO) Technical Deputy Manager for Safety and Environmental Programs, a plan for assessing the training and qualification programs for Lawrence Livermore National Laboratory (LLNL) nuclear facilities to the requirements of DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, was developed. The assessment plan, which contains eight performance objectives, is included as Attachment A. These objectives and their supporting criteria were selected from DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*. A summary of the team's assessment of each objective is provided in the body of the report and individual assessment forms are included as Attachments B, C, and D.

The on-site phase of the assessment was conducted during the period of July 12 through July 16, 2004. To increase efficiency and effectiveness, the Assessment Team (Team) capitalized on the existing LLNL nuclear facility organizational structure. Specifically, one team member was assigned to the "Superblock" facilities (i.e., Buildings 239, 331, 332, and 334); one team member was assigned to both the Decontamination and Waste Treatment Facility (i.e., Buildings 695 and 696) and the Radioactive and Hazardous Waste Management (RHWM) Division Facilities; and one team member was assigned to the Heavy Element Facility (i.e., HEF or Building 251). The remaining two team members provided assistance and support to the other three team members. After all the assessment information from the three facility groupings was collected, it was analyzed by the Team to determine if weaknesses identified individually in the different facilities were indicative of systemic issues. As a result of that analysis the Team found two systemic issues:

- The programmatic documentation supporting the training and qualification programs for the LLNL nuclear facilities lacks sufficient specificity to assure consistency in approach, level of rigor and discipline, and application of requirements.
- Continuing training programs for instructional staff are weak or nonexistent.

The issue of significance, indeed, the one that lies at the root of many of the issues identified later in this report, is that none of the facility programs reviewed are supported by prescriptive programmatic process guidance as required by DOE Order 5480.20A. The Order requires that the training and qualification program be documented and approved, and that the documentation is basis for the management of the program. Although the facilities presented significant training materials in documented form (e.g., lesson plans, OJT guides, etc.), absent documented training program *process* guidance containing sufficient specificity to ensure a consistent approach and predictable results, there is a concern that the existing level of training program excellence for the LLNL nuclear facilities will not be sustained should current Line and Training Management teams change. The lack of prescriptive programmatic guidance fosters reliance upon an expert-based approach to training and qualification, not a standards-based one as the Order directs.

1.0 INTRODUCTION

At the direction of the Livermore Site Office (LSO) Technical Deputy Manager for Safety and Environmental Programs, a plan for assessing the training and qualification programs for Lawrence Livermore National Laboratory (LLNL) nuclear facilities to the requirements of DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, was developed. The assessment plan, which contains eight performance objectives, is included as Attachment A. These objectives and their supporting criteria were selected from DOE-STD-1070-94, *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*. A summary of the team's assessment of each objective is provided in the body of the report and individual assessment reports are included as Attachments B, C, and D.

2.0 PURPOSE

This assessment was designed to evaluate the effectiveness and consistency in implementation of the Lawrence Livermore National Laboratory (LLNL) nuclear facilities training and qualification programs. Specifically, the assessment was conducted to verify the adequacy of developing, sustaining, and monitoring fully qualified operational, technical, and management staff in nuclear facilities who meet the minimum requirements established in DOE Order 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

3.0 SCOPE

The assessment's scope included only the LLNL nuclear facilities to include the "Superblock" facilities (i.e., Buildings 239, 331, 332, and 334), the Decontamination and Waste Treatment Facility (i.e., Buildings 695 and 696), the Radioactive and Hazardous Waste Management Division Facilities, and the Heavy Element Facility (HEF or Building 251). This report contains the results of the assessment.

4.0 BACKGROUND

In July of 2003, the Defense Nuclear Facility Safety Board (DNFSB) identified weaknesses in implementing the requirements of DOE Order 5480.20A. The DNFSB's letter communicated their concerns over the adequacy of the implementation of training programs in NNSA nuclear facilities.

In response to the DNFSB's concerns, LSO Technical Director for Safety and Environmental Programs committed LSO to complete a review of the training and qualification programs for the LLNL nuclear facilities in accordance with DOE O 5480.20A. To meet this commitment, LSO requested support from the NNSA Service Center (NNSA/SC). NNSA/SC developed a plan to conduct a complete assessment of the LLNL nuclear facilities training and qualification

programs' compliance with the requirements of DOE Order 5480.20A using DOE-STD-1070-94 as the basis for the assessment.

During the week of July 12 – 16, 2004, the Team conducted the on-site portion of the assessment. Individual Team members submitted their assessment results (i.e., Form 1s). The forms identify and discuss the Team member's findings and conclusions relative to their assigned facilities.

5.0 ASSESSMENT RESULTS

The results of the assessment activities from the facilities were collected and analyzed by the Team to determine if weaknesses identified individually were systemic in nature. The outcome of the Team's review and analysis was that there are two systemic issues; specifically:

- The programmatic documentation supporting the training and qualification programs for the LLNL nuclear facilities lacks sufficient specificity to assure consistency in approach, level of rigor and discipline, and application of requirements.
- Continuing training programs for instructional staff are weak or nonexistent.

The root of many of the issues identified during the review is that none of the reviewed facility programs are supported by prescriptive programmatic process guidance as required by DOE Order 5480.20A. The Order requires that the training and qualification program be documented and approved, and that the documentation is basis for the management of the program. Although the facilities presented significant training materials in documented form (e.g., lesson plans, OJT guides, etc.), absent documented training program *process* guidance containing sufficient specificity to ensure a consistent approach and predictable results, there is a concern that the existing level of training program excellence for the LLNL nuclear facilities will not be sustained should current Line and Training Management teams change. The lack of prescriptive programmatic guidance fosters reliance on an expert-based approach to training and qualification, not a standards-based one as the Order directs.

Detailed evaluations for each objective are provided in appendix B, C, and D of this report. The summary of the results is provided below.

OBJECTIVE 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

Line management owns and controls the training for the LLNL nuclear facilities as a whole. There is an effective central training organization and Training Manager. The central training programs are effectively integrated into the respective nuclear facilities. The respective facilities are organized and staffed in such a way that training is an integral component of the management team and organization.

LLNL uses a laboratory-wide, on-line automated training records system known as the Livermore Training Records and Information Network (LTRAIN). LTRAIN is an extremely powerful program that maintains a wide range of records and data and is capable of producing an even wider range of reports. In all cases, when records were requested, LTRAIN produced the desired records quickly. In addition to LTRAIN, the respective facilities maintain hardcopy records related to their internal training programs.

The team's conclusion is that Objective 1 is met.

The results of the respective facility assessments are shown in the tables that follow. As a means of clearly and easily indicating the results of the assessment, the respective groupings are assigned: Superblock = Group 1, DWTF and RHWM = Group 2, and HEF = Group 3. Multiple group numbers indicate identical findings were present in more than one facility group and are counted as multiple findings.

The results of Objective 1 are as follows:

FND#	Group #	FINDINGS
	1, 2, 3	None

BP#	Group #	BEST PRACTICES
1.1	1 (also applies to 2 & 3)	LLNL has established two closely related but separate entities (i.e., Training Program Committee [TPC] and the Training Working Group [TWG]) that serve as Laboratory cross-cutting management tools to maintain an awareness and overview of all issues related to training at the LLNL. These groups work to resolve issues as appropriate. In addition to the LLNL Training Manager, the members of the TPC include the training managers from other facilities, key line managers, and other key Laboratory personnel. In addition to the LLNL Training Manager as its Chair, the TWG is composed of representatives from the various Laboratory Teaching Organizations. This is a best practice since it has proven itself to be a very efficient and cost effective tool in ensuring training related issues, matters, requirements, etc., are promulgated and implemented, as necessary, across the Laboratory in a timely manner.

1.2	1	The Superblock Training Manager has instituted a Personnel Evaluation Committee (PEC). The PEC is comprised of Senior Certified Fissile Material Handlers and equivalent positions. Using the services and expertise of the Personnel Evaluation Committee as a “referee” to review and evaluate examinations and performance evaluations, prior to them being administered to the trainee, is a best practice. When required, the PEC is tasked to review and approve examination materials thereby ensuring that the examination/evaluation content is current with facility equipment, policy, procedure, and practice. This is an innovative and effective technique to assure that the workers in the facility possess the most current knowledge and skills required for safe job performance.
1.3	1 (also applies to 2 & 3)	In an effort to minimize duplication of effort with the resulting reduction in costs, the LLNL has adopted an approach to training development requiring training organizations to query the DOE’s Cross-Cutting Training Forum (CCTF) to determine whether a course that meets the organization’s needs already exists within the complex. This is a best practice in that by minimizing the “not invented here syndrome,” not only does the LLNL streamline its processes and thereby save in terms of labor and fiscal resources, it affords itself the opportunity to adopt the best practices of other successful organizations. The DOE has invested heavily over the years to implement this concept. It is refreshing to see its use mandated in a policy document.

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
	1	None
1.1	2	The RHWM organization relies upon referenced document 8 and 12, and the expertise and experience of their employees to implement the training programs. To improve upon the existing program, the RHWM, should consider developing and implementing an approved training program policy manual and/or supporting procedures to minimize the impact to the training program when members of the RHWM training team leave and take their knowledge, skills, and abilities with them.
1.2	2	The RHWM organization relies upon referenced document 8 and 12, and the expertise and experience of their employees to implement the training programs. To improve upon the existing program, the RHWM should consider developing and implementing approved training program policy manual and/or supporting procedures that would include the RHWM and DWTF training program goals and objectives. These goals and objectives would guide the RHWM with the implementation of the training programs and assist the RHWM training organization with evaluating RHWM’s and the DWTF’s implementation of the training program.
1.1	3	The B251 training staff should work with the LLNL training staff to use LTRAIN to automate the B251-specific training reports.

OBJECTIVE 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

The LLNL nuclear facilities have and use instructional staffs (e.g., classroom, OJT instructors/evaluators, mentors, etc.) that possess a high degree of technical knowledge and skill. The Team found that the instructional staffs that are engaged in mentor type activities are also experienced and accomplished trainers in their own right. However, the Team is concerned that a potential weakness in developing, maintaining, and enhancing instructional skills of the instructional staff may exist. Specifically, none of the documents provided to the Team specified a program or requirement for an instructor or OJT Instructor/Evaluator/Mentor to periodically upgrade or refresh his/her instructional skills. This appears to be a weak link in an otherwise robust training program.

The team's conclusion is that Objective 2 is met.

The results of Objective 2 are as follows:

FND#	Group #	FINDINGS
	1, 2, 3	None

BP#	Group #	BEST PRACTICES
	1, 2, 3	None

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
2.1	1	The ability to field highly trained and qualified personnel is a key ingredient in ensuring all aspects of operations and maintenance related to the Superblock are done safely, effectively, efficiently, and in accordance with the Documented Safety Analysis. An element of this relies on providing facility-/task-specific training using innovative and effective learning techniques. By developing and implementing an instructional skills-enhancing, continuing training program for Superblock instructional staff, management will be assured that trainees are receiving required training via the most up-to-date training techniques and processes available.
2.1	3	The process for evaluating training and instructor performance would be enhanced and strengthened by evaluating the existing process against the guidelines in Section 6 of DOE-NE-STD-1001-91, <i>Guide to Good Practices for Training and Qualification of Instructors</i> , and implementing necessary improvements. This evaluation would also include those technical personnel serving as OJT instructors.
2.2	3	The ability to field highly trained and qualified personnel is vital to ensure that operations in the HEF are performed safely, efficiently, and in

		accordance with the B251 Safety Analysis Report and Technical Safety Requirements. An element of this relies on providing training using innovative and effective learning techniques. By developing and implementing an instructional, skills-enhancing continuing training program for HEF instructional staff, management will be assured that trainees are receiving required training via the most up-to-date training techniques and processes available.
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OBJECTIVE 3

Trainees meet the minimum requirements for entry into the training program.

LLNL has adopted and implemented a two-phased approach to training. The Facility Managers and Facility Points of Contact have the greatest responsibility to ensure that personnel selected or assigned meet entry-level requirements. They must ensure that that the position entry-level requirements are included in all job postings. Human Resources is responsible for ensuring that position specific minimum education and experience requirements are established and satisfied by all employees.

Specifically, when Human Resources posts a job, the entry level requirements are included in the job posting, provided by hiring supervisors. Human Resources is responsible for ensuring these entry level requirements are met by all job applicants. This comprises the first or Base Skills phase. The second phase deals with position-specific training. Every new employee is required to complete a functional position specific questionnaire that is entered into LTRAIN. LTRAIN then creates the employee's position specific training plan. If the employee changes jobs, even within the same functional position category, a new LTRAIN questionnaire must be completed and the new training plan completed as well. On an annual basis, these LTRAIN training plans are reviewed and revised by the employee's payroll supervisor with concurrence by the employee. If the need arises to change the entry-level requirements for the position, based on employee performance, this is done through Human Resources.

However, no documentation was provided that described the process used by LLNL to evaluate training plans to determine the training plan entry level requirements, nor was there documentation provided that described the process used by LLNL to evaluate employees to determine if they meet the training plan entry-level requirements and what actions are taken by LLNL when employees do not meet training plan entry-level requirements. Furthermore, none of the training plans reviewed listed the entry-level requirements; however, the course descriptions did identify the prerequisite courses.

The team's conclusion is that Objective 3 is met.

The results of Objective 3 are as follows:

FND#	Group #	FINDINGS
	1, 2, 3	None

BP#	Group #	BEST PRACTICES
	1, 2, 3	None

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
3.1	1 (also applies to 2)	Development of a procedure for personnel selection would facilitate consistent selection/assignment of new employees. This procedure would also serve as a process to train personnel that are new to the hiring process.
3.1	2	RHWM should formally document the position entry-level, and the training program entry-level, establishment and verification processes. Formalizing and documenting these processes will better ensure that personnel will satisfy both the position, and training program entry-level requirements for the positions listed in the RHWM and DWTF TIMs.
3.2	2	If the experience and educational requirements in the Job Series Leveling Matrix are used in developing job postings for the positions listed in the RHWM TIMs, then a process that validates that these requirements meet or exceed the entry-level requirements in DOE O 5480.20A, Chapter IV should be formalized and documented.

OBJECTIVE 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

All functional positions within the LLNL's nuclear facilities have been formally analyzed and the required training that will ensure consistent and proper job performance has been identified. The results of the analyses are documented as the specific training requirements listed on the qualification cards, or training plans, for the positions. For example, the qualification card for the Senior Certified Fissile Material Handler (FMH) is subdivided into the three FMH positions, i.e., Associate FMH, Certified FMH, and Senior Certified FMH. Each subdivided position lists all of the position specific tasks that are associated with that position. These tasks are numbered in such a way that there is a direct correlation between a task and its corresponding OJT element.

On a related but separate level, the Livermore Training Requirements and Information Network (LTRAIN) is used to quickly and efficiently identify and track the required training for any given functional position. All new employees are required to complete a position-specific questionnaire in LTRAIN (however, the RHWM Training Organization completes the questionnaire for RHWM and DWTF employees in qualified positions). When completed, LTRAIN automatically processes the information and produces a position-specific training plan that the new employee must complete (however, the RHWM Training Organization develops the training plans for RHWM and DWTF employees in qualified positions). This training plan is reviewed and updated on an annual basis by the employee's supervisor, with concurrence by the

employee (however, the RHWM Training Organization reviews and updates the training plans for RHWM and DWTF employees at least every two years). Additionally, if the employee is matrix support to another organization, a new questionnaire is completed for the new position.

The Team finds that the training programs for LLNL nuclear facilities are based on current facility safety analysis reports, procedures, technical and professional references, and DOE Guidelines and Orders. When a change to a facility's configuration (e.g., DSA, TSR, procedure, equipment, etc.), regulatory drivers, etc., occurs, a formalized process is initiated to analyze the impact on the facility and its operations. Training is an identified element in the overall process.

The team's conclusion is that Objective 4 is met.

The results of Objective 4 are as follows:

FND#	Group #	FINDINGS
4.1	1	The lack of a formally defined and documented Technical Staff training program is a concern for the Assessors as it is a clear violation of a DOE O 5480.20A requirement as well as an apparent error in the facilities' respective TIMs.

BP#	Group #	BEST PRACTICES
4.1	1 (also applies to 2 & 3)	The use and application of the LTRAIN program to quickly and automatically prepare a person and position-specific list of the required training for a person either beginning employment at LLNL or entering a new functional position is a best practice. From the demonstration provided to the Assessors, it is apparent that LTRAIN is a powerful tool that is being used to advantage. All new employees must complete a position-specific questionnaire in LTRAIN prior to beginning work. In a few moments, the new employee has a complete listing of all required training for their new position. The use of a program that is typically thought of as an electronic records management system in a way that creates a variety of reports that will allow LLNL managers and staff to proactively achieve qualification is noteworthy.

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
	1, 2, 3	None

OBJECTIVE 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

The training program materials reviewed by the Team are of a consistent high quality. They are well documented and tailored to the specific needs of a particular functional position. Observation of training in the field confirmed that the training produces the desired results in job performance.

There is a concern that the continuing training program is inadequately documented in a procedure/policy type document and therefore has the potential for inconsistent implementation. This is especially true relative to the continuing training requirements for certified positions as defined in the Order. There is ample evidence that continuing training is indeed being accomplished and that it is tailored to specific position requirements. What is missing is a document that defines the specifics for the continuing training program.

The team's conclusion is that Objective 5 is met.

The results of Objective 5 are as follows:

FND#	Group #	FINDINGS
	1, 2, 3	None

BP#	Group #	BEST PRACTICES
	1, 2, 3	None

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
5.1	1	The existing lack of programmatic specificity relative to the Superblock continuing training program is a weak link in an otherwise robust and effective training program. Defining and documenting the Superblock's approach and requirements pertaining to its continuing training program would codify and therefore strengthen an otherwise good program. Applying the guidance contained in DOE-STD-1063-93, <i>Guide to Good Practices for Continuing Training</i> , to formalize and define the continuing training program for the various Superblock facilities' functional positions would ultimately save time and resources.

OBJECTIVE 6

*Training is conducted in the setting most suitable for the particular training content.
 Training is consistently and effectively presented using approved lesson plans and other training guides.*

Objective 6 is perhaps the strongest of the eight objectives for the LLNL nuclear facilities' training and qualification programs in general. All training conducted within the various LLNL nuclear facilities is specifically designed to ensure that personnel can consistently, effectively, and safely perform the functions of their respective jobs. The training setting is primarily of the on-the-job training and/or mentoring variety and it is tailored to maximize real world work place conditions and activities. The training materials are of a consistently high quality and provide the appropriate level of rigor and discipline, presented in the manner and setting most suited for maximum learning.

The team's conclusion is that Objective 6 is met.

The results of Objective 6 are as follows:

FND#	Group #	FINDINGS
	1, 2, 3	None

BP#	Group #	BEST PRACTICES
6.1	1	Course PU-4001-A is an excellent example of highly effective targeted training. This is a 40-hour course targeted for those personnel who are progressing into the ranks of Associate Fissile Material Handler, the entry-level FMH position. The course is designed to provide trainees who have little or no experience working in a glovebox with maximum hands-on glovebox experience in a "cold" (i.e., uncontaminated) glovebox. This is an intense, highly interactive course that exposes the trainees to the full range of glovebox operations, including abnormal and emergency response conditions. The course also contains two formal, written examinations and one comprehensive performance evaluation. This is one of the best uses of a laboratory setting that the Assessor has seen and is a Best Practice.
6.1	3	The Risk Reduction Program (RRP) is broken down into three phases, and each phase is documented by a work plan. The work plans were analyzed for training requirements; the operators received training specific to the work plan and practiced the work in a cold environment prior to actually performing the work in the field. As structured, this three-phase process appears to go beyond the minimum DOE requirements and represents a best management practice.

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
6.1	3	The OJT trainers had completed the LLNL Train the Trainer course. However, it was noted that continuing training has not been provided to the OJT trainers. Continuing training for the trainers could enhance the overall training program.
6.2	3	Enhancing the current evaluation format and strengthening the requirement for evaluations to be submitted could improve the evaluation of training.

OBJECTIVE 7

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Trainees for both certified and non-certified positions for the LLNL nuclear facilities are regularly and routinely examined for mastery of learning objectives (i.e., knowledge and skills). The examination instruments (e.g., written, oral, and performance evaluation) are consistently well-designed, are based on learning objectives, and adequately measure a trainee’s knowledge and skills. The weakness in an otherwise good program is a lack of documentation with sufficient specificity relative to the “how to” processes associated with designing, developing, controlling, administering, grading, and remediating examinations. The Team is concerned that absent prescriptive documentation, consistency in examination content (i.e., adequate rigor) is placed in jeopardy. This in turn leads to having potentially inadequately trained and qualified workers in the facility.

The team’s conclusion is that Objective 7 is met.

The results of Objective 7 are as follows:

FND#	Group #	FINDINGS
	1, 2, 3	None

BP#	Group #	BEST PRACTICES
	1, 2, 3	None

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
7.1	1	<p>The overall lack of programmatic documentation with sufficient specificity to ensure a consistent approach yielding predictable results in the area of examination is a weakness in an otherwise sound program. The fact that examinations are being developed and administered is not in question. The fact that trainees receive remediation as needed is substantiated. The fact that examinations are controlled is well known. The common weakness is that none of these activities/processes are adequately documented. If the current Superblock training management staff were to become no longer available, one wonders if the examination program would be able to continue uninterrupted.</p>
7.1	2	<p>The EPD, RHWM, and the DWTF training programs do not have a formally documented process in place for changing the content of written and oral examinations at intervals sufficient to prevent compromise. It is recommended that the EPD and RHWM training organizations evaluate their training courses to determine which courses would warrant development of a formal documented process for revising examinations more than once a year and/or having multiple versions of examinations to prevent compromise. Based on the results of their evaluation, the EPD and RHWM training organizations should document their determined processes to prevent examination compromise.</p>
7.2	2	<p>The EPD, RHWM, and DWTF training programs do not have a formal process in place for development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations to ensure that they are formally controlled. It is recommended that the EPD and RHWM training organizations should develop a formal documented process that guides the training staffs with the development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations.</p>
7.3	2	<p>The EPD, RHWM, and the DWTF training programs do not have a formal documented process in place for conducting remedial training and reevaluation. The existing process allows employees to retake training courses as many times as necessary until they successfully complete the written examination or performance evaluation. It is recommended that the EPD and RHWM training organizations develop a formal documented process that guides the training staffs in determining the cause of the training failures, development of remedial training and reevaluation plans, and the implementation of the remedial training and reevaluation plans.</p>

OBJECTIVE 8

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

In general, the LLNL nuclear facilities have implemented a mixture of formal and informal approaches to conducting and documenting training program effectiveness and worth. These are on-going processes and programs, but they suffer from inconsistent development and implementation of programmatic documentation. There is no question that the various elements and aspects of the training programs are evaluated and that the results of these evaluations are used to refine and enhance the training programs. However, some of the documents provided to the Team did not specify or require any type of formal, regular training program evaluation. The fifth element of the systematic approach to training (SAT) model is Evaluation and Feedback. This is an integral element of the SAT process. The LLNL ES&H program requires that each directorate develop and implement a self-assessment program which is to consider including the Laboratory Self-Assessment Focus Areas, which are considered to be the minimal requirements. Although this program is well documented, and training programs are evaluated periodically, it does not have the necessary specificity to ensure the consistent implementation of systematic approach to training (SAT) requirements for the LLNL nuclear facility training programs. Absent a sufficiently specific and documented program to ensure the consistent implementation of requirements, the evaluation element of the SAT with its associated benefits often is not performed.

The team's conclusion is that Objective 8 is met.

The results of Objective 8 are as follows:

FND#	Group #	FINDINGS
	1, 2, 3	None

BP#	Group #	BEST PRACTICES
8.1	3	During the early stages of the HEF RRP it was noted that technical expertise beneficial to the project was available from former HEF employees. The project employed several retirees to enhance the available expertise. This review recognizes that the retirees were a valuable resource to the overall RRP.

OFI#	Group #	OPPORTUNITIES FOR IMPROVEMENT
8.1	1	Evaluation of training within the Superblock suffers from inadequate programmatic documentation. The end product of good, effective training is a highly trained and proficient work force. At facilities similar to those in the Superblock, the results of improper performance can be

		catastrophic. Every effort should be made to ensure that the training provided to workers is of the highest quality and produces the maximum desired results. The otherwise sound and robust nature of the Superblock training program would be greatly enhanced by documenting the processes related to training, including those related to training program evaluation.
8.1	3	The instructional skills of the instructors are not regularly evaluated in a formal and documented manner. Additional evaluation by training professionals would enhance the program by providing feedback to instructors that would be factored into future OJT

6.0 CONCLUSION

LLNL has implemented a robust and effective DOE O 5480.20A training and qualification program for its nuclear facilities. Line management clearly owns, and is actively involved, in the training and qualification programs for nuclear facility personnel. Line management has also adequately resourced the training function, both the LLNL central training organization and the respective training organizations, for the LLNL nuclear facilities.

It was obvious to the Team that training in general at LLNL nuclear facilities is a viable and active process, one that is taken seriously by management, facility staff, and trainees. The training programs assessed by the Team were found to be well-designed and implemented, and in general agreement and compliance with the requirements of DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*. Although the Team occasionally found individual programmatic weaknesses, in all cases, the respective facility management and training staffs were eager to find alternative approaches that would ameliorate the noted deficiency. The Team found this constructive attitude refreshing.

As discussed earlier, and supported in numerous places throughout this report, the Team found that the single most significant weakness (indeed, the one that lies at the base of almost all of the Team's observations) is that the training and qualification program for LLNL's nuclear facilities is insufficiently documented to ensure that the existing level of excellence in training and qualification would be carried forward should a change in management/leadership occur at either the Laboratory or individual facility level. The Team is concerned that this lack of specific programmatic direction has the potential of producing unpredictable results, thereby leading to inconsistently and/or inadequately trained personnel. The Team found ample evidence that effective training was being conducted throughout the various LLNL nuclear facilities. The Team also found that this training was well analyzed and documented, and was producing the desired results. However, absent adequate documented programmatic process guidance containing sufficient specificity to ensure consistent and predictable results, the existing LLNL training and qualification program appears to rely heavily on an expert-based approach, an approach that does not meet the intent of the Order.

The Team found several areas that it considers to be Best Practices. These observations lend credence to the Team's earlier conclusion that LLNL management owns and plays an active role

in the training and qualification process for its nuclear facility personnel. These Best Practices are enumerated and discussed elsewhere in this report, and include Laboratory crosscutting training support organizations, highly effective training conducted in laboratory settings, and using the Department of Energy's program to avoid duplication of effort.

In summary, the Team concludes that the training and qualification programs for the LLNL nuclear facilities are robust and effective; however they possess several weaknesses. Although several weaknesses exist, the Team finds that the LLNL nuclear facilities training and qualification programs generally meet both the intent and requirements of DOE O 5480.20A. By addressing and resolving the Opportunities for Improvement noted in this report, the LLNL nuclear facilities training program could serve as a model for similar sites.

**Attachment A - Lawrence Livermore National Laboratory (LLNL) Nuclear Facility
Training and Qualification Assessment Plan**

Lawrence Livermore National Laboratory (LLNL)

Nuclear Facility Training and Qualification
Assessment Plan

July 7, 2004

Approved by: Original signed by Lynn Maestas Date: July 7, 2004
Lynn Maestas, Team Leader

LLNL Nuclear Facility Training and Qualification Assessment Plan
July 2004

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LLNL Nuclear Facility Training and Qualification Assessment Plan
July 2004

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1.0 INTRODUCTION

Lawrence Livermore National Laboratory (LLNL) is committed to ensuring a safe and healthful work environment consistent with applicable regulations and DOE directives. An effective Contractor Nuclear Facility Training and Qualification Program is critical to establishing and maintaining that environment.

1.1 Purpose

At the direction of the Livermore Site Office (LSO) Technical Deputy for Safety and Environmental Programs, this assessment will evaluate the effectiveness and consistency in implementation of the LLNL nuclear facility training and qualification program. Specifically, the assessment is being conducted to verify the adequacy of developing, sustaining and monitoring fully qualified operators and staff in nuclear facilities who meet the minimum requirements established in DOE O 5480.20A, Chg 1, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

1.2 Scope

The assessment will examine the line organization's effectiveness in defining and implementing the programmatic elements of nuclear facility training and qualification program.

1.3 Sequence of Activities

The assessment will consist primarily of document reviews and interviews with the line organization managers and training managers responsible for implementing a training and qualification program that is compliant with DOE O 5480.20A. The team will conduct observations of training activities and facility operations as necessary to provide insight into the status of LLNL training for nuclear facilities. The team will use the Criteria and Review Approach Document (CRAD) (Attachment A), to guide the review and it is intended to meet DOE-STD-1070-94; *DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs*.

1.3.1 Preliminary Document Review

This review consists of a preliminary review of programmatic documents identified and requested prior to the date of a scheduled on-site review. This approach is intended minimize the impact on the LLNL and LSO staff. Some document will be reviewed on site and are primarily those that have privacy (i.e. test results) or security implications.

1.3.2 On-Site Assessment

At the completion of the preliminary document review, the team will commence the on-site portion of the assessment. The on-site assessment will rely much more heavily on observing training activities, interviewing instructors and line organization technical staff, detailed reviews

of training material content. Interviews and requested observation of training and facility operations will be scheduled prior to arriving on-site to minimize impacts on the LLNL and LSO staff and to ensure efficient use of the team's on-site time.

1.3.3 Review Results

At the conclusion of the on-site review, the team will analyze the data collected and as necessary request additional data from the appropriate LLNL and/or LSO organization. A Verification Form will be prepared for each objective in the CRAD and will document the basis for the conclusions reached concerning the objective and criteria. Findings identified during the review of the individual CRAD that warrant the attention of LLNL and LSO management will be clearly identified within the Verification Form. Individual Verification Forms will be included as an attachment to the final report. A sample Verification Form is included as Attachment B.

Each area defined in the CRAD is intended to guide the evaluation of the status of implementation of an effective nuclear facility training and qualification program. As such, the Verification Form discussion of the results will include information concerning the status of implementation.

1.3.4 Reporting Results

The team will develop a draft of the final assessment report communicating the assessment team's findings and evaluation of the training and qualification program for nuclear facility personnel and submit it to LSO to verify the accuracy of the findings. It will be the responsibility of LSO to direct LLNL to provide factual accuracy comments on the report. The final report will then be submitted to the LSO Technical Deputy for Safety and Environmental Programs. The report will state the team's conclusion as to the status of implementation of an effective nuclear facility training and qualification program. It will provide a detailed listing of all findings and areas for improvement as well as identify any noteworthy practices the team observed.

2.0 ASSESSMENT OBJECTIVES

As stated, the review will be conducted using the CRAD. The detailed listing of evaluation criteria for the high-level review are provided in Attachment A, Criteria and Review Approach Document. The assessment team will evaluate each Laboratory organization conducting work in nuclear facilities to determine their status in meeting the following objectives.

2.1 Objective 1

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

2.2 Objective 2

Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

2.3 Objective 3

Trainees meet the minimum requirements for entry into the training program.

2.4 Objective 4

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

2.5 Objective 5

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

2.6 Objective 6

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

2.7 Objective 7

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

2.8 Objective 8

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

3.0 ADMINISTRATION

3.1 Meetings and Presentations

The assessment will be an open process with the goal of maximizing the opportunity to achieve a full understanding of the effectiveness of the LLNL nuclear facility training and qualification program. On request, the team will brief the LSO Technical Deputy for Safety and

Environmental Programs or a designated representative at any point during the on-site phase of the assessment.

At the end of the on-site phase, the Team Leader will conduct an out-brief with the LSO Technical Deputy for Safety and Environmental Programs. The briefing will include the findings of the team and the basis for any recommendations that will be made concerning implementation of the nuclear facility training and qualification program.

3.2 Documentation

The assessment will be guided by the CRAD. The documentation will be structured to show that the elements of the CRAD were evaluated and that the criteria were met or what aspects of the criteria were found to be deficient. The purpose of the documentation is to provide information concerning details of the review to individuals who did not witness the review.

In order that the schedule for assessment is maintained and the draft report complete prior to dissolution of the team, each team member will document his/her work as it is conducted. This means daily input to the Verification Forms. Each reviewer will be provided with a preliminary Form 1 containing the objective and criteria for each CRAD. In the event that issues of noteworthy or questionable practices are identified, they will be documented within the Verification Forms. If the final report to the LSO Manager recommends technical direction to organizations, those actions will be supported by detailed information on the Verification Forms. The team members are responsible for ensuring that the Form 1s do not contain Classified or Unclassified Controlled Nuclear Information (UCNI).

3.3 Team Composition

The team consists of the following individuals:

Team Leader	Lynn E. Maestas, NNSA Service Center
Team Member	Stephen A. Arner, Epsilon Systems Solutions, Inc.
Team Member	Mark D. Schares, Epsilon Systems Solutions, Inc.
Team Member	Karlisa R. Benally, NNSA Service Center
Team Member	Danny Yee, Livermore Site Office

4.0 SCHEDULE

For planning purposes, the projected schedule for the nuclear facility training and qualification program assessment at LLNL is as follows:

LLNL Training Review

Document Review	On-going
On-Site (as required)	July 12 - 16, 2004
Draft Summary Report	July 30, 2004
Final Summary Report	August 3, 2004

ATTACHMENT A – Criteria and Review Approach Document

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ATTACHMENT A
Criteria and Review Approach Document

TRAINING & QUALIFICATION (TQ)
PERFORMANCE OBJECTIVE

TQ-1 The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
- DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

ACCEPTANCE CRITERIA:

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

Review Approach:

1. Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training
2. Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control
3. Selected individual training records
4. Documents that define the goals, objectives and plan for implementing the training and qualification program
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

PERFORMANCE OBJECTIVE

TQ-2 Training staff (contractor and subcontractor) possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
 - 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
 - DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

Acceptance Criteria:

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations

Review Approach:

1. List of qualified instructors (classroom and OJT)
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification
3. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team
5. Selected training staff training records

PERFORMANCE OBJECTIVE

TQ-3 Trainees meet the minimum requirements for entry into the training program.

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
 - 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
 - DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

Acceptance Criteria:

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

Review Approach:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position
2. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

PERFORMANCE OBJECTIVE

TQ-4 Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
 - 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
 - DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

Acceptance Criteria:

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

Review Approach:

1. Copies of facility- or organization-specific Job and Task Analysis implementing procedures
2. The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position
3. The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position
4. Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

PERFORMANCE OBJECTIVE

TQ-5 Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
 - 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
 - DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

Acceptance Criteria:

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

Review Approach:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved
2. Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current
3. Existing lesson plans and/or OJT guides for training selected technical staff positions
4. Documentation of completed continuing training
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

PERFORMANCE OBJECTIVE

TQ-6 Training is conducted in the setting most suitable for the particular training content. Training is consistently and effectively presented using approved lesson plans and other training guides.

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
- DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

Acceptance Criteria:

1. Training is conducted using approved and current training materials. Lesson plans that meet criterion 5.2 are used to deliver training. Training in all settings is sequenced effectively to provide completion of prerequisite knowledge and skills prior to receiving training on more advanced knowledge and skills. Individualized instruction, when used, provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives.
2. Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. Instructors use the references, tools, equipment, and conditions of task performance that reflect actual job conditions to the extent practicable. Trainee demonstration of task performance is evaluated on actual plant equipment whenever feasible.
3. On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. Line management implements standards and policies pertaining to the conduct of on-the-job training (OJT). Personnel who are designated by line management and are trained in the instructional techniques peculiar to OJT conduct and evaluate it. OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Part time OJT instructors and/or evaluators are trained in OJT instructional methods. Completion of OJT and task qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible. Task performance evaluation is conducted using valid methods and consists of evaluating trainee performance using established standards prior to task or job qualification. Structured on-the-job familiarization is normally used in lieu of formal on-the-job training and evaluation for managers, non-certified supervisors, and technical staff. During this phase, the candidate works closely with supervisors and managers in their day-to-day job functions, including decision-making.
4. Laboratory training is effectively and consistently presented. Laboratory training provides hands-on application of principles conveyed during the classroom training and encourages analytical skills development. The training program content is implemented as outlined by approved training materials and is structured to provide practical experience. Laboratory training activities encourage direct trainee participation in the learning process. Conditions of

task performance, references, tools, and equipment reflect actual job performance requirements to the extent possible. Evaluation of trainee performance verifies that the trainee has obtained the essential knowledge and performance skills associated with the job.

5. Simulator training is effectively and consistently presented, where appropriate. Training on a facility control room or process simulator is used to build operating team skills and/or enhance the effectiveness of hands-on skill training. An appropriate simulator is used for hands-on training to demonstrate operational characteristics and for recognition and control of normal, abnormal, and emergency facility/process conditions. Differences between the simulator and the facility/process are accommodated in the training session.

REVIEW APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training is implemented in the field
2. Existing lesson plans and/or OJT guides for training selected technical staff positions
3. Documentation of completed continuing training
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

PERFORMANCE OBJECTIVE

TQ-7 Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
 - 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
 - DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

Acceptance Criteria:

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

Review Approach:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations
3. Selected examinations
4. Selected individual training records

PERFORMANCE OBJECTIVE

TQ-8 A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Requirements:

- DOE O 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
 - 10 CFR 830.122(b), Criteria 2-Management/Personnel Training and Qualification
 - DOE STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*

Acceptance Criteria:

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

Review Approach:

1. Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness
2. Training evaluation documentation selected training materials.

ATTACHMENT B – Sample Verification Form

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ATTACHMENT B
Sample Verification Form

Functional Area:	Criteria
Objective Number:	Met/Not Met:
	Date:

OBJECTIVE

CRITERIA

APPROACH

Documents Reviewed.

Interviews.

DISCUSSION

CONCLUSION AND SUMMARY

FINDING

NA

Inspected by: _____ Team Member	Approved by: _____ Team Leader
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Attachment B - Superblock Assessment Forms

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-1	Date:	July 26, 2004

OBJECTIVE:

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

CRITERIA:

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

APPROACH:

1. Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training.
2. Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control.
3. Selected individual training records.
4. Documents that define the goals, objectives and plan for implementing the training and qualification program.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*
- UCRL-MA-133867, Environment, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-1	Date:	July 26, 2004

- UCRL-AR-133791 Rev. 1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May 1999
- TF96-031, Rev. 2 (June 2003), Tritium Facility Training Manual
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record
- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager
- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

- 1.1 *Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).* Clearly, line management owns and controls the training for the Superblock. The same can be said for the Lawrence Livermore National Laboratory (LLNL) as a whole. There is an effective central training organization and Training Manager. The central training programs are effectively integrated into the respective nuclear facilities (the scope of this assessment). The Superblock is organized and staffed in such a way that training is an integral component of the management team and organization.
- 1.2 *An organization/person within line management is responsible for the implementation of the training and qualification program(s).* The Superblock has a stand-alone Training Department and supporting staff including a Training Manager, Training Coordinator, Training Specialist, and Administrative Support.
- 1.3 *Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.* The training program within the Superblock is, for the most part, a

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-1	Date:	July 26, 2004

mature and stable program. The training requirements and processes are known and are therefore able to be effectively planned and scheduled. The Superblock training program includes provisions for not only qualifying personnel, but also for certifying both fissile material handlers and facility operators. These are planned, scheduled, and executed effectively.

- 1.4 *Training records are maintained to support management information needs and to provide required historical data.* LLNL uses a laboratory-wide, on-line automated training records system known as the Livermore Training Records and Information Network (LTRAIN). LTRAIN is an extremely powerful program that maintains a wide range of records and data and is capable of producing an even wider range of reports. In all cases, when records were requested, LTRAIN produced the desired record quickly. In addition to LTRAIN, the Superblock maintains hardcopy records related to its internal training program. Specifically, they maintain the records for the training that is conducted within the Superblock, qualification and certification records for Superblock personnel, as well as other local records. In all cases, when asked, the Training Administrators were able to produce the desired record in a timely manner.

CONCLUSION/SUMMARY:

Objective 1 and Criteria 1, 2, 3, and 4 are met.

The Superblock is organized in such a way that training is a recognized management priority. Adequate resources have been allocated to the Superblock Training Department to facilitate the development and implementation of an effective training program. Although personnel external to the Superblock are requested to perform work within the facility from time to time, the Training Department has executed a Memorandum of Understanding (MOU) between themselves and the providing organizations (e.g., Maintenance). This assures only people who possess the requisite knowledge, skills, and abilities are provided to the Superblock. This has proved to be a highly effective and efficient method of ensuring only appropriately skilled personnel are performing work within the Superblock.

BEST PRACTICES:

- 1.1 LLNL has established two closely related but separate entities (i.e., Training Program Committee [TPC] and the Training Working Group [TWG]) that serve as Laboratory cross-cutting management tools to maintain an awareness and overview of all issues related to training at the LLNL. These groups work to resolve issues as appropriate. In addition to the LLNL Training Manager, the members of the TPC include the training managers from other facilities, key line managers, and other key Laboratory personnel. In addition to the LLNL Training Manager as its Chair, the TWG is composed of representatives from the various Laboratory Teaching Organizations. This is a best practice since it has proven itself to be a very efficient and cost effective tool in ensuring training related issues, matters,

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-1	Date:	July 26, 2004

requirements, etc., are promulgated and implemented, as necessary, across the Laboratory in a timely manner.

- 1.2 The Superblock Training Manager has instituted a Personnel Evaluation Committee (PEC). The PEC is comprised of Senior Certified Fissile Material Handlers and equivalent positions. Using the services and expertise of the Personnel Evaluation Committee as a "referee" to review and evaluate examinations and performance evaluations, prior to them being administered to the trainee, is a best practice. When required, the PEC is tasked to review and approve examination materials thereby ensuring that the examination/evaluation content is current with facility equipment, policy, procedure, and practice. This is an innovative and effective technique to assure that the workers in the facility possess the most current knowledge and skills required for safe job performance.
- 1.3 In an effort to minimize duplication of effort with the resulting reduction in costs, the LLNL has adopted an approach to training development requiring training organizations to query the DOE's Cross-Cutting Training Forum (CCTF) to determine whether a course that meets the organization's needs already exists within the complex. This is a best practice in that by minimizing the "not invented here syndrome," not only does the LLNL streamline its processes and thereby save in terms of labor and fiscal resources, it affords itself the opportunity to adopt the best practices of other successful organizations. The DOE has invested heavily over the years to implement this concept. It is refreshing to see its use mandated in a policy document.

OPPORTUNITIES FOR IMPROVEMENT:

None.

FINDING:

None.

Reviewed By: Steve Arner **Approved By:** Lynn Maestas
Team Member **Team Leader**

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-2	Date:	July 26, 2004

OBJECTIVE:

Training staff (contractor and subcontractor) possesses the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA:

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gains the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH:

1. List of qualified instructors (classroom and OJT).
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification.
3. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff.
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.
5. Selected training staff training records.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*
- UCRL-MA-133867, Environment, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-2	Date:	July 26, 2004

- UCRL-AR-133791 Rev. 1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May 1999
- TF96-031, Rev. 2 (June 2003), Tritium Facility Training Manual
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record
- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager
- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

- 2.1 *The training staff has and maintains the education, experience, and technical qualifications for their respective positions.* The Superblock personnel who are engaged in conducting training activities possess and maintain the knowledge, experience, and other technical qualifications needed to ensure highly effective and accurate training. For example, the Training Department's Training Specialist is a Certified Senior Fissile Material Handler (SFMH) with over 17 years of experience in that position. Additionally, the on-the-job training and/or mentoring that personnel receive during their qualification and certification processes comes at the hands of similarly trained, qualified, and experienced SFMHs, each of whom have successfully completed either the LLNL Basic Instructor Training (BIT) course or the OJT Instructor course.
- 2.2 *A training program is implemented to ensure that training staff gains the knowledge and skills required for their position.* Prior to conducting training, all Superblock training staff (i.e., both formally designated Training Specialists and OJT Instructors/Evaluators/Mentors) are required to successfully complete formal instructor training. In the case of the Training Specialist and related formal training staff positions, this requirement must be completed prior to conducting training activities independently.

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-2	Date:	July 26, 2004

In the case of Senior Certified Fissile Material Handlers, completion of either the Basic Instructor Training or the OJT Instructor Training course is a specific line item on their qualification card. Completion of this training is a one-time requirement. If a Superblock Training Specialist has successfully completed an equivalent instructional skills course previously and has acceptable documentation to that fact, completion of the LLNL course is not required.

2.3 *A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.* A formal, documented continuing instructional skills training program designed to maintain, improve, and update the knowledge and skills of incumbent training staff is not implemented at the Superblock. Based on interviews with key staff and review of documents and records, there is no Superblock program or requirement for instructors to periodically participate in instructional skills enhancing training. Such a skills enhancing program should be based, in part at least, on the results of instructor evaluations. Currently, instructional staff are only required to attend a basic instructional skills class on a once-only basis.

CONCLUSION/SUMMARY:

Objective 2 and Criteria 1 and 2 are met. Criterion 3 is not met.

The Superblock has and uses instructors and/or OJT Instructors/Evaluators/Mentors who possess a high degree of technical knowledge and skill. They are also experienced and accomplished trainers in their own right. However, the Assessors are concerned that a potential weakness in developing, maintaining, and enhancing instructional skills of the instructional staff may exist. Specifically, there is no program or requirement for an instructor or OJT Instructor/Evaluator/Mentor to periodically upgrade or refresh his or her instructional skills. This appears to be a weak link in an otherwise robust training program.

BEST PRACTICES:

None.

OPPORTUNITIES FOR IMPROVEMENT:

2.1 The ability to field highly trained and qualified personnel is a key ingredient in ensuring all aspects of operations and maintenance related to the Superblock are done safely, effectively, efficiently, and in accordance with the Documented Safety Analysis. An element of this relies on providing facility-/task-specific training using innovative and effective learning techniques. By developing and implementing an instructional skills-enhancing, continuing training program for Superblock instructional staff, management will be assured that

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-2	Date:	July 26, 2004

trainees are receiving required training via the most up-to-date training techniques and processes available.

FINDING:

None.

Reviewed By: Steve Arner **Approved By:** Lynn Maestas
Team Member **Team Leader**

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-3	Date:	July 26, 2004

OBJECTIVE:

Trainees meet the minimum requirements for entry into the training program.

CRITERIA:

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position.
2. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*
- UCRL-MA-133867, Environmental, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*
- UCRL-AR-133797 Rev.1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May 1999
- TF96-031, Rev.2 (June 2003), Tritium Facility Training Manual
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-3	Date:	July 26, 2004

- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager
- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

3.1 *Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.* The Superblock facilities have established entry-level requirements for each position. The Nuclear Material Technology Program (NMTP) Certification Record, as contained in the respective Facility Training Plans, states the minimum education, experience, technical, and medical requirements. These requirements mirror those in DOE O 5480.20A.

3.2 *Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.* The Facility Managers and Facility Points of Contact have the greatest responsibility to ensure that personnel selected or assigned meet entry-level requirements. However, working with the Facility Managers and Facility Points of Contact, Human Resources owns the initial responsibility of ensuring that position-specific minimum education and experience requirements are established and satisfied by all employees.

3.3 *Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.* The Superblock has adopted the two-phased approach to training discussed in the LLNL Training Program Manual. Specifically, when Human Resources posts a job, the entry level requirements are included in the job posting. As discussed earlier, Human Resources is responsible for ensuring all job applicants meet the entry-level requirements. This comprises the first or Base Skills phase. The second phase deals with position-specific training. Every new employee is required to complete a functional position specific questionnaire that is entered into LTRAIN. LTRAIN then creates the employee's position specific training plan. If the employee changes jobs, even within the same functional position area, a new LTRAIN questionnaire must be completed and the new training plan completed as well. On an annual basis, these LTRAIN training plans are reviewed and revised by the employee's supervisor with concurrence by the employee. If the need arises to change the entry-level requirements for the position, based on employee performance, this is done through Human Resources.

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-3	Date:	July 26, 2004

CONCLUSION/SUMMARY:

Objective 3 and Criteria 1, 2, and 3 are met.

The Superblock has established programs and processes to ensure entry-level criteria for facility workers are met prior to performing work. As described above, this is done as a Human Resources function. Additionally, the Superblock Training Department has entered into a Memorandum of Understanding (MOU) with other organizations who provide the Superblock with personnel. This MOU specifies the position-specific minimum knowledge and skills (i.e., the minimum requirements) for a given position and requires that the providing organization provide only those personnel who satisfy these requirements.

BEST PRACTICES:

None.

OPPORTUNITIES FOR IMPROVEMENT:

3.1 Development of a procedure for personnel selection would facilitate consistent selection/assignment of new employees. This procedure would also serve as a process to train personnel that are new to the hiring process.

FINDING:

None.

Reviewed By: Karlisa Benally & Steve Arner

Team Member

Approved By: Lynn Maestas

Team Leader

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-4	Date:	July 26, 2004

OBJECTIVE:

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

CRITERIA:

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH:

1. Copies of facility- or organization-specific Job and Task Analysis implementing procedures.
2. The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position.
3. The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position.
4. Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-4	Date:	July 26, 2004

- UCRL-MA-133867, Environment, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*
- UCRL-AR-133791 Rev. 1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May 1999
- TF96-031, Rev. 2 (June 2003), *Tritium Facility Training Manual*
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record
- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager
- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

- 4.1.1 *The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. All functional positions within the Superblock have been formally analyzed and the required training that will ensure consistent and proper job performance has been identified. The results of the analyses are documented as the specific training requirements listed on the qualification cards for the positions. For example, the qualification card for the Senior Certified Fissile Material Handler (FMH) is subdivided into the three FMH positions, i.e., Associate FMH, Certified FMH, and Senior Certified FMH. Each subdivided position lists all of the position specific tasks that are associated with that position. These tasks are numbered in such a way that there is a direct correlation between a task and its corresponding OJT element.*
- 4.1.2 On a related but separate level, the Livermore Training Requirements and Information Network (LTRAIN) is used to quickly and efficiently identify and track the required

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-4	Date:	July 26, 2004

training for any given functional position. All new employees are required to complete a position-specific questionnaire in LTRAIN. When completed, LTRAIN automatically processes the information and produces a position-specific training plan that the new employee must complete. This training plan is reviewed and updated on an annual basis by the employee's supervisor, with concurrence by the employee. Additionally, if the employee is matrix support to another organization, they must complete a new questionnaire for the new position.

- 4.2 *Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.* The Superblock's training program for its facilities is based on current facility safety analysis report, procedures, technical and professional references, and DOE Guidelines and Orders. When changes to a facility's configuration (e.g., DSA, TSR, procedure, equipment, regulatory drivers, etc.), occur, a formalized process is initiated to analyze the impact on the facility and its operations. Training is an identified element in the overall process. This is a key element in ensuring that all of the training is current and reflects actual facility conditions.
- 4.3 *Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.* Although credit for having a Technical Staff is taken in the Superblock facilities' TIMs and some of the individual facility training program manuals, Assessors could find nothing in the documents provided that identified a documented and implemented Technical Staff training program. In interviews with key personnel, Assessors determined that there is a general lack of understanding about not only what the Technical Staff, as defined and intended by DOE O 5480.20A, is but also, what is its function. None of the documents provided to the Assessors contained any information or listing of specific job functions that could normally be considered a part of the Technical Staff category.

CONCLUSION/SUMMARY:

Objective 4 and Criteria 1 and 2 are met. Criterion 3 is not met.

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate.

There is ample evidence that the Superblock's training programs are designed and tailored to match the unique nature of the activities of the functional positions associated with its facilities. There is documented evidence that the various positions have been analyzed and that the results of those analyses form the foundation of the training programs within the Superblock. Additionally, the lesson materials that were reviewed contained learning objectives that were based on the results of the analyses. The duties and responsibilities for the various positions are clearly identified in their respective facility's training plan and/or other appropriate document.

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-4	Date:	July 26, 2004

The weakness in an otherwise sound program centers on the Technical Staff as required by and defined in DOE O 5480.20A. The Order has very specific and prescriptive requirements relative to the training for Technical Staff personnel. There is no way to determine if the Superblock program meets these requirements since no functional positions have been assigned to the Technical Staff category.

BEST PRACTICES:

4.1 The use and application of the LTRAIN program to quickly and automatically prepare a person and position-specific list of the required training for a person either beginning employment at LLNL or entering a new functional position is a best practice. From the demonstration provided to the Assessors, it is apparent that LTRAIN is a powerful tool that is being used to advantage. All new employees must complete a position-specific questionnaire in LTRAIN prior to beginning work. In a few moments, the new employee has a complete listing of all required training for their new position. The use of a program that is typically thought of as an electronic records management system in a way that creates a variety of reports that will allow LLNL managers and staff to proactively achieve qualification is noteworthy.

OPPORTUNITIES FOR IMPROVEMENT:

None.

FINDING:

4.1 The lack of a formally defined and documented Technical Staff training program is a concern for the Assessors as it is a clear violation of a DOE O 5480.20A requirement as well as an apparent error in the facilities' respective TIMs.

DOE O 5480.20A, Chapter I, Section 7.h. (1) requires contractor organizations to “. . . develop a list of specific technical staff positions that have a direct impact on employee, facility, or public safety.” This has not happened within the Superblock. When asked, key personnel either did not know or ventured a guess. None of the documents provided specified a list of Superblock functional positions that meet the above requirement.

Section 7.h. (2) requires that, “Training shall be provided to entry-level technical staff personnel who provide technical support to the operating organization.” The section then goes on to list the required training as appropriate to the facility.

The TIMs for the Superblock facilities take credit for having implemented the requirements for Technical Staff training and point to their respective facility Training Manual as documentation. When the applicable training manuals are checked, although one finds that the requirement to provide Technical Staff training is there and, indeed, even lists the

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met, 3 not met
Objective Number:	TQ-4	Date:	July 26, 2004

courses, one also finds that the list of functional positions that comprise the Technical Staff is missing.

The closest thing to specifying Technical Staff is found in Section 2.3 of Document 50.1, *Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*. Here one finds a discussion of System Engineers that sounds somewhat like a Technical Staff position, but one is left to make that assumption.

Reviewed By: Steve Arner **Approved By:** Lynn Maestas
Team Member **Team Leader**

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 not met
Objective Number:	TQ-5	Date:	July 26, 2004

OBJECTIVE:

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

CRITERIA:

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved.
2. Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current.
3. Existing lesson plans and/or OJT guides for training selected technical staff positions.
4. Documentation of completed continuing training.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 not met
Objective Number:	TQ-5	Date:	July 26, 2004

- UCRL-MA-133867, Environment, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*
- UCRL-AR-133791 Rev. 1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May, 1999
- TF96-031, Rev. 2 (June 2003), Tritium Facility Training Manual
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record
- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager
- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

5.1 *Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.* The training materials reviewed by the Assessors all contained learning objectives that were measurable and described required knowledge and skills. The lesson materials supported the learning objectives. There was a clearly documented path leading from job and task analysis to the learning objectives to the developed lesson materials.

5.2 *Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.* The lesson materials, both classroom and OJT, reviewed by the Assessors were developed based upon a set of measurable learning objectives. The lesson materials had all been reviewed and approved by both Training and Line management.

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 not met
Objective Number:	TQ-5	Date:	July 26, 2004

5.3 *Review, approval, and control requirements are established and utilized for all training materials.* Although there is ample evidence that all training materials receive a thorough review by qualified subject matter experts prior to implementation, the process and requirements for such a review is not evident. Specifically, none of the documents provided to the Assessors contained any specifications relative to the review and approval process for training materials. The fact that such reviews have been, and continue to be done, is not in question. The concern is that the process is not codified on paper. This begs the question of how does the facility ensure a consistent approach and application of appropriate rigor and discipline absent a defined process?

5.4 *A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.* There is a continuing training program in place and functioning within the Superblock although it is not a formally defined process. The continuing training requirements for all qualified and certified positions within the Superblock are defined and documented. But, after a review of documents and in interviews with key staff, the continuing training program appears to consist of repeating certain courses according to the periodicity specified on the Training Requirements form for a given position. While this is, in and of itself, permissible, it fails to meet the intent of the requirement for continuing training specified in DOE O 5480.20A. Specifically, Chapter I, Section 7.d. specifies the continuing training requirements for non-certified operating organization personnel. Sections (1) and (2) under 7.d. provide requirements for this level of continuing training. Section (3) under 7.d. is devoted to the continuing training requirements for certified personnel. In comparing the requirements in the Order against the requirements on the Training Requirements form for a given position, the equivalency between the two is not obvious. The fact that continuing training is on going is not in question. Rather, this appears to be an example of inadequate documentation of an existing program.

CONCLUSION/SUMMARY:

Objective 5 and Criteria 1, 2, and 3 are met. Criterion 4 is not met.

The training program materials reviewed by the Team are of a consistent high quality. They are well documented and tailored to the specific needs of a particular functional position. Observation of training in the field confirmed that the training produces the desired results in job performance.

There is a concern that the continuing training program is inadequately documented in a procedure/policy type document and therefore has the potential for inconsistent implementation. This is especially true relative to the continuing training requirements for certified positions as defined in the Order. There is ample evidence that continuing training is indeed being accomplished and that it is tailored to specific position requirements. What is missing is a document that defines the specifics for the Superblock continuing training program. The Superblock TIMs refer the reader to the respective Superblock facility's Training Manual for

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

OBJECTIVE:

Training is conducted in the setting most suitable for the particular training content. Training is consistently and effectively presented using approved lesson plans and other training guides.

CRITERIA:

1. Training is conducted using approved and current training materials. Lesson plans that meet criterion 5.2 are used to deliver training. Training in all settings is sequenced effectively to provide completion of prerequisite knowledge and skills prior to receiving training on more advanced knowledge and skills. Individualized instruction, when used, provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives.
2. Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. Instructors use the references, tools, equipment, and conditions of task performance that reflect actual job conditions to the extent practicable. Trainee demonstration of task performance is evaluated on actual plant equipment whenever feasible.
3. On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. Line management implements standards and policies pertaining to the conduct of on-the-job training (OJT). Personnel who are designated by line management and are trained in the instructional techniques peculiar to OJT conduct and evaluate it. OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Part time OJT instructors and/or evaluators are trained in OJT instructional methods. Completion of OJT and task qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible. Task performance evaluation is conducted using valid methods and consists of evaluating trainee performance using established standards prior to task or job qualification. Structured on-the-job familiarization is normally used in lieu of formal on-the-job training and evaluation for managers, non-certified supervisors, and technical staff. During this phase, the candidate works closely with supervisors and managers in their day-to-day job functions, including decision-making.
4. Laboratory training is effectively and consistently presented. Laboratory training provides hands-on application of principles conveyed during the classroom training and encourages analytical skills development. The training program content is implemented as outlined by approved training materials and is structured to provide practical experience. Laboratory training activities encourage direct trainee participation in the learning process. Conditions of task performance, references, tools, and equipment reflect actual job performance requirements to the extent possible. Evaluation of trainee performance verifies that the trainee has obtained the essential knowledge and performance skills associated with the job.

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

5. Simulator training is effectively and consistently presented, where appropriate. Training on a facility control room or process simulator is used to build operating team skills and/or enhance the effectiveness of hands-on skill training. An appropriate simulator is used for hands-on training to demonstrate operational characteristics and for recognition and control of normal, abnormal, and emergency facility/process conditions. Differences between the simulator and the facility/process are accommodated in the training session.

APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training is implemented in the field.
2. Existing lesson plans and/or OJT guides for training selected technical staff positions.
3. Documentation of completed continuing training.
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*
- UCRL-MA-133867, Environment, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*
- UCRL-AR-133791 Rev. 1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May 1999
- TF96-031, Rev. 2 (June 2003), *Tritium Facility Training Manual*
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record
- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

6.1 *Training is conducted using approved and current training materials. Lesson plans that meet criterion 5.2 are used to deliver training. Training in all settings is sequenced effectively to provide completion of prerequisite knowledge and skills prior to receiving training on more advanced knowledge and skills. Individualized instruction, when used, provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives.* The majority of the training presented at the Superblock is either of the CBT/WBT variety or of the OJT/Mentoring variety. There are few courses taught in a traditional classroom setting. Having said that however, the training materials reviewed for all settings were found to be uniformly consistent in level of detail, form and format, and application of learning objectives, and were of an increasingly more difficult nature in qualification and/or certification programs. The training materials reviewed were all approved and appeared to flow logically from simple concepts to highly complex activities that required cognitive thinking and reasoning.

6.2 *Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. Instructors use the references, tools, equipment, and conditions of task performance that reflect actual job conditions to the extent practicable. Trainee demonstration of task performance is evaluated on actual plant equipment whenever feasible.* As referenced earlier, the vast majority of the technical training conducted within the Superblock is of the OJT/Mentoring nature. This is fortunate and is well suited to the nature of the tasks performed within the various Superblock facilities, many of which are highly complex and require well-developed motor skills, coupled with effective application of knowledge. The training provided to the operational staff and the Fissile Material Handler (FMH) personnel replicates the actual conditions in the field to the maximum extent practical. This has proven high effective. Pass/Fail criteria are identified and communicated to the trainees prior to beginning an evaluation.

6.3 *On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. Line management implements standards and policies pertaining to the conduct of on-the-job training (OJT). Personnel who are designated by line management and are trained in the instructional techniques peculiar to OJT conduct and evaluate it. OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Part time OJT instructors and/or evaluators are trained in OJT instructional methods. Completion of OJT and task*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible. Task performance evaluation is conducted using valid methods and consists of evaluating trainee performance using established standards prior to task or job qualification. Structured on-the-job familiarization is normally used in lieu of formal on-the-job training and evaluation for managers, non-certified supervisors, and technical staff. During this phase, the candidate works closely with supervisors and managers in their day-to-day job functions, including decision-making. Taken as a whole, the on-the-job training (OJT) program for the Superblock is well designed and very effective. It constitutes the bulk of the training provided within the Superblock. Superblock programmatic documentation requires successful completion of either the LLNL Basic Instructor Training (BIT) course or the OJT Instructor Training course prior to conducting training activities independently. The OJT materials reviewed by the Assessors were well designed, contained adequate learning objectives, lesson discussion/talking points for the OJT Instructor/Evaluator, and specified pass/fail criteria for the evaluation phase. The OJT evaluation checklists clearly state Pass/Fail and Immediate Fail criteria

6.4 Laboratory training is effectively and consistently presented. Laboratory training provides hands-on application of principles conveyed during the classroom training and encourages analytical skills development. The training program content is implemented as outlined by approved training materials and is structured to provide practical experience. Laboratory training activities encourage direct trainee participation in the learning process. Conditions of task performance, references, tools, and equipment reflect actual job performance requirements to the extent possible. Evaluation of trainee performance verifies that the trainee has obtained the essential knowledge and performance skills associated with the job. The Plutonium Facility's Certified Fissile Material Handlers training program makes excellent use of a "cold" (meaning uncontaminated) glovebox in a laboratory setting. This is a best practice. See the discussion below for the details relative to this laboratory training.

6.5 Simulator training is effectively and consistently presented, where appropriate. Training on a facility control room or process simulator is used to build operating team skills and/or enhance the effectiveness of hands-on skill training. An appropriate simulator is used for hands-on training to demonstrate operational characteristics and for recognition and control of normal, abnormal, and emergency facility/process conditions. Differences between the simulator and the facility/process are accommodated in the training session. The Superblock does not use a simulator for any of its training and qualification/certification activities. Therefore, this Criterion is Not Applicable.

CONCLUSION/SUMMARY:

Objective 6 and Criteria 1, 2, 3, and 4 are met. Criterion 5 is not applicable.

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

OBJECTIVE:

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA:

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations.
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations.
3. Selected examinations.
4. Selected individual training records.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

- UCRL-MA-133867, Environment, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*
- UCRL-AR-133791 Rev. 1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May 1999
- TF96-031, Rev. 2 (June 2003), *Tritium Facility Training Manual*
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record
- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager
- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

- 7.1 *Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes. The examination and performance evaluation documents reviewed and the performance evaluation observed in the field were sufficiently detailed and rigorous to ensure trainee knowledge and skills were tested and measured appropriately.*
- 7.2 *Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented. The examinations are based upon learning objectives.*
- 7.3 *The content of written and oral examinations is changed at intervals sufficient to prevent compromise. Examination questions for the Superblock are kept and maintained in an examination bank. The examination bank is maintained by the Training Staff. The content of written examinations is changed sufficiently often so as to minimize*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

compromise. The development of the OJT evaluations is sufficiently trainee-specific so as to prevent compromise. Specifically, when a trainee is ready for a performance evaluation, their mentor develops a performance evaluation that is specific to the task at hand and to the person involved in performing the task. The common areas of overlap between evaluations include topics such as alarm response, support systems, etc. The bulk of the evaluation is tailored to the individual trainee. However, although this is being done, the various processes for developing, controlling, revising, etc., examinations is not contained in a document with sufficient specificity to ensure consistency in approach and level of rigor and discipline.

- 7.4.1 *Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.* The Superblock is applying an informal and undocumented approach to control of examinations. In interviews with key staff, Assessors learned that the approach to the control of examinations and examination materials was well known among the Training Staff, but not codified in any document. There is no document that formally describes or prescribes how examinations are developed, maintained, controlled, administered, etc. The Superblock does have policies and procedures related to examinations, but none of these are prescriptive enough to assure consistency in approach should any of the existing staff leave.
- 7.4.2 The Superblock has implemented an innovative and very effective working group that ensures consistency in the development of OJT evaluations, written examinations, and oral examinations. This group, the Personnel Evaluation Committee (PEC), is composed of Senior Certified personnel. When a trainee is ready for an examination or performance evaluation, the Training Staff develops the examination or evaluation materials and submits them to the PEC for review and comment. The PEC ensures that the examination and/or evaluation materials are technically accurate, reflect current facility configuration, and are at the proper level of difficulty. This is an excellent tool that provides management with assurance that the Superblock operational staff (i.e., Handlers, Operators) possess the necessary level of knowledge and skills to ensure safe operation. The PEC is identified as a Best Practice in Objective 1.
- 7.5 *Remedial training and reevaluation are provided when examination or performance standards are not met.* Remedial training and reevaluation are provided when examination or performance standards are not met. Remediation of missed test/evaluation items is required by Superblock documentation to be corrected for 100 percent of all missed items. The Superblock training program manuals contain both policy and procedure related to remediation, including repetitive remediation. However, these policies and procedures are not specific enough to ensure consistency in approach. For example, although remediation is specified as being required for 100 percent of missed items and policy exists that allows repeated remediation for repeat misses/failures, no upper limit on the number of remediations exists. In an interview with the Training Manager, he stated that the "norm" seemed to be remediation on the first failure. If the

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

trainee fails a second time (and he stated that has not happened yet), he would meet with the trainee and would try to determine and resolve the problem(s). If a trainee fails the same examination/evaluation a third time, management would have to be brought in to resolve the situation. However, this process is not specified in a procedure/policy type document.

CONCLUSION/SUMMARY:

Objective 7 and Criteria 1, 2, 3, and 5 are met. Criterion 4 is not met.

Trainees for both certified and non-certified positions are regularly and routinely examined at the Superblock facilities. The examination instruments (e.g., written, oral, and performance evaluation) are consistently well-designed, are based on learning objectives, and adequately measure a trainee’s knowledge and skills. The weakness in an otherwise good program is a lack of documentation with sufficient specificity relative to the “how to” processes associated with designing, developing, controlling, administering, grading, and remediating examinations. Assessors are concerned that absent prescriptive documentation, consistency in examination content (i.e., adequate rigor) is placed in jeopardy. This in turn leads to having potentially inadequately trained and qualified workers in the facility.

BEST PRACTICES:

None.

OPPORTUNITIES FOR IMPROVEMENT:

- 7.1 The overall lack of programmatic documentation with sufficient specificity to ensure a consistent approach yielding predictable results in the area of examination is a weakness in an otherwise sound program. The fact that examinations are being developed and administered is not in question. The fact that trainees receive remediation as needed is substantiated. The fact that examinations are controlled is well known. The common weakness is that none of these activities/processes are adequately documented. If the current Superblock training management staff were to become no longer available, one wonders if the examination program would be able to continue uninterrupted.

FINDING:

None.

Reviewed By: Steve Arner **Approved By:** Lynn Maestas
Team Member **Team Leader**

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

OBJECTIVE:

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA:

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH:

1. Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness.
2. Training evaluation documentation selected training materials.

DOCUMENTS REVIEWED:

- Environment, Safety, and Health Manual, Volume IV, Part 40: Training, *LLNL Training Program Manual*

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

- UCRL-MA-133867, Environment, Safety, and Health Manual, Volume V, Part 50: *Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities*
- UCRL-AR-133791 Rev. 1 (October 2002), *Plutonium Facility Training Implementation Matrix for DOE Order 5480.20A*
- UCRL-AR-133170 Rev. 3 (May 2004), *Plutonium Facility Work Control/Design Change Control Process Manual*
- Building 331 Training Implementation Matrix, April 30, 2004
- Building 334 Training Implementation Matrix, May 1999
- TF96-031, Rev. 2 (June 2003), *Tritium Facility Training Manual*
- Building 332 Training Manual
- Building 332 Facility Safety Plan (FSP)
- PU4001-A, August 2002, *Glovebox Practicum*
- Sample Nuclear Material Technology Program Certification Record
- NMTP System Engineer Qualification Review Checklist

INTERVIEWS:

- LLNL Training Manager
- NMTP/Superblock Training Manager
- Superblock Training Coordinator
- Superblock Training Specialist
- LLNL Associate Director
- NMTP Assurance Manager
- NMTP Facility Safety Manager
- Senior Certified Fissile Material Handler
- Associate Fissile Material Handler

DISCUSSION:

8.1 *A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.* Although training program evaluation is done for Superblock training programs, it is carried out in an informal manner, and sometimes an undocumented manner. Interviews with key staff revealed the fact that evaluation of training in its various settings (e.g., classroom training, OJT, CBT) is, in fact, being done. However, none of the documents provided to the Assessors addressed the evaluation of training in any level of detail. Specific examples of program evaluation were cited. Included was the current effort to revise and upgrade the position description of a Senior Certified Fissile Material Handler to recognize the significant role they play in the training, mentoring, and qualification of junior handlers. This was based on feedback from both the trainees and the mentors. The issue is that this program and its related processes are not documented. This leads to inconsistency in approach, which may result in less than adequate performance and results.

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

8.2 *Instructional skills and technical competencies of instructors are evaluated regularly.* The majority of the training conducted within the Superblock facilities is of the OJT / Performance Evaluation variety. There is only one course that is more along the lines of a traditional classroom setting course. The rest of the training is by CBT, WBT or video tape programs. The single classroom type course is only taught four times a year, by the single Training Specialist on the Superblock Training Staff. As a result of the infrequent actual podium time placed upon instructional staff, a regular evaluation instructional has not been implemented. However, the technical competencies and instructional skills of the OJT Evaluators / Mentors are regularly evaluated. Upon completion of a training segment or actual qualification/certification, the trainee meets with the Training Manager, the Facility Manager, the Safety Manager, and other key staff to “debrief” the just-completed training program. The trainee is specifically asked to evaluate the training program relative to job applicability, depth of knowledge and skills taught, length of time required, quality of instruction/mentoring, etc. The Training Manager records the results and evaluates them for potential training program revision/upgrade. As mentioned earlier, the in-progress process of changing the position description of the Certified FMH to better reflect their training duties is an example of feedback being used to revise / enhance the program. The weakness in this otherwise good program is that it is not documented and credit is, therefore, not being taken for an existing evaluation program.

8.3 *Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.* This is being done, but in an informal and often undocumented manner. Refer to the discussion for 8.2 for details.

8.4 *Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.* The Superblock has instituted an innovative and very effective tool that facilitates ensuring that facility change actions are monitored and that appropriate changes to the training program are implemented, as required. This “tool” is the Personnel Evaluation Committee (PEC), a group of Certified Senior Fissile Material Handlers led by the Training Manager and charged with ensuring that the training and certification program accurately reflects actual facility conditions and requirements. Anytime a change action becomes necessary, the PEC is convened and evaluates the identified change for applicability and impact on training. The necessary training program revisions are developed and implemented. The only concern relative to this process is that it, like many of the other issues noted for the Superblock, is not documented. The concern is that if for some reason the existing Training Department staff became unavailable, this excellent tool may suffer.

8.5 *Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.* As discussed previously, the training program is continually being

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

upgraded/revised to reflect actual conditions or to improve a noted deficiency. Also as noted previously, the problem is that the program and process for effecting changes to initial and continuing training are not adequately documented. Absent adequate documentation on the change process, a consistent approach with the desired predictable results is not assured.

8.6 Training materials are maintained current, based upon the results of training program evaluations. As discussed in 8.1 above, a formal, documented training evaluation program is not implemented at the Superblock. However, the PEC, as discussed in 8.4, is functioning very well and assures a consistent and well-documented training program that is current with actual facility conditions.

8.7 Training facilities are evaluated to determine their effect on the training process. The training facilities for the Superblock are more than adequate to support highly effective skills development and enhanced training. The laboratory created by the inclusion of the "cold" glovebox is noteworthy and has been addressed previously in a different Objective.

CONCLUSION/SUMMARY:

Objective 8 and Criteria 3, 4, 5, 6, and 7 are met. Criteria 1 and 2 are not met.

The Superblock has implemented an informal approach to conducting and documenting training program effectiveness and worth. This is an on-going process and program, but it is one that suffers from inadequate programmatic documentation. There is no question that the various elements and aspects of the training program are evaluated and that the results of these evaluations are used to refine and enhance the training program. None of the documents provided to the Assessors specified or required any type of formal, regular training program evaluations. The fifth element of the systematic approach to training (SAT) model is Evaluation and Feedback. This is an integral element of the SAT process. Absent a sufficiently specific and documented program to ensure consistent implementation of requirements, the evaluation element of the SAT with its associated benefits is often not performed.

BEST PRACTICES:

None.

OPPORTUNITY FOR IMPROVEMENT:

8.1 Evaluation of training within the Superblock suffers from inadequate programmatic documentation. The end product of good, effective training is a highly trained and proficient work force. At facilities similar to those in the Superblock, the results of improper performance can be catastrophic. Every effort should be made to ensure that the training provided to workers is of the highest quality and produces the maximum desired results. The otherwise sound and robust nature of the Superblock training program would

Superblock Facilities:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 5 met; 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

be greatly enhanced by documenting the processes related to training, including those related to training program evaluation.

FINDING:

None.

Reviewed By: Steve Arner **Approved By:** Lynn Maestas
Team Member **Team Leader**

Attachment C - RHWM and DWTF Assessment Forms

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, & 4 met; 3 not met
Objective Number:	TQ-1	Date:	July 26, 2004

OBJECTIVE:

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

CRITERIA:

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

APPROACH:

1. Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training.
2. Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control.
3. Selected individual training records.
4. Documents that define the goals, objectives and plan for implementing the training and qualification program.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

1. Environmental Protection Department (EPD) Training Procedure EPD-TG-102, Instructor Qualifications, Rev. 0, 06/27/02.
2. Environmental Protection Department (EPD) Training Management Plan, Revision 2, May 2000.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, & 4 met; 3 not met
Objective Number:	TQ-1	Date:	July 26, 2004

3. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
4. Safety and Environmental Protection (SEP) Integrated ES&H Management Program, Appendix A, Safety and Environmental Protection Directorate Training Plan, June 2004.
5. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
6. ES&H Manual, Environment, Safety, and Health, Volume IV, Part 40: Training, 40.1, LLNL Training Program Manual, Revision 1, July 11, 2001.
7. Environmental Protection Department, Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).
8. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
9. Environmental Protection Department (EPD) Training Procedure EPD-TG-100, Course Analysis and Design, Rev. 0, 05/10/00.
10. Environmental Protection Department (EPD) Training Procedure EPD-TG-101, Course Development, Rev. 0, June 2000.
11. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
12. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).
13. Building 693 Container Storage Unit Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-022, Revision 3, April 8, 2004.
14. Receiving and Segregation Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-039, Revision 3, April 26, 2004.

INTERVIEWS:

1. EPD Training Manager
2. Radioactive and Hazardous Waste Management (RHWM) Training Manager
3. RHWM Training Coordinator
4. RHWM Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, & 4 met; 3 not met
Objective Number:	TQ-1	Date:	July 26, 2004

DISCUSSION:

- 1.1.1 *Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).* Review of referenced documents 2 through 14 and discussion with the RHWM Training Program Manager confirmed that the Division Leader is responsible for assuring that the RHWM and the Decontamination and Waste Treatment Facility (DWTF) training program requirement are met; and that operational organization positions are responsible for implementing the training programs. Subject matter experts (SMEs), from the operational organizations, team with the training specialist to develop training course materials using the performance-based training (PBT) method. This is consistent with the systematic approach to training (SAT). SMEs and their supervisor are required to review the content of the training materials to ensure that the materials are accurate and correct. The SMEs and their supervisors approve the course materials by signing and dating the lesson plans.
- 1.1.2 Referenced document 6 specifies that the LLNL Director assigns the responsibilities to the Associate Directors in their areas of authority to conduct training programs and activities that meet the stated objectives of the overall LLNL training program. Furthermore, Referenced document 6 states that each directorate is responsible for ensuring that any training requirement it develops is disseminated to all directorates that are responsible for complying with the requirement; and that the appropriate training is available to meet the requirements. Local training requirements can be generated within a directorate. It is the responsibility of each directorate to review its operations and facilities to determine the needs for training requirements not already specified as institutional training requirements (ITRs). Facility management is responsible for identifying training requirements for gaining access to, and working within, facilities. These training requirements are specified in the Facility Safety Plan (FSP) for each area. Program managers are responsible for identifying training requirements associated with operations in an Operational Safety Plan (OSP). Training requirements that an organization places on itself are called an organizational training requirement (OTR). Additionally referenced document 6 specifies that the teaching organizations are responsible for retaining documentation of course development and content, and assuring that courses are updated as required. Complete training requirements are identified on the RHWM training web site (by position) and in LTRAIN (by position and person).
- 1.1.3 It was determined through interviews with the RHWM Training Manager, the Waste Treatment Group Leader, and the Storage Operations Team Leader; and from reviewing the RHWM TIMs and the ES&H Manual, that the RHWM line management has overall responsibility for the content and the implementation of the RHWM and DWTF training programs.
- 1.2.1 *An organization/person within line management is responsible for the implementation of the training and qualification program(s).* Review of the responsibilities sections of referenced documents 7, 8, and 12, indicates that there are positions within the operations

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, & 4 met; 3 not met
Objective Number:	TQ-1	Date:	July 26, 2004

organizations of RHWM and DWTF that have been assigned the responsibility of implementing the RHWM and DWTF training programs. It has been determined that responsibility for the implementation of the training and qualification programs for the RHWM and DWTF have been assigned to line management positions.

- 1.3 *Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.* Review of referenced documents 3, 7, 8, and 12 did provide a description of the RHWM training program, but these documents did not contain the goal and objectives of the RHWM and DWTF training programs. The purpose of these references is to describe the training program; it is not to identify the goals and/or objectives of the training program. Nor is it intended for these references to identify performance measures of the training program.
- 1.4 *Training records are maintained to support management information needs and to provide required historical data.* It has been determined that the RHWM and DWTF training staffs are maintaining programmatic and employee training records in a manner that support management's information needs and should be able to provide management with historical data, as required. This is based on the review of the above-referenced documents, discussion with the above-listed interviewees, viewing of the Livermore Training Records and Information Network (LTRAIN), LHIRE, and the Electronic-Course Resource and Implementation Binder (ECRIB) applications demonstrations, review of instructor qualifications records, and the review of select hardcopy course rosters, completed examinations, and evaluations.

CONCLUSION/SUMMARY:

Objective 1 and Criteria 1, 2, and 4 are met. Criterion 3 is not met.

Although the RHWM and DWTF training programs fully satisfied three out of the four objective one criteria, and an opportunity for improvement was identified regarding the non-existence of a RHWM and DWTF training program manual and procedures, it was determined that, although inadequately documented, the system currently in place satisfied enough of the criteria that the organizations have met objective one.

In conclusion it has been determined that the RHWM and the DWTF are organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the RHWM and DWTF mission(s).

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-2	Date:	July 26, 204

OBJECTIVE:

Training staff (contractor and subcontractor) possesses the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA:

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowlede and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.

APPROACH:

1. List of qualified instructors (classroom and OJT).
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience, and qualification.
3. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff.
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.
5. Selected training staff training records.

DOCUMENTS REVIEWED

1. Matrix of RHWM Instructors and Courses.
2. Environmental Protection Department (EPD) Training Procedure EPD-TG-102, Instructor Qualifications, Rev. 0, 06/27/02.
3. Environmental Protection Department (EPD) Training Management Plan, Revision 2, May 2000.
4. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-2	Date:	July 26, 2004

5. Safety and Environmental Protection (SEP) Integrated ES&H Management Program, Appendix A, Safety and Environmental Protection Directorate Training Plan, June 2004.
6. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
7. ES&H Manual, Environment, Safety, and Health, Volume IV, Part 40: Training, 40.1, LLNL Training Program Manual, Revision 1, July 11, 2001.
8. Environmental Protection Department, Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).
9. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
10. Environmental Protection Department (EPD) Training Procedure EPD-TG-100, Course Analysis and Design, Rev. 0, 05/10/00.
11. Environmental Protection Department (EPD) Training Procedure EPD-TG-101, Course Development, Rev. 0, June 2000.
12. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
13. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).

INTERVIEWS:

1. EPD Training Manager
2. RHWM Training Manager
3. RHWM Training Coordinator
4. RHWM Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

DISCUSSION:

- 2.1.1 *The training staff has and maintains the education, experience, and technical qualifications for their respective positions.* Section III.A.1, Training Organization Description, of referenced document 9 states that RHWM Training Team manages the RHWM Training Program and is responsible for providing the policies, procedures, and materials to train the operating organization personnel. This organization is accountable

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-2	Date:	July 26, 2014

to Division Management for providing the support necessary to ensure that personnel in the Operating Organizations are qualified to meet job requirements safely and effectively.

- 2.1.2 The Responsibilities section of referenced document 3 states that the EPD Training Group, EPD Supervisors and EPD employees have training related responsibilities. The EPD Training Group has two primary responsibilities: (1) to design, develop and implement environmental training as an LLNL teaching organization and (2) to serve as the training support organization for EPD's Divisions and Department Office by assisting with meeting training requirements.
- 2.1.3 The Instructor Qualification Section of referenced document 3 states that EPD Training Group is responsible for qualifying classroom and OJT instructors. The EPD Training Group Leader evaluates the instructor's qualifications based on the following: technical competency, instructional skills, educational background, prior training, and work experience. These qualifications are captured in the instructor qualification package that includes the following: instructor resume, instructor qualification survey sheet and observation and approval sheet.
- 2.1.4 The EPD Training Group Leader observes the instructor or requests observation comments from an appropriate subject matter expert or training specialist. The EPD Training Group Leader approves the instructor qualification package by signature on a sign-off sheet.
- 2.1.5 Instructors who conduct on-the-job training attend EP5047, which is a train the trainer course designed specifically to qualify OJT instructors.
- 2.1.6 Section 1.0, Purpose, of referenced document 2, states that this procedure identifies the process for qualifying and maintaining qualification records on environmental instructors. This section also states that the procedure meets the instructor qualification requirements found in the LLNL Training Program Manual, Appendix B, which states, "teaching organizations shall retain the technical and instructional competency criteria and documentation that shows instructors have met that criteria."
- 2.1.7 Section 2.0 Scope, of referenced document 2, states that the procedure addresses activities involved in the instructor qualification process. Further, it states that instructor qualifications are maintained for instructors of environmental courses that are assigned an "EP" number including on-the-job training (OJT) and courses assigned an "EP" number that are instructed by off-site vendors.
- 2.1.8 In conclusion, it has been determined that there is a formal and documented process in place that ensures the training staff has the education, experience, and technical qualifications for their respective positions.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-2	Date:	July 26, 2004

- 2.2 *A training program is implemented to ensure that training staff gains the knowledge and skills required for their position.* Referenced documents 3, 4, and 10 list the training plans for training staff positions. New employees must complete the training listed in their positional training plans within six months of being hired. The training plans are reviewed and revised based upon the review and modification of the positional questionnaire in LTRAIN. The courses that are associated with the positional questionnaires are developed using a SAT method. The SAT method is used to analyze the job, to determine the tasks that require training, and to determine the necessary knowledge, skills, and abilities for successful task completion.
- 2.3 *A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.* A discussion was conducted with the EPD Training Manager regarding the continuing instructional skills training program. After employees learn and obtain the knowledge and skills associated with implementing a SAT, a continuing training program is not required because the skills and knowledge that the training specialists obtained are used on a regular basis. Regular use of the SAT skills and knowledge by the training specialist reinforces and maintains the learned behaviors. As new training knowledge and skills are determined to be necessary for the training staff, the EPD Training Manager will ensure that the identified training courses are added to the appropriate positional training plans in the LTRAIN system.

CONCLUSION/SUMMARY:

Objective 2 and Criteria 1, 2, and 3 are met.

The EPD and RHWM have a formal and documented processes and procedures to ensure that their training staffs possess the technical knowledge, experience, and the developmental and instructional skills required to fulfill assigned duties.

The RHWM and the DWTF training programs have been evaluated against the above criteria and it has been concluded that these programs meet objective two.

BEST PRACTICES:

None.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-2	Date:	July 26, 204

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-2	Date:	July 26, 204

OPPORTUNITIES FOR IMPROVEMENT:

None.

FINDING:

None.

Reviewed By: Mark Schares
Team Member

Approved By: Lynn Maestas
Team Leader

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met; 3 not met
Objective Number:	TQ-3	Date:	July 26, 2004

OBJECTIVE:

Trainees meet the minimum requirements for entry into the training program.

CRITERIA:

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position.
2. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

1. The Radioactive and Hazardous Waste Management Deputy Division Leader job posting.
2. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).
3. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
4. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).
5. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
6. 500 Series Classification Descriptions.
7. Job Series Leveling Matrix, (10/1/93), x04.X Chemistry/Materials Science Technicians Series.
8. 300 Series Classification Descriptions.
9. Job Series Leveling Matrix, 571, Health and Safety Technician Series.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met; 3 not met
Objective Number:	TQ-3	Date:	July 26, 2004

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met; 3 not met
Objective Number:	TQ-3	Date:	July 26, 2004

INTERVIEWS:

1. EPD Training Manager
2. RHWM Training Manager
3. RHWM Training Coordinator
4. RHWM Division Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

DISCUSSION:

- 3.1 *Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements. The RHWM TIMs specify that the minimum entry-level requirements set forth in DOE O 5480.20 A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities, are used as the minimum entry-level requirements in specified position descriptions. Therefore, the minimum entry-level requirements are established and this criterion is satisfied.*
- 3.2.1 *Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position. RHWM relies upon the experience and expertise of hiring supervisors, and the RHWM Training Administrator, for ensuring that the minimum entry-level requirements are included in the job-postings. Due to the infrequent nature of the hiring process, the undocumented administrative process for advertising and selecting personnel, and the location of the approved entry-level requirements for the RHWM and DWFT positions, it is uncertain that personnel are consistently being selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.*
- 3.2.2 The RHWM Training Administrator stated that the hiring supervisor provides the position entry-level requirements for placement in the job posting. The RHWM Training Administrator enters the provided information in the appropriate field of the job posting screen in LHIRE (the application used by LLNL to hire employees). In addition to the job posting, the RHWM Training Administrator completes a Job Demands Worksheet, which specifies the physical demands of the job and is required by law, and a Clearance Justification Form. The job posting is completed and routed to the various approvers online through LHIRE. The Jobs Demand Worksheet and Clearance Justification Form are sent to the Employee Representative in Human Resources Department who processes the forms and forwards the Job Demands Worksheet to Health Services, and sends the Clearance Justification Form to the Security Department.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1 & 2 met; 3 not met
Objective Number:	TQ-3	Date:	July 26, 2004

- 3.2.3 The RHWM Training Administrator stated that the minimum entry-level requirements are provided by the hiring supervisor and are entered into the job posting in LHIRE. The minimum entry-level educational requirements are listed in referenced document 5; however, the RHWM TIMs do not reference that document, but instead reference the entry-level requirements from DOE Order 5480.20A.
- 3.2.4 Upon further discussion of RHWM's meeting criterion 2 with the RHWM Training Manager, it was stated that the education and experience requirements in the Job Series Leveling Matrix for the positions identified in the RHWM TIMs exceed the education and experience requirements specified in DOE O 5480.20A, Chapter IV. Therefore, if the job series-leveling matrix is referenced when developing the job posting, the requirements are entered into the job posting, and RHWM staff ensure that personnel meet the prescribed entry-level requirements prior to being assigned to a position uses to the requirements.
- 3.3 *Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.* Referenced documents 1 through 9 did not specify the training program entry requirements for the qualified positions specified in the RHWM TIMs. Establishment of the training program entry-level requirements is necessary to ensure that employees have the necessary knowledge, skills, and abilities to ensure successful completion of the training program. A process is required to evaluate the training program entry-level requirements based on student's performance to ensure that the entry-level requirements for the training program have not changed.

CONCLUSION/SUMMARY:

Objective 3 and Criteria 1 and 2 are met. Criterion 3 is not met.

The RHWM and DWTF training programs currently have an undocumented process that it uses to ensure trainees meet the minimum requirements for entry into the qualified positions specified in the TIMs. Additionally, there are no indications that the RHWM and DWTF training programs have formal training program entry-level requirements, nor a process for reviewing the adequacy of the training program entry-level requirements and revising them, if necessary. The RHWM may be equating that the training-program entry-level requirements are being satisfied when the position entry-level requirements are satisfied.

Although the RHWM and the DWTF training programs did not satisfy all of the above criteria, it has been concluded that these programs meet the intent of objective three.

BEST PRACTICES:

None.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-4	Date:	July 26, 2004

OBJECTIVE:

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate

CRITERIA:

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH:

1. Copies of facility- or organization-specific Job and Task Analysis implementing procedures.
2. The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position.
3. The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position.
4. Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

1. The LTRAIN Reports and Questionnaires for the select positions (operator/technicians/maintenance) to determine how the knowledge, skills, and abilities for successful job completion.
2. Environmental Protection Department (EPD) Training Management Plan, Revision 2, May 2000.
3. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-4	Date:	July 26, 2004

4. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
5. Safety and Environmental Protection (SEP) Integrated ES&H Management Program, Appendix A, Safety and Environmental Protection Directorate Training Plan, June 2004.
6. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
7. Environmental Protection Department (EPD) Training Procedure EPD-TG-100, Course Analysis and Design, Rev. 0, 05/10/00.
8. Environmental Protection Department (EPD) Training Procedure EPD-TG-101, Course Development, Rev. 0, June 2000.
9. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
10. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).
11. Building 693 Container Storage Unit Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-022, Revision 3, April 8, 2004.
12. Receiving and Segregation Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-039, Revision 3, April 26, 2004.

INTERVIEWS:

1. EPD Training Manager
2. RHWM Training Manager
3. RHWM Training Coordinator
4. RHWM Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

DISCUSSION:

- 4.1.1 *The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis. The Training Development and Implementation Section of referenced document 2 for this objective specifies that the EPD Training Group utilizes a SAT in accordance with federal, state, and local regulations, and DOE orders for the development of environmental courses. The SAT process provides a systematic determination of learning methodology and development of instructional materials appropriate for the course objectives.*

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-4	Date:	July 26, 2004

- 4.1.2 Discussions with the EPD Training Manager revealed that the Hazardous Controls training organization uses the same process that the EPD Training Group uses for developing courses assigned to the RHWM and DWTF qualified positions.
- 4.1.3 Referenced documents 7 and 8 above are the formal and documented SAT procedures that EPD uses with developing training materials. When developing training materials using these procedures, the outputs are electronically stored in the course history file. The course history files are stored either on compact disk (CD), read-only memory (ROM) or on the Electronic-Course Resource and Implementation Binder (E-CRIB) server. Referenced document 7 also specifies how the EPD training materials become included and indexed on the LTRAIN system. These procedures identify and document the tasks required for competent job performance, systematically analyze the requirements of the job, and include the necessary results in a training course. These courses are then entered into the LTRAIN system. The RHWM Training Team completes the LTRAIN job questionnaire for those RHWM employees that are in positions identified in the RHWM TIMs that must meet qualification requirements. The completion of the LTRAIN job questionnaire for these employees determines the courses in the employees' training programs. Those training courses developed by EPD, Hazards Controls, and RHWM, and included in RHWM employees' training plan are based on the results of the systematic analysis of job requirements.
- 4.1.4 Referenced documents 11 and 12 are example products of the SAT methodology implemented by the EPD, Hazards Controls, and the RHWM training staffs. The SAT methods are used for the development and implementation of training and qualification materials for the qualified positions identified in RHWM TIMs.
- 4.2.1 *Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.* Referenced document 7 requires training specialists to meet with the training program leader to review any regulatory issues and requirements that could affect course development. Additionally, the procedure requires training specialists to identify and produce references used in development of the course. Referenced document 8 specifies that the training specialist is to include in the course materials all supporting information, including references, that will be used by the student in the training.
- 4.2.2 Referenced documents 11 and 12 indicate that the Codes of Federal Regulations, the Hazardous Waste Management Facilities Final Safety Analysis Report, and Technical Safety Requirements document, Contingency Plan for Radioactive and Hazardous Waste Management Facilities, various RHWM facility safety plans, and the LLNL ES&H Manual were referenced in the development of the courses for the qualified positions in the RHWM TIMs.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-4	Date:	July 26, 2004

4.2.3 The position training plans included in referenced documents 3, 4, and 10 identify all the courses that employees must initially complete to become qualified. The plans also identify how often the employees must complete each course during continuing training. Additionally, referenced documents 3, 4, and 10 specify that the training staff is required to review the training plans every two years to ensure that the positional initial and continuing training plans are maintained current and up to date based upon assignment of position responsibilities.

4.3 *Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.* Review of the training plans for the technical staff positions identified in referenced documents 4 and 10 reveals that the plans contain courses that were developed by EPD, Hazardous Controls, and/or RHWM training personnel using the EPD training procedures or their equivalent that implement a SAT methodology. The EPD SAT process systematically assesses position duties and responsibilities and uses the results of assessments to develop training courses.

4.3.2 Referenced documents 11 and 12 provide documented evidence that the training for technical staff personnel is based on assessment of position duties and responsibilities.

CONCLUSION/SUMMARY:

Objective 4 and Criteria 1, 2, 3, and 4 are met.

The RHWM and the DWTF training programs have been evaluated against the above criteria and it has been concluded that these training programs meet objective four, and these programs have identified, documented, and included content for competent job performance.

BEST PRACTICES:

None.

OPPORTUNITIES FOR IMPROVEMENT:

None.

FINDING:

None.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-4	Date:	July 26, 2004

Reviewed By: Mark Schares **Approved By:** Lynn Maestas
Team Member **Team Leader**

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 &4 met
Objective Number:	TQ-5	Date:	July 26, 2004

OBJECTIVE:

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

CRITERIA:

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved.
2. Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current.
3. Existing lesson plans and/or OJT guides for training selected technical staff positions.
4. Documentation of completed continuing training.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

1. Environmental Protection Department (EPD) Training Procedure EPD-TG-102, Instructor Qualifications, Rev. 0, 06/27/02.
2. Environmental Protection Department (EPD) Training Management Plan, Revision 2, May 2000.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 &4 met
Objective Number:	TQ-5	Date:	July 26, 2004

3. Environmental Protection Department Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
4. Safety and Environmental Protection (SEP) Integrated ES&H Management Program, Appendix A, Safety and Environmental Protection Directorate Training Plan, June 2004.
5. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
6. Environmental Protection Department (EPD) Training Procedure EPD-TG-100, Course Analysis and Design, Rev. 0, 05/10/00.
7. Environmental Protection Department (EPD) Training Procedure EPD-TG-101, Course Development, Rev. 0, June 2000.
8. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
9. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).
10. Building 693 Container Storage Unit Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-022, Revision 3, April 8, 2004.
11. Receiving and Segregation Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-039, Revision 3, April 26, 2004.
12. Environmental Protection Department, Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).
13. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
14. HWM OJT Program Training Materials Self-Assessment Survey, April 30, 2001.

INTERVIEWS:

1. EPD Training Manager
2. RHWM Training Manager
3. RHWM Training Coordinator
4. RHWM Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

DISCUSSION:

- 5.1.1 *Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms. Referenced document 6 specifies the steps performed in analyzing and designing a training course. The procedure provides*

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-5	Date:	July 26, 2004

guidance in identifying tasks through a table-top job and task analysis method, and it includes a method for evaluating the tasks to determine which tasks require training using a task to training matrix. Once it is determined which tasks are required to be trained, referenced document 6 also specifies how to develop learning objectives based upon the job tasks.

- 5.1.2 Referenced documents 10 and 11 were reviewed, and it was determined that the lesson plan's goals, overview statements, and learning objectives describe the knowledge and skills necessary to perform the jobs.
- 5.2 *Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.* Referenced documents 10 and 11 are approved by SMEs involved with the analysis, design, and development of the course materials, and the SMEs' supervisors, to ensure that the content of the course materials is accurate. Additionally, the lesson plans and the performance evaluation checklists do support the learning objectives and provide an effective means of the instructor meeting the goal of the training, and of providing students with an effective way for obtaining the course objectives.
- 5.2.2 Referenced document 14 is a survey completed by ten OJT instructors to evaluate the OJT materials and to help determine if the developmental process requires improvement. The results of the survey indicated that the OJT materials and development process were rated in a range between good and excellent.
- 5.2.3 Assessors reviewed a random selection of web-based training courses to determine if they provide the trainees with sufficient guidance and supporting materials for achieving the learning objectives. Review of the ISO003-W, IWS Awareness, HS4052-W, Health Hazards Communications for Supervisors of Chemical Labs, and HS00095-W, Site 300 Safety Orientation Training, revealed that the courses provide adequate guidance and have supporting references available to the students using linked documents.
- 5.2.4 Review of trainee evaluations for courses EP5003, RCRA Facility Operations, and EP5003-001, RCRA Facility Management using a random sampling of classes revealed that the majority of the trainees provided positive evaluation scores and comments regarding the courses, materials, and the instructors.
- 5.3 *Review, approval, and control requirements are established and utilized for all training materials.* Referenced documents 6-8, state that the products developed during the analysis, design and development stages are distributed to the EPD Training Lead, the Training Specialist, and the Subject Matter Expert involved on the analysis, design, and development team for review and approval. A review of referenced documents 10 and 11 shows they contain the names and titles of those individuals who have or who will

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 &4 met
Objective Number:	TQ-5	Date:	July 26, 2004

have approved the lesson plans for content (subject matter expert and the organizational manager) and for instructional design (Training Specialist and the RHWM Training Manager).

- 5.4 *A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.* Referenced documents 12 and 13 specify that continuing training addresses all positions within the RHWM and DWTF. It further specifies that the program is based on job and task analysis information to ensure that it is commensurate with specific position needs. Continuing training includes training in significant facility systems and component changes, applicable procedure changes, applicable industry operating experience, selected fundamentals with emphasis on seldom-used knowledge and skills necessary to assure safety, and other training, as needed, to correct identified performance problems. Further, the references state that continuing training occurs on one-, two-, or three-year cycles, depending upon the course. All task specific activities performed within the RHWM nuclear facilities have OJT associated with them and occur on a two-year cycle. All successful completions of training include a signature of the attendance roster and/or the performance evaluation checklist (PEC). The official record of completion is the entry of course completion into LTRAIN. Finally, referenced documents 12 and 13 specify that continuing training requirements for all RHWM and DWTF job positions are contained in the position training plans. These plans are reviewed and updated at least every two years, and as needed, based upon changes to job duties and institutional training requirements.

CONCLUSION/SUMMARY:

Objective 5 and Criteria 1, 2, 3, and 4 are met.

RHWM Division and DWTF training programs were evaluated against the above criteria and it has been concluded that these programs meet objective five.

The materials used in these programs identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. Additionally, it has been determined that the content of the initial training programs prepares trainees to perform the job for which the candidates are being trained. Finally, the content of continuing training maintains and improves incumbent job performance.

BEST PRACTICES:

None.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 &4 met
Objective Number:	TQ-5	Date:	July 26, 2004

OPPORTUNITIES FOR IMPROVEMENT:

None.

FINDING:

None.

Reviewed By: Mark Schares **Approved By:** Lynn Maestas
Team Member **Team Leader**

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 & 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

OBJECTIVE:

Training is conducted in the setting most suitable for the particular training content. Training is consistently and effectively presented using approved lesson plans and other training guides.

CRITERIA:

1. Training is conducted using approved and current training materials. Lesson plans that meet criterion 5.2 are used to deliver training. Training in all settings is sequenced effectively to provide completion of prerequisite knowledge and skills prior to receiving training on more advanced knowledge and skills. Individualized instruction, when used, provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives.
2. Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. Instructors use the references, tools, equipment, and conditions of task performance that reflect actual job conditions to the extent practicable. Trainee demonstration of task performance is evaluated on actual plant equipment whenever feasible.
3. On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. Line management implements standards and policies pertaining to the conduct of on-the-job training (OJT). Personnel who are designated by line management and are trained in the instructional techniques peculiar to OJT conduct and evaluate it. OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Part time OJT instructors and/or evaluators are trained in OJT instructional methods. Completion of OJT and task qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible. Task performance evaluation is conducted using valid methods and consists of evaluating trainee performance using established standards prior to task or job qualification. Structured on-the-job familiarization is normally used in lieu of formal on-the-job training and evaluation for managers, non-certified supervisors, and technical staff. During this phase, the candidate works closely with supervisors and managers in their day-to-day job functions, including decision-making.
4. Laboratory training is effectively and consistently presented. Laboratory training provides hands-on application of principles conveyed during the classroom training and encourages analytical skills development. The training program content is implemented as outlined by approved training materials and is structured to provide practical experience. Laboratory training activities encourage direct trainee participation in the learning process. Conditions of task performance, references, tools, and equipment reflect actual job performance requirements to the extent possible. Evaluation of trainee performance verifies that the trainee has obtained the essential knowledge and performance skills associated with the job.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 & 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

5. Simulator training is effectively and consistently presented, where appropriate. Training on a facility control room or process simulator is used to build operating team skills and/or enhance the effectiveness of hands-on skill training. An appropriate simulator is used for hands-on training to demonstrate operational characteristics and for recognition and control of normal, abnormal, and emergency facility/process conditions. Differences between the simulator and the facility/process are accommodated in the training session.

APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training is implemented in the field.
2. Existing lesson plans and/or OJT guides for training selected technical staff positions.
3. Documentation of completed continuing training.
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

DOCUMENTS REVIEWED:

1. The LTRAIN Reports and Questionnaires for the select positions (operator/technicians/maintenance) to determine how the knowledge, skills, and abilities for successful job completion.
2. Environmental Protection Department (EPD) Training Management Plan, Revision 2, May 2000.
3. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).
4. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
5. Safety and Environmental Protection (SEP) Integrated ES&H Management Program, Appendix A, Safety and Environmental Protection Directorate Training Plan, June 2004.
6. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
7. Environmental Protection Department (EPD) Training Procedure EPD-TG-100, Course Analysis and Design, Rev. 0, 05/10/00.
8. Environmental Protection Department (EPD) Training Procedure EPD-TG-101, Course Development, Rev. 0, June 2000.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 & 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

9. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
10. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).
11. Building 693 Container Storage Unit Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-022, Revision 3, April 8, 2004.
12. Receiving and Segregation Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-039, Revision 3, April 26, 2004.
13. Building 695 Evaporator Units Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-027, Revision 2, July, 2003.
14. Waste Sampling Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5200-006, Revision 0, May 1, 1997.
15. Matrix of RHWM Instructors and Courses
16. Environmental Protection Department (EPD) Training Procedure EPD-TG-102, Instructor Qualifications, Rev. 0, 06/27/02.
17. ES&H Manual, Environment, Safety, and Health, Volume IV, Part 40: Training, 40.1, LLNL Training Program Manual, Revision 1, July 11, 2001.

INTERVIEWS:

1. EPD Training Manager
2. RHWM Training Manager
3. RHWM Training Coordinator
4. RHWM Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

DISCUSSION:

- 6.1.1 *Training is conducted using approved and current training materials. Lesson plans that meet criterion 5.2 are used to deliver training. Training in all settings is sequenced effectively to provide completion of prerequisite knowledge and skills prior to receiving training on more advanced knowledge and skills. Individualized instruction, when used, provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives. Assessors conducted discussions with the RHWM Training Coordinator regarding publishing the approved and current training materials. The RHWM utilizes ECRIB that electronically controls the development and revisal of course materials. Only the latest approved training materials are printed from ECRIB by the RHWM Training Coordinator and kept in a training materials room. When setting up for a course, the RHWM Training Coordinator uses a course setup sheet to obtain copies of the latest training materials from the training materials room.*

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 & 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

- 6.1.2 Referenced document 8 specifies that, during course development, lesson plans will be numbered and arranged in the order that was determined during the analysis and design phase. The course outline from the course analysis and design package captures the modules to be taught and their teaching order.
- 6.1.3 Referenced documents 11 through 14 provide instructors with a list of prerequisite courses that must be completed before the student may take the referenced courses. Additionally, course prerequisites are listed in the course catalog so that students are provided with this information before they register to take a course. Further, referenced documents 3, 4, and 10 specify that because the OJT materials have prerequisite training requirements, qualification for a specific task can only be granted if all of the prerequisites have also been met.
- 6.1.4 Assessors reviewed a random selection of web-based training courses to determine if they provide the trainees with sufficient guidance and supporting materials for achieving the learning objectives. Review of the ISO003-W, IWS Awareness, HS4052-W, Health Hazards Communications for Supervisors of Chemical Labs, and HS00095-W, and Site 300 Safety Orientation Training revealed that the courses provide adequate guidance and have supporting references available to the students using linked documents.
- 6.1.5 Referenced documents 3, 4, and 10 state that RHWM employees are assigned a Required Reading Program and that this program meets the requirements of DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*. This program requires personnel to read, on an annual basis, the RHWM safety-related policies and procedures pertinent to their job assignment. Included in these assignments are health and safety procedures, emergency response procedures, documented safety analysis (DSA) and technical safety requirements (TSRs), providing an opportunity for personnel to ask questions and discuss the content of these procedures with their immediate supervisor. An acknowledgement form, signed by the employee and by the employee's supervisor, is used to validate successful completion of the reading assignment. These forms are forwarded to the RHWM D Training Administrator for course credit and record retention. It has been determined that the required reading programs provide adequate guidance and have supporting references available to the students.
- 6.2.1 *Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. Instructors use the references, tools, equipment, and conditions of task performance that reflect actual job conditions to the extent practicable. Trainee demonstration of task performance is evaluated on actual plant equipment whenever feasible.* Review of the training plans for the qualified positions in the RHWM TIMs provides employees in qualified positions with a combination of web-based training, computer-based training, classroom training, self-study, and on-the-job training (OJT). Review of referenced documents 11 through 14 requires the instructor to ensure

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 & 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

that all of the equipment is available and operational for the instructing students during the course and for student's performance evaluation.

- 6.2.2 The Waste Treatment Group Leader stated that OJT is conducted using the equipment in the facilities. If a piece of equipment is not available to perform the OJT, then that course is not conducted until that piece of equipment becomes available.
- 6.2.3 Assessors conducted discussions with the Facility Operations Team Leader regarding how the RHWM OJT portion of the training program is implemented. The Facility Operations Team Leader had an SME on the drum handler (drum gripper device and a fork truck) conduct a walk-through of how the OJT would be conducted using the actual equipment. A second SME discussed how the OJT on the 1000-gallon vacuum tanker would be completed; however, it could not be walked through due to the unavailability of the tanker.
- 6.3.1 *On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. Line management implements standards and policies pertaining to the conduct of on-the-job training (OJT). Personnel who are designated by line management and are trained in the instructional techniques peculiar to OJT conduct and evaluate it. OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Part time OJT instructors and/or evaluators are trained in OJT instructional methods. Completion of OJT and task qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible. Task performance evaluation is conducted using valid methods and consists of evaluating trainee performance using established standards prior to task or job qualification. Structured on-the-job familiarization is normally used in lieu of formal on-the-job training and evaluation for managers, non-certified supervisors, and technical staff. During this phase, the candidate works closely with supervisors and managers in their day-to-day job functions, including decision-making. Referenced document 15 displays the instructors who are responsible for teaching each course. Referenced documents 3, 4, and 10 specify that instructors who teach formal classes are qualified in accordance with referenced document 16. Instructors who are responsible for providing instruction on subjects such as Technical Safety Requirements receive training on facility operation characteristics and principles, and operating limits and their bases. A review of random instructor qualification records was performed and the records were found to comply with referenced document 16.*
- 6.3.2 Refer to the discussion with criterion 6.2 regarding the portion of criterion 6.3 addressing when OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Completion of OJT and task qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 & 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible.

- 6.3.3 Review of the task plans for managers, non-certified supervisors, and technical staff indicate that all of the plans include only courses that are conducted using one of the following methods (excluding structured on-the-job experience): classroom lecture, OJT, web-based training, computer-based training, self-study, and required reading.
- 6.3.4 Referenced document 17 specifies that for LLNL-managed activities, formal OJT is defined as the process used when OJT is part of a formal qualification or certification program in an LLNL nuclear facility. Therefore it is determined that structured on-the-job familiarization is not normally used in the RHWM training courses for managers, non-certified supervisors, and technical staff. However, the required reading process described in referenced documents 3, 4, and 10, and the fact that employees are not permitted to complete tasks for which they are not qualified unless they are supervised, seems to satisfy the criteria for on-the-job experience as stated in criterion 6.3.
- 6.4 *Laboratory training is effectively and consistently presented. Laboratory training provides hands-on application of principles conveyed during the classroom training and encourages analytical skills development. The training program content is implemented as outlined by approved training materials and is structured to provide practical experience. Laboratory training activities encourage direct trainee participation in the learning process. Conditions of task performance, references, tools, and equipment reflect actual job performance requirements to the extent possible. Evaluation of trainee performance verifies that the trainee has obtained the essential knowledge and performance skills associated with the job.* Discussions with the RWMD Training Program Manager revealed that the training programs for the RWMD and DWTF facility qualified positions do not utilize laboratory training. Therefore, it has been determined that criterion 6.4 is not applicable for evaluating the RHWM and DWTF facility training programs.
- 6.5 *Simulator training is effectively and consistently presented, where appropriate. Training on a facility control room or process simulator is used to build operating team skills and/or enhance the effectiveness of hands-on skill training. An appropriate simulator is used for hands-on training to demonstrate operational characteristics and for recognition and control of normal, abnormal, and emergency facility/process conditions. Differences between the simulator and the facility/process are accommodated in the training session.* Discussions with the RWMD Training Program Manager revealed that the training programs for the RWMD and DWTF facility qualified positions do not currently utilize simulator training. Therefore, it has been determined that criterion 6.5 is not applicable for evaluating the RHWM and DWTF facility training programs.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met; 4 & 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

CONCLUSION/SUMMARY:

Objective 6 and Criteria 1, 2, and 3 are met. Criteria 4 and 5 are Not Applicable and therefore not evaluated.

The RHWM and the DWTF training programs were evaluated against the above criteria and it has been concluded that these programs meet objective six and the RHWM and the DWTF training courses are conducted in the setting most suitable for the particular training content and are consistently and effectively presented using approved lesson plans and other training guides.

BEST PRACTICES:

None.

OPPORTUNITIES FOR IMPROVEMENT:

None.

FINDING:

None.

Reviewed By: Mark Schares **Approved By:** Lynn Maestas
Team Member **Team Leader**

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5 met; 3 & 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

OBJECTIVE:

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA:

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations.
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations.
3. Selected examinations.
4. Selected individual training records.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5 met; 3 & 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

DOCUMENTS REVIEWED:

1. The LTRAIN Reports and Questionnaires for the select positions (operator/technicians/maintenance) to determine how the knowledge, skills, and abilities for successful job completion.
2. Environmental Protection Department (EPD) Training Management Plan, Revision 2, May 2000.
3. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).
4. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
5. Safety and Environmental Protection (SEP) Integrated ES&H Management Program, Appendix A, Safety and Environmental Protection Directorate Training Plan, June 2004.
6. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
7. Environmental Protection Department (EPD) Training Procedure EPD-TG-100, Course Analysis and Design, Rev. 0, 05/10/00.
8. Environmental Protection Department (EPD) Training Procedure EPD-TG-101, Course Development, Rev. 0, June 2000.
9. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
10. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).
11. Building 693 Container Storage Unit Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-022, Revision 3, April 8, 2004.
12. Receiving and Segregation Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-039, Revision 3, April 26, 2004.

INTERVIEWS:

1. EPD Training Manager
2. RHWM Training Manager
3. RHWM Training Coordinator
4. RHWM Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

DISCUSSION:

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5 met; 3 & 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

7.1 *Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.* Discussions with the RHWM Training Coordinator indicated that most, if not all, classroom, computer-based, and web-based courses developed by the teaching organizations for the RHWM and DWTF positions have examinations that the employees must successfully complete to receive credit for course completion. Referenced documents 11 and 12 contain the performance evaluation checklist (PEC) which requires the employee to meet the passing criteria in order to obtain credit for the course.

7.2.1 *Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.* Referenced document 8 provides guidance for the EPD training specialists with development of the end of course examinations and their answer keys. These examinations are used to determine the student's mastery of the course learning objectives.

7.2.2 Referenced documents 11 and 12 were reviewed and they contain examples of OJT performance evaluation checklists that are used to evaluate a student's performance to determine mastery of the course learning objectives

7.3.1 *The content of written and oral examinations is changed at intervals sufficient to prevent compromise.* Review of examinations for courses EP5003, RCRA Facility Operations, and EP5003-001, RCRA Facility Management, from a random sampling of classes, revealed that there is only one version of the examination for the course.

7.3.2 Referenced documents 2, 7, and 8, contain no description or procedural guidance to direct training specialists to have more than one version of the examination or to revise the content of the examinations to prevent compromise.

7.3.3 Review of examinations for courses EP5003, RCRA Facility Operations, and EP5003-001, RCRA Facility Management, indicated that the examinations were revised in May 2004, and that the content of the questions were modified.

7.3.4 Referenced document 2 requires the review of, and if necessary, the revision of courses annually. No additional references on examinations review and revision, to prevent examination compromise, were requested, available, discovered or provided.

7.4.1 *Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.* Referenced document 8 provides guidance to develop examinations during the course development process.

7.4.2 The RHWM Training Coordinator stated that the training specialists provide the final approved training materials, including examinations, for each course for placement into

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5met; 3 & 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

ECRIB. Only the RHWM Training Coordinator has access to ECRIB to print materials for placement in the training materials room.

- 7.4.3 Referenced document 2 requires the review of, and if necessary, the revision of courses annually. No additional instructions on examinations review and revisal to prevent examination compromise were requested, available, discovered, or provided.
- 7.4.4 Reviewed the following written examination: EP5010-W, RHWM General Employee Training, EP0007 Waste Process and Matrix Identification Review, EP0008 Waste Characterization and Approval Course, EP5200 Waste Sampling Exam. There were no approval pages to indicate the approval status of the examinations.
- 7.5.1 *Remedial training and reevaluation are provided when examination or performance standards are not met.* Referenced document 2 states that new employees are provided with six months to complete all of their training and qualification requirements.
- 7.5.2 Discussions with the RHWM Training Manager indicated that the RHWM and DWTF employees are prevented from working on tasks that they are not qualified to perform and employees do not received credit for the course unless they successfully complete it. The employees are able to retake both the course and the examination as many times as necessary to successfully complete the examinations.

CONCLUSION/SUMMARY:

Objective 7 and Criteria 1, 2, and 5 are met. Criteria 3 and 4 are not met.

The RHWM and the DWTF training programs were evaluated against the above criteria and it has been concluded that these programs, although they did not satisfy all of the criteria, they did meet the intent of objective seven.

The RHWM and DWTF training programs should develop formal and documented processes for examination development, administration, security, maintenance and compromise control; and should develop formal and documented processes for remedial training and reevaluation.

BEST PRACTICES:

None.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5met; 3 & 4 not met
Objective Number:	TQ-7	Date:	July 26, 2004

OPPORTUNITIES FOR IMPROVEMENT:

- 7.1 The EPD, RHWM, and the DWTF training programs do not have a formally documented process in place for changing the content of written and oral examinations at intervals sufficient to prevent compromise. It is recommended that the EPD and RHWM training organizations evaluate their training courses to determine which courses would warrant development of a formal documented process for revising examinations more than once a year and/or having multiple versions of examinations to prevent compromise. Based on the results of their evaluation, the EPD and RHWM training organizations should document their determined processes to prevent examination compromise.

- 7.2 The EPD, RHWM, and DWTF training programs do not have a formal process in place for development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations to ensure that they are formally controlled. It is recommended that the EPD and RHWM training organizations should develop a formal documented process that guides the training staffs with the development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations.

- 7.3 The EPD, RHWM, and the DWTF training programs do not have a formal documented process in place for conducting remedial training and reevaluation. The existing process is to allow employees to retake training courses as many times as necessary until they successfully complete the written examination or performance evaluation. It is recommended that the EPD and RHWM training organizations should develop a formal documented process that guides the training staffs with determining the cause of the training failures, development of remedial training and reevaluation plans, and the implementation of the remedial training and reevaluation process.

FINDING:

None.

Reviewed By: Mark Schares **Approved By:** Lynn Maestas
Team Member **Team Leader**

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5met; 3 & 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

OBJECTIVE:

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA:

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH:

1. Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness.
2. Training evaluation documentation selected training materials.

DOCUMENTS REVIEWED:

1. The LTRAIN Reports and Questionnaires for the select positions (operator/technicians/maintenance) to determine how the knowledge, skills, and abilities for successful job completion.

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5 met; 3 & 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

2. Environmental Protection Department (EPD) Training Management Plan, Revision 2, May 2000.
3. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, January 2003 (UCRL-AR-116655, Rev 2).
4. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, June 2004 (UCRL-AR-16655, Rev 3).
5. Safety and Environmental Protection (SEP) Integrated ES&H Management Program, Appendix A, Safety and Environmental Protection Directorate Training Plan, June 2004.
6. ES&H Manual, Environment, Safety, and Health, Volume V, Part 50: Personnel Training and Qualification, Document 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities, Revision 2, April 19, 2004.
7. Environmental Protection Department (EPD) Training Procedure EPD-TG-100, Course Analysis and Design, Rev. 0, 05/10/00.
8. Environmental Protection Department (EPD) Training Procedure EPD-TG-101, Course Development, Rev. 0, June 2000.
9. Environmental Protection Department, Hazardous Waste Management Division, HWM Training Management Plan, October 1995.
10. Environmental Protection Department Training Implementation Matrix for the Radioactive and Hazardous Waste Management Division, TRU Waste Legacy Project, December 2003, (UCRL-AR-155041, Rev 0).
11. Building 693 Container Storage Unit Course Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-022, Revision 3, April 8, 2004.
12. Receiving and Segregation Lesson Plan and Performance Evaluation Checklist, Course Number EP5120-039, Revision 3, April 26, 2004.
13. SSEP Self-Assessment Focus Area Worksheet, Training Program, 2/10/03.
14. ES&H Manual, Environment, Safety, and Health, Volume IV, Part 40: Training, 40.1, LLNL Training Program Manual, Revision 1, July 11, 2001.
15. ES&H Manual, Environment, Safety, and Health, Volume IV, Part 40: Training, 40.2, Environment, Safety, and Health Training and Education, Revision 1, August 27, 2001.
16. ES&H Manual, Environment Safety and Health, Volume 1, Part 4: Feedback and Improvement; Document 4.1: Directorate Environment, Safety, and Health Self-Assessment Program, Revision 2, February 18, 2004.
17. ES&H Manual, Environment, Safety, and Health, Volume 1, Part 4: Feedback and Improvement, Document 4.4: Identification, Reporting, and Tracking of Noncompliances with Nuclear Safety Requirements, Revision 1, May 23, 2001.
18. ES&H Manual, Environment, Safety, and Health, Volume 1, Part 4: Feedback and Improvement; Document 4.2: ES&H Issues and Deficiencies Management, Revision 1, May 27, 2004.

INTERVIEWS:

1. EPD Training Manager

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5 met; 3 & 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

2. RHWM Training Manager
3. RHWM Training Coordinator
4. RHWM Administrator
5. RHWM Waste Treatment Group Leader
6. RHWM Facility Operations Team Leader
7. RHWM Storage and Disposal Group Storage Operations Driver
8. RHWM Storage and Disposal Group Area 612 Yard Technician

DISCUSSION:

- 8.1 *A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.*
Referenced document 5 indicates that each department will perform a self-assessment of the effectiveness of its training program according to the LLNL training manual and the SEP Self-Assessment Plan. Reference 13 is the criteria used in performing the departmental self-assessments. Reference 14 requires that these assessments be performed at intervals no longer than three years. Reference 5 specifies that all SEP personnel including managers must be trained and qualified to perform their assignments. Reference 17 recommends that the persons participating in the self-assessment should have the skills, background, and experience that match the assignment. Individuals involved need to understand the operations to be assessed and the associated requirements and hazards.
- 8.2.1 *Instructional skills and technical competencies of instructors are evaluated regularly.*
The classroom and OJT courses have student evaluation forms that ask students to provide comments regarding the performance of the instructors. The evaluation forms are completed after the completion of each class. The evaluation forms are maintained in the course history files.
- 8.2.2 Referenced document 2 states that summative evaluations are conducted on the EPD Training Program. These evaluations measure the trainee's ability to achieve performance-based objectives, evaluate the instructor's performance, and assess the course content.
- 8.3.1 *Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.* Referenced document 2 states that the EPD Training Program is assessed in several ways including: formative evaluations; summative evaluation; workplace evaluations; evaluations by students, SMEs, and outside reviewers; and overall assessment of the training program by the EPD Assurance Office.
- 8.3.2 Referenced document 2 implies that the evaluations results provided by students, SMEs, and outside reviewers of required ES&H courses, are used in reviewing the courses, and

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5 met; 3 & 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

if necessary, revising the courses. These reviews, using the evaluation results, are performed annually at a minimum.

- 8.3.3 Reference 2 states that workplace evaluations are inquiries conducted with trainees to determine the appropriateness and adequacy of the training; utilization and value of what was learned; and the impact on the trainee's organization.
- 8.4 *Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.* Referenced document 14 states that the payroll supervisors are responsible for ensuring that their employees' training requirements are reviewed with the employees at least annually and whenever a change in assignment changes the training requirements. Further, an employee's LTRAIN questionnaire shall be updated as a part of this review to ensure that any new requirements added and/or deleted since the last update have been addressed.
- 8.5.1 *Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.* Referenced document 14 states that the payroll supervisors are responsible for ensuring that their employees' training requirements are reviewed with the employees at least annually and whenever a change in assignment changes the training requirements. Further, an employee's LTRAIN questionnaire shall be updated as a part of this review to ensure that any new requirements added and/or deleted since the last update have been addressed.
- 8.5.2 Referenced document 15 states that the ES&H Teaching Organizations monitor federal, state, and local laws, DOE contract requirements, and UC policies for applicable training requirements and notify the LLNL Training Program Committee of any changes. The Training Program Committee (TPC) reviews suggested changes to ITRs and then submits them to the Laboratory Director, or the TPC may approve them if they are minor. Additionally, Teaching Organizations document course development and content, update courses when needed, keep class attendance lists, retain course-completion documentation, and furnish appropriate data for entry into LTRAIN.
- 8.5.3 Referenced document 18 states that The Lawrence Livermore National Laboratory's (LLNL) Environment, Safety, and Health (ES&H) Issues Tracking System is an improved management system for addressing LLNL's ES&H issues and deficiencies. The ES&H Issues Tracking System (ITS) expands on previous system functions by organizing issues and deficiencies in a centralized and structured way. By doing so, it ensures timely and consistent identification and resolution of safety and health issues and deficiencies at the directorate, cross-directorate, and institutional levels, and provides

Facilities:	RHWM and DWTF		
Functional Area:	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 5met; 3 & 4 not met
Objective Number:	TQ-8	Date:	July 26, 2004

status information across all directorates. The ITS provides a consistent, standardized approach for documenting assessments, assigning priorities, and tracking issues and deficiencies.

- 8.5.4 Referenced document 16 states that the directorate self-assessment programs comprise a major part of the overall self-assessment program of ES&H at LLNL. Integrated into the directorate self-assessment program is the work of the ES&H experts who support the work of the directorates while maintaining their institutional role. ES&H experts may conduct self-assessments for the directorates upon request. All of these reviews are important in assuring that LLNL is maintaining and improving a safe workplace. Self-assessment results are documented and provided to those who will be required to respond, the managers of the activity reviewed, and depending on the outcome of the self-assessment, those who have responsibility to change broader management systems, processes, and organization.
- 8.5.5 Referenced document 13 contains the criteria that are used by the SEP directorate when performing self-assessments of its training program. This document directs the SEP directorate to determine what training deficiencies have been identified since the last training self-assessment and directs the SEP directorate to determine the percentage of deficiencies that have been corrected. Referenced document 18 states that when training deficiencies are identified, they will be identified, managed, and closed out using the process contained within referenced document 18.
- 8.5.6 Referenced document 2 states that the EPD Training Program is assessed in several ways including: formative evaluations; summative evaluation; workplace evaluations; evaluations by students, SMEs, and outside reviewers; and overall assessment of the training program by the EPD Assurance Office.
- 8.6.1 *Training materials are maintained current, based upon the results of training program evaluations.* Referenced document 2 implies that the evaluations results provided by students, SMEs and outside reviewers of required ES&H courses are used in reviewing the courses, and if necessary, revising the courses. These reviews using the evaluation results are performed annually, at a minimum.
- 8.6.2 Review of examinations for courses EP5003, RCRA Facility Operations, and EP5003-001, RCRA Facility Management indicated that the examinations were revised in May 2004 and the content of the questions was modified.
- 8.7.1 *Training facilities are evaluated to determine their effect on the training process.* The training plans in referenced documents 3, 4, and 10 indicate that the majority of the training is conducted using classroom lectures and OJT. A tour of the EPD training facilities and classrooms revealed that they are supportive with the implementation of training. In a tour of the Area 612 facility and buildings 693, 695, and 696; and in

Attachment D - Heavy Element Facility Assessment Forms

HEF – B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-1	Date:	July 26, 2004

OBJECTIVE:

The facility is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s).

CRITERIA:

1. Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).
2. An organization/person within line management is responsible for the implementation of the training and qualification program(s).
3. Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.
4. Training records are maintained to support management information needs and to provide required historical data.

APPROACH:

1. Procedures, process instructions, manuals, or other documentation that defines line management responsibility for technical training content and the effectiveness of the training
2. Procedures, process instructions, or other documentation that defines the requirements for maintaining individual training records including training record content and control
3. Selected individual training records
4. Documents that define the goals, objectives and plan for implementing the training and qualification program
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-1	Date:	July 26, 2004

DOCUMENTS REVIEWED:

- Heavy Element Facility – Building 251 Organization, July 1, 2004
- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004
- LLNL ES&H Manual, 50.1, Personnel Selection, Qualification, Training, and Staffing at LLNL Facilities, April 19, 2004
- LLNL ES&H Manual, 40.1, LLNL Training Program Manual, July 11, 2001
- Training at LLNL (briefing), July 12, 2004
- B251 RO/Operator/H&ST Training Requirements 09 July 2004
- LLNL ES&H Manual, 2.1, Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management, April 7, 2003
- Facility Safety Plan, Building 251 Heavy Element Facility, March 26, 2004
- IWS, Enclosure Characterization and Dismantlement for Disposal, May 4, 2004

INTERVIEWS:

- LLNL Training Manager
- Deputy Risk Reduction Project Leader
- Building 251 Training Manager
- Building 251 Training Coordinator
- Building 251 Readiness Assessment Team
- OJT Instructor
- LSO B251 Operations Team Leader

DISCUSSION:

- 1.1.1 *Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program(s).* Facility line management has overall responsibility and authority for the content and effective conduct of the training and qualification program for building 251. The training and qualification program is managed by the building 251 line management with assistance from the B251 Training Manager, and B251 Training Coordinator. The Training Manager works for the Deputy Facility Manager. The Training Manager works directly with the Project Leaders and OJT Trainers on a regular basis to ensure that the Training and Qualification Program has been implemented. The Training Manager monitors staff progress and provides reports to line management regarding the status of staff training and qualification.
- 1.1.2 The Training Manager utilizes several LLNL institutional systems (e.g., LTRAIN, IWS) to implement the program at B251.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-1	Date:	July 26, 2004

- 1.2.1 *An organization/person within line management is responsible for the implementation of the training and qualification program(s).* Line management roles and responsibilities are defined in the B251 TIM, B251 Facility Safety Plan, and the LLNL ES&H Manual. The B251 Facility Manager is responsible for the implementation of the Training and Qualification Program at B251. The Facility Manager relies on the Project Leaders to ensure that workers are qualified to perform their programmatic work functions. The Project Leader works with the B251 Training Manager and Training Coordinator.
- 1.2.2 The Payroll Organization is responsible for ensuring that employees meet base skills training. This covers the skills needed for working at LLNL and pursuing a particular type of work.
- 1.3. *Goals, objectives, and plans are in place to describe the implementation of the training and qualification programs.* The B251 TIM documents how LLNL ensures that personnel working in the Heavy Element Facility are qualified for their job assignments and properly trained to do their work. The B251 training program is a relatively mature program, having been in place and implemented for some years. As such, the goals, objectives, and plans reflect B251's point in its life cycle phase.
- 1.4.1 *Training records are maintained to support management information needs and to provide required historical data.* Training records for B251 are maintained in the LTRAIN system. LTRAIN is based on employee, Payroll Supervisor, and the Payroll Training Manager input. When an organization other than B251 is the Payroll organization, they work with their B251 counterparts to ensure that the information in LTRAIN is adequate and up-to-date.
- 1.4.2 The B251 Training Manager and Training Coordinator have access to the LTRAIN records and manually track facility specific requirements that are captured in the B251 TIM to ensure that these requirements are met. This process appears to be labor intensive as the B251 training staff was not able to perform this task on LTRAIN.

CONCLUSION/SUMMARY:

Objective 1 and Criteria 1, 2, 3, and 4 are met.

The Heavy Element Facility (i.e., B251) is organized, staffed, and managed to facilitate planning, directing, evaluating, and controlling a systematic training process that supports the facility mission(s). It is clear that LLNL senior management have established a training oriented culture at the Lab. Individual facility managers, B251's included, are empowered to ensure their workers are adequately trained and qualified to perform their respective jobs safely and

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1&2 met; 3 not met
Objective Number:	TQ-2	Date:	July 26, 2004

OBJECTIVE:

Training staff (contractor and subcontractor) possesses the technical knowledge, experience, and the developmental and instructional skills required to fulfill their assigned duties.

CRITERIA:

1. The training staff has and maintains the education, experience, and technical qualifications for their respective positions.
2. A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.
3. A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations

APPROACH:

1. List of qualified instructors (classroom and OJT).
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for training staff education, experience and qualification.
3. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the program to train and evaluate training staff.
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.
5. Selected training staff training records.

DOCUMENTS REVIEWED:

- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004
- OJT Instructor Training Records

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1&2 met; 3 not met
Objective Number:	TQ-2	Date:	July 26, 2004

INTERVIEWS:

- Building 251 Training Manager
- Building 251 Training Coordinator
- Building 251 Readiness Assessment Team
- OJT Trainer
- LSO B251 Operations Team Leader

DISCUSSION:

- 2.1.1 *The training staff has and maintains the education, experience, and technical qualifications for their respective positions.* The LLNL Heavy Element Facility Training Implementation Matrix defines the B251 Training Program. The B251 Training Staff consists of the Training Manager, Training Coordinator and support from OJT Trainers.
- 2.1.2 The Training Manager's background includes experience as a Radiation Technician as well as experience with the Institute of Nuclear Power Operations' (INPO) Training Accreditation Program. Additional training related knowledge and skills have been obtained from the Idaho National Laboratory's (INL) Train the Trainer and the LLNL Train the Trainer programs.
- 2.1.3 The OJT trainers have the required technical expertise and have been trained to the LLNL Train the Trainer process.
- 2.2 *A training program is implemented to ensure that training staff gain the knowledge and skills required for their position.* The B251 Training Manager and OJT Trainers have technical knowledge of the facility operations and have completed the LLNL Train the Trainer Program. The Training Manager assists the OJT instructors with the development and performance of OJT training.
- 2.3 *A continuing instructional skills training program is implemented to maintain, improve, and update the knowledge and skills of incumbent training staff based, in part, on the results of instructor evaluations.* The LLNL Train the Trainer Program is a one-time course. Retraining of instructors has not been performed to ensure that instructional skills are maintained, improved or updated. Every course has instructor evaluations. The Training Coordinator reviews the results of the evaluations. The Training Manager is notified of the results as appropriate. EPD holds technology improvement meetings and reviews evaluations. This process is neither formal nor proceduralized.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-3	Date:	July 26, 2004

OBJECTIVE:

Trainees meet the minimum requirements for entry into the training program.

CRITERIA:

1. Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements.
2. Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position.
3. Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the entry-level requirements for each technical staff position
2. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

DOCUMENTS REVIEWED:

- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004
- Training at LLNL (briefing), July 12, 2004
- Resumes
- LTRAIN Records
- Environmental Protection Department Training Section Course Profile, OJT Instructor Training

INTERVIEWS:

- Building 251 Training Manager
- Building 251 Training Coordinator
- Building 251 Readiness Assessment Team
- LLNL Training Manager
- LSO B251 Operations Team Leader

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-3	Date:	July 26, 2004

DISCUSSION:

- 3.1.1 *Entry-level requirements are established for each position and include as applicable the minimum education, experience, technical, and medical requirements. This criterion is discussed in conjunction with 3.2.1.*
- 3.1.2 *Personnel selected for and/or assigned to the operating organization meet the prescribed entry-level requirements prior to being assigned to a position. Each Payroll Organization is responsible for ensuring its employees accomplish the core training. Many technical positions within B251 are filled through matrix support from other Payroll Organizations. The Payroll Organization is responsible for providing trained and qualified workers to the B251 Facility Manager.*
- 3.2.2 *Entry-level requirements specific to B251 are established for specified positions in Section IV of the B251 TIM per DOE O 5480.20A. The Training Coordinator references these requirements when new workers enter the facility. Any deviations from the minimum requirements would be directed to the Training Manager and/or Facility Manager.*
- 3.2.3 *Resumes reviewed demonstrate that the position incumbents exceed the entry-level requirements established by DOE O 5480.20A for the positions reviewed in B251.*
- 3.3 *Training program entry-level requirements are reviewed and revised as necessary based on evaluation of trainee performance. B251 is a small facility. Revision of entry-level requirements has not been required based on trainee performance.*

CONCLUSION/SUMMARY:

Objective 3 and Criteria 1, 2, and 3 are met.

Entry-level requirements, both for employment at LLNL and for working at the HEF have been established and documented. A process for ensuring trainees meet the minimum requirements for entry into the HEF training program is in place.

BEST PRACTICES:

None.

OPPORTUNITIES FOR IMPROVEMENT:

None.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-4	Date:	July 26, 2004

OBJECTIVE:

Program content for competent job performance is identified, documented, and included in the training programs, as appropriate

CRITERIA:

1. The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.
2. Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.
3. Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.

APPROACH:

1. Copies of facility- or organization-specific Job and Task Analysis implementing procedures.
2. The documentation of the analysis done for each operator, technician, and maintenance position to formally identify knowledge, skills, and abilities necessary for the safe successful performance of the tasks associated with the position.
3. The qualification standards that establish the knowledge, skills, and abilities for the most recently qualified individual in each operator, technician, and maintenance position.
4. Existing lesson plans and/or OJT guides for selected operator, technician, and maintenance positions.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-4	Date:	July 26, 2004

DOCUMENTS REVIEWED:

- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004
- Emptying, Disconnection, Characterization and Removal (D&D) of Tier III Gloveboxes and Enclosures from B251, Rev. 0 Binder
- B251 RI/Operator/H&ST Training Requirements Matrix as of July 9, 2004
- IWS, Enclosure Characterization and Dismantlement for Disposal, May 4, 2004
- Administrative Process for Work Plans, March 20, 2003
- B251 Work Permit Process, February 6, 2004

INTERVIEWS:

- Building 251 Training Manager
- Building 251 Training Coordinator
- Building 251 Readiness Assessment Team
- LSO B251 Operations Team Leader

DISCUSSION:

4.1.1 *The tasks required for competent job performance are identified and documented through a systematic analysis of job requirements. The training program is based on the results of this analysis.* The Payroll Organization is responsible for providing personnel that meet the core expectations for each job series encumbered by their employees. The analysis required to determine the appropriate training related to these core responsibilities is captured by LTRAIN. LTRAIN notifies workers and their Payroll Supervisor of expiring and/or delinquent training requirements.

HEF – B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2 & 3 met
Objective Number:	TQ-4	Date:	July 26, 2004

- 4.1.2 Many workers are matrix support to B251 from other Payroll Organizations. The analysis of training requirements specific to B251 is captured in the B251 TIM. The B251 Training Coordinator and Training Manager track the B251 TIM training requirements to ensure that training compliance is maintained.
- 4.1.3 In addition to the training requirements within the TIM, Work Plans are developed by line management to document planned work (background, scope of work, how the work is to be done, hazards, specific actions that need to be performed). The B251 Training Manager is responsible for reviewing the Work Plan to make a determination of what training is required to perform the work. The Training Manager issues a report to the Responsible Individual regarding the training needs and the status of workers qualifications associated with the Work Plan.
- 4.1.4 The Responsible Individual, Project Leader, or Health and Safety Team enter information from the Work Plan into the Integrated Work System (IWS). The IWS generates safety training requirements and inputs these requirements into LTRAIN.
- 4.1.5 Prior to authorizing work, the Project Leader reference the table developed by the Training Coordinator and Training Manger to ensure that training and qualification is up to date. If a worker's qualification is not up to date, their role in the planned work may change such that a qualified worker is responsible for performing the work.
- 4.1.6 This two-step process ensures that the personnel performing work at B251 are qualified to perform their job functions.
- 4.2 *Current facility safety analysis report, procedures, technical and professional references, DOE Guidelines and Orders, and industry operating experience are referenced as applicable to establish both initial and continuing training.* The B251 TIM (Appendix B) documents facility specific training requirements and LTRAIN tracks each employee's training records. Several training course referenced in the TIM and the facility specific matrix reference the safety analysis documentation and other guiding documents as the basis for initial and continuing training.
- 4.3 *Training for Technical Staff personnel is based on an assessment of position duties and responsibilities.* Technical Staff training requirements are explicitly addressed in the B251 TIM. The definition of who is considered to be Technical Staff (per DOE O 5480.20A) was provided by the B251 Training Coordinator. The listing was provided by name and from there it is possible to cross-reference to a functional position title. The process was cumbersome and not user friendly, but satisfied the order requirements.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-5	Date:	July 26, 2004

OBJECTIVE:

Training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted. The content of initial training prepares the trainee to perform the job for which the candidate is being trained. The content of continuing training maintains and improves incumbent job performance.

CRITERIA:

1. Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.
2. Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.
3. Review, approval, and control requirements are established and utilized for all training materials.
4. A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.

APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training materials are developed, reviewed, and approved.
2. Procedures, instructions, or other facility- or organization-specific documentation describing how the continuing training program is developed, implemented, and maintained current.
3. Existing lesson plans and/or OJT guides for training selected technical staff positions.
4. Documentation of completed continuing training.
5. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-5	Date:	July 26, 2004

DOCUMENTS REVIEWED:

- EP5402, Heavy Element Facility (HEF) Glove Box Training, Revision 6, April 1, 2002
- EP5403, Heavy Element Facility (HEF) Shielded Enclosure Training, Revision 6, April 1, 2002
- Heavy Element Facility Shielded Enclosure Training Performance Evaluation Checklist Approval, January 15, 2002
- Heavy Element Facility Glove Box Training Performance Evaluation Checklist Approval, December 17, 2001
- Environmental Protection Department Training Section Course Profile EP5407, OJT Instructor Training
- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004

INTERVIEWS:

- Building 251 Training Manager
- Building 251 Readiness Assessment Team
- LSO B251 Operations Team Leader

DISCUSSION:

- 5.1.1 *Learning objectives are derived from tasks selected for training. Learning Objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms.* The B251 Training Manager follows the guidance from the DOE Guides (i.e., DOE-STD-1005-92, *Guide to Good Practices for Developing Learning Objectives*, good practices, and LLNL ES&H Manual 40.1 and 50.1.
- 5.1.2 Most of the B251 specific training is provided as OJT. Exceptions to this are the facility access Computer Based Training course, required reading, lessons learned, and classes provided by other LLNL training organizations. The OJT is documented by an approved lesson plan with objectives that describe the knowledge and skills required for successful job performance. The OJT examples reviewed met this criterion.
- 5.1.3 The training materials reviewed by the Assessors all contained learning objectives that were measurable and described required knowledge and skills. The lesson materials supported the learning objectives. There was a clearly documented path leading from job and task analysis to the learning objectives to the developed lesson materials.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-5	Date:	July 26, 2004

- 5.2.1 *Lesson plans and other training materials used in the selected training setting (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training [OJT]) are accurate, support the learning objectives, and promote effective delivery of training.* Two lessons plans were reviewed with respect to this criterion. Three evolutions and one drill were reviewed as part of the Readiness Assessment. The lesson plans, evolution procedures, and drill instructions were found to be accurate. The training and drill had a defined objective. The evolutions took place in three different areas of the facility; Assumptions were made to permit demonstration of pertinent aspects of the operation without compromising the effectiveness of the overall demonstration.
- 5.2.2 The demonstrations were well thought out and included direction for the observers (taped lines on the floor) to ensure that the observation did not interfere with the processes that were being observed.
- 5.3.1 *Review, approval, and control requirements are established and utilized for all training materials.* The Subject Matter Expert, Training Specialist, and HEF Deputy Facility Manager approved the training materials reviewed. The three tiers of review and approval are appropriate for this material. The documents have been revised over time and revision numbers are used to track the documents.
- 5.3.2 Control of tests was discussed with the training manager. The test for the computer based access training pulls questions randomly from a test bank. This was found to be appropriate.
- 5.3.3 The OJT training tests consist of a documented set of oral questions and performance demonstrations. The tests are not changed because the goal is for the workers to learn the material completely and the expectation is for the worker to be able to successfully demonstrate each task. This was evaluated and found to be both appropriate and acceptable.
- 5.4.1 *A continuing training program is in place and maintains and improves the knowledge and skills of job incumbents.* Several of the B251 specific courses have mandated intervals for completion of the OJT. For example, the glove box and manipulator training is to be taken every 2 years. Prior to the commencement of the Readiness Assessment, facility management determined that all operators were to be retrained on the glove box and manipulators in anticipation of the work load associated with the RRP.
- 5.4.2 In addition to the refresher courses, other forms of continuing training tracked by the facility include required reading (lessons learned, procedures, safety basis updates, USQ), computer based training, drills.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met
Objective Number:	TQ-5	Date:	July 26, 2004

CONCLUSION/SUMMARY:

Objective 6 and Criteria 1, 2, 3, and 4 are met.

The training program materials identify and support the knowledge and skills needed by trainees to perform tasks associated with the position for which training is being conducted.

BEST PRACTICE:

None.

OPPORTUNITIES FOR IMPROVEMENT:

None.

FINDING:

None.

Reviewed By: Lynn Maestas
Team Member

Approved By: Lynn Maestas
Team Leader

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

OBJECTIVE:

Training is conducted in the setting most suitable for the particular training content. Training is consistently and effectively presented using approved lesson plans and other training guides.

CRITERIA:

1. Training is conducted using approved and current training materials. Lesson plans that meet criterion 5.2 are used to deliver training. Training in all settings is sequenced effectively to provide completion of prerequisite knowledge and skills prior to receiving training on more advanced knowledge and skills. Individualized instruction, when used, provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives.
2. Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. Instructors use the references, tools, equipment, and conditions of task performance that reflect actual job conditions to the extent practicable. Trainee demonstration of task performance is evaluated on actual plant equipment whenever feasible.
3. On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. Line management implements standards and policies pertaining to the conduct of on-the-job training (OJT). Personnel who are designated by line management and are trained in the instructional techniques peculiar to OJT conduct and evaluate it. OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Part time OJT instructors and/or evaluators are trained in OJT instructional methods. Completion of OJT and task qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible. Task performance evaluation is conducted using valid methods and consists of evaluating trainee performance using established standards prior to task or job qualification. Structured on-the-job familiarization is normally used in lieu of formal on-the-job training and evaluation for managers, non-certified supervisors, and technical staff. During this phase, the candidate works closely with supervisors and managers in their day-to-day job functions, including decision-making.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

4. Laboratory training is effectively and consistently presented. Laboratory training provides hands-on application of principles conveyed during the classroom training and encourages analytical skills development. The training program content is implemented as outlined by approved training materials and is structured to provide practical experience. Laboratory training activities encourage direct trainee participation in the learning process. Conditions of task performance, references, tools, and equipment reflect actual job performance requirements to the extent possible. Evaluation of trainee performance verifies that the trainee has obtained the essential knowledge and performance skills associated with the job.
5. Simulator training is effectively and consistently presented, where appropriate. Training on a facility control room or process simulator is used to build operating team skills and/or enhance the effectiveness of hands-on skill training. An appropriate simulator is used for hands-on training to demonstrate operational characteristics and for recognition and control of normal, abnormal, and emergency facility/process conditions. Differences between the simulator and the facility/process are accommodated in the training session.

APPROACH:

1. Procedures, instructions, or other facility- or organization-specific documentation describing how training is implemented in the field
2. Existing lesson plans and/or OJT guides for training selected technical staff positions
3. Documentation of completed continuing training
4. Additional procedures, process instructions, manuals, or other documentation pertinent to evaluating the Facility/Organization requested by the assessment team

DOCUMENTS REVIEWED:

- LLNL SW/SPEIS, Appendix A, Description of Major Programs and Facilities, February 2004
- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004
- EP5402, Heavy Element Facility (HEF) Glove Box Training, Revision 6, April 1, 2002
- EP5403, Heavy Element Facility (HEF) Shielded Enclosure Training, Revision 6, April 1, 2002
- Heavy Element Facility Shielded Enclosure Training Performance Evaluation Checklist Approval, January 15, 2002

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

- Heavy Element Facility Glove Box Training Performance Evaluation Checklist Approval, December 17, 2001
- Environmental Protection Department Training Section Course Profile EP5407, OJT Instructor Training
- Administrative Process for Work Plans, March 20, 2003
- B251 Work Permit Process, February 6, 2004

INTERVIEWS:

- Building 251 Training Manager
- Building 251 Readiness Assessment Team
- LSO B251 Operations Team Leader
- OJT Instructor

DISCUSSION:

- 6.1.1 *Training is conducted using approved and current training materials. Lesson plans that meet criterion 5.2 are used to deliver training. Training in all settings is sequenced effectively to provide completion of prerequisite knowledge and skills prior to receiving training on more advanced knowledge and skills. Individualized instruction, when used, provides the trainees with sufficient guidance and supporting materials for achieving the learning objectives. This criterion is discussed in conjunction with 6.2.*
- 6.2.1 *Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees. Instructors use the references, tools, equipment, and conditions of task performance that reflect actual job conditions to the extent practicable. Trainee demonstration of task performance is evaluated on actual plant equipment whenever feasible. The training materials reviewed were current and approved. The evolutions and drill observed during the review were done within the facility with equipment similar to the equipment that will be used when the work is performed. A verbal critique was provided after the demonstration and drill that will promote future improvements to the overall process that was observed.*
- 6.2.2 An area in the facility was set up for the operators to practice using the manipulators. The time each operator spent practicing was tracked such that each operator had at least 500 minutes of practices on the equipment.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

- 6.3.1 *On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods. Line management implements standards and policies pertaining to the conduct of on-the-job training (OJT). Personnel who are designated by line management and are trained in the instructional techniques peculiar to OJT conduct and evaluate it. OJT is conducted using valid methods, approved materials, and a planned and logical instructional sequence. Part time OJT instructors and/or evaluators are trained in OJT instructional methods. Completion of OJT and task qualification is by actual task performance whenever possible. When the task cannot be performed, but is simulated or walked-through, the conditions of task performance, references, tools, and equipment reflect actual performance of the task to the extent feasible. Task performance evaluation is conducted using valid methods and consists of evaluating trainee performance using established standards prior to task or job qualification. Structured on-the-job familiarization is normally used in lieu of formal on-the-job training and evaluation for managers, non-certified supervisors, and technical staff. During this phase, the candidate works closely with supervisors and managers in their day-to-day job functions, including decision-making. Three workers have been designated as OJT Trainers for the B251 facility. The three trainers have completed the LLNL Train the Trainer Training. It was noted that continuing training has not been provided to the OJT trainers. It was also noted that evaluation of training was not consistently documented.*
- 6.3.2 The subject matter expert, Training Specialist, and the HEF Deputy Facility Manager approved the OJT Lesson Plan. The lesson plan documented the prerequisites, objectives, required equipment, safety precautions, procedural limitations, and instructor preparation. The lesson plan also contained an outline of the course that would step the instructor and student through the training.
- 6.3.3 B251 is in the process of removing legacy nuclear material such that the categorization of the facility can be downgraded from a nuclear facility to a radiological facility in FY 2005. The process of removing the nuclear material has been defined in the Building 251 Risk Reduction Project (RRP). The RRP consists of three defined phases. The facility has undergone training associated with each phase as well as separate LLNL readiness assessments. This process has permitted the facility to train on individual aspects of the RRP, integrate the aspects by practicing the processes that will be performed for each phase of the RRP, and having a readiness assessment team observe evolutions and provide feedback on performance. As structured, this process appears to go beyond the minimum DOE requirements and represents a best management practice.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3 & 4 met; 5 not applicable
Objective Number:	TQ-6	Date:	July 26, 2004

- 6.4 *Laboratory training is effectively and consistently presented. Laboratory training provides hands-on application of principles conveyed during the classroom training and encourages analytical skills development. The training program content is implemented as outlined by approved training materials and is structured to provide practical experience. Laboratory training activities encourage direct trainee participation in the learning process. Conditions of task performance, references, tools, and equipment reflect actual job performance requirements to the extent possible. Evaluation of trainee performance verifies that the trainee has obtained the essential knowledge and performance skills associated with the job. The B251 specific training is presented as OJT. The OJT is performed within the facility and utilizes equipment similar to the equipment that will be used during the performance of work. Laboratory training environments were available for the OJT and other training evolutions. A cold box with manipulators was available for the operators to practice using the manipulators. Other areas of B251 were also utilized for training and practice evolutions prior to the Readiness Assessment and the commencement of hot work. The OJT is documented by approved training materials and is structure to provide practical experience. Evaluation of each trainee is based on performance and verifies that the trainee has gained the essential knowledge and can perform the actions associated with the job.*
- 6.5 *Simulator training is effectively and consistently presented, where appropriate. Training on a facility control room or process simulator is used to build operating team skills and/or enhance the effectiveness of hands-on skill training. An appropriate simulator is used for hands-on training to demonstrate operational characteristics and for recognition and control of normal, abnormal, and emergency facility/process conditions. Differences between the simulator and the facility/process are accommodated in the training session. B251 does not have a simulator. Therefore, this criterion is not applicable.*

CONCLUSION/SUMMARY:

Objective 6 and Criteria 1, 2, 3, and 4 are met. Criterion 5 is not applicable and was therefore not evaluated.

OJT is conducted in the setting most suitable for the particular training content. OJT is consistently and effectively presented using approved lesson plans.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, 4 & 5 met
Objective Number:	TQ-7	Date:	July 26, 2004

OBJECTIVE:

Individual trainees are examined and/or evaluated on a consistent and regular basis to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

CRITERIA:

1. Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes.
2. Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented.
3. The content of written and oral examinations is changed at intervals sufficient to prevent compromise.
4. Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled.
5. Remedial training and reevaluation are provided when examination or performance standards are not met.

APPROACH:

1. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the requirements for the development, review, approval, revision and control of examinations.
2. Facility- or organization-specific procedures, process instructions, manuals, or other documentation that establishes the process for remediation and reevaluation of personnel who fail examinations.
3. Selected examinations.
4. Selected individual training records.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, 4 & 5 met
Objective Number:	TQ-7	Date:	July 26, 2004

DOCUMENTS REVIEWED:

- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004
- Heavy Element Facility Shielded Enclosure Training Performance Evaluation Checklist Approval, January 15, 2002
- Heavy Element Facility Glove Box Training Performance Evaluation Checklist Approval, December 17, 2001

INTERVIEWS:

- Building 251 Training Manager
- Building 251 Training Coordinator
- Building 251 Readiness Assessment Team
- LSO B251 Operations Team Leader

DISCUSSION:

- 7.1 *Trainees are evaluated regularly using written, oral, and/or performance examinations and quizzes. This criterion is discussed in conjunction with 7.2.*
- 7.2 *Examinations (both written and oral) and OJT, laboratory, or simulator performance evaluations are based on learning objectives, administered consistently, controlled, and documented. Trainees are evaluated for OJT with a Performance Evaluation Checklist. The trainee and evaluator sign the evaluation. The checklists reviewed were also signed by the B251 Training Manager. The evaluation is oral and requires demonstration of skills in addition to competency questions. The attainment standard criterion is "100 percent of all procedural steps completed in accordance with EPD Procedure EP5402."*
- 7.3 *The content of written and oral examinations is changed at intervals sufficient to prevent compromise. This criterion is discussed in conjunction with 7.4.*
- 7.4 *Development, approval, security, administration, and maintenance of written and oral examinations, and performance evaluations are formally controlled. Changing the content of the OJT examinations was discussed in an interview with the Training Manager. The OJT examinations are not regularly changed because the attainment standard criterion is "100 percent of all procedural steps completed in accordance with EPD Procedure EP5402." Given the nature of the HEF training, not changing the exams routinely is deemed appropriate and acceptable.*

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, 4, 5, 6 & 7 met
Objective Number:	TQ-8	Date:	July 26, 2004

OBJECTIVE:

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

CRITERIA:

1. A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.
2. Instructional skills and technical competencies of instructors are evaluated regularly.
3. Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.
4. Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
5. Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.
6. Training materials are maintained current, based upon the results of training program evaluations.
7. Training facilities are evaluated to determine their effect on the training process.

APPROACH:

1. Facility or organization specific procedures, process instructions, manuals, or other documentation that establishes the requirements and the process for ongoing evaluation of technical staff position specific training effectiveness.
2. Training evaluation documentation selected training materials.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, 4, 5, 6 & 7 met
Objective Number:	TQ-8	Date:	July 26, 2004

DOCUMENTS REVIEWED:

- EPD Formal Self Assessment of the EPD Training Program, March 24, 2004
- EPD Training Section Course Evaluations for Waste Module, Hazardous Module, March 10, 2004 (12)
- Lawrence Livermore National Laboratory Heavy Element Facility Training Implementation Matrix (TIM), April 2, 2004
- IWS, Enclosure Characterization and Dismantlement for Disposal, May 4, 2004

INTERVIEWS:

- Building 251 Training Manager
- Building 251 Readiness Assessment Team
- LSO B251 Operations Team Leader

DISCUSSION:

- 8.1.1 *A comprehensive evaluation of individual training programs is conducted by qualified individuals on a periodic basis to identify program strengths and weaknesses.* In March of 2004, EPD conducted a self assessment of their training program. The assessment concentrated on EPD compliance with LTRAIN and IWS training requirements (e.g., statistics regarding employee training status) versus the elements being reviewed by this assessment associated with DOE O 5480.20A.
- 8.1.2 During the performance of this review, a LLNL Readiness Review Team for the Decontamination and Removal of Tier III Gloveboxes evaluated the training and qualification status of the B251 staff.
- 8.1.3 Excerpts from other reviews that included aspects related to training were provided an evaluation of elements of the B251 training program.
- 8.1.4 These examples demonstrate that elements of the B251 training program have been evaluated. However, a comprehensive evaluation of the B251 Training Program has not been performed prior to this assessment.
- 8.2 *Instructional skills and technical competencies of instructors are evaluated regularly.* This criterion is discussed in conjunction with 8.3.

HEF - B 251	TRAINING & QUALIFICATION	Criteria Met/Not Met:	1, 2, 3, 4, 5, 6 & 7 met
Objective Number:	TQ-8	Date:	July 26, 2004

- 8.3.1 *Feedback from trainee performance during training is used to evaluate and refine the training program. Feedback from former trainees and their supervisors is used to evaluate and refine the training program.* Evaluations are provided to trainees to evaluate the course and instructor. The evaluations provide a very high level assessment of the overall course and instructor, but do not provide much information that would facilitate improvement of the course or instruction.
- 8.3.2 The Training Manger works with the OJT instructors to develop lesson plans and provides feedback to the trainers as appropriate.
- 8.3.3 The instructional skills of the instructors are not regularly evaluated in a formal and documented manner.
- 8.4.1 *Change actions (e.g., procedure changes, equipment changes, facility-specific and operating experience) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.* This criterion in discussed below in conjunction with criterion 8.5.
- 8.5.1 *Improvements and changes to initial and continuing training are systematically initiated, evaluated, tracked, and incorporated to correct training deficiencies and performance problems.* During the development of the RRP, several LLNL retirees were brought back to assist with the characterization of materials in storage as well as for the development of the procedures to be used to accomplish the work. This interaction provided the facility a unique opportunity to learn from the retirees and to develop new procedures to perform the work. Procedures have documented how the work is to be performed. Suggestions from the retirees and readiness assessment team are being considered by B251 management.
- 8.5.2 During one session with a retiree, a worker suggested a change be made to the boot change process. After the suggestion was reviewed and accepted, the procedure was revised and the workers were trained. The boot change procedure was demonstrated as one of the readiness assessment evolutions. The overall time to change the boot was decreased. In addition to saving time, it will also decrease overall exposure to radiation for the workers.
- 8.5.3 The Training Manager meets with the Deputy Facility Manger and cognizant engineers at least weekly to ensure that changes are identified, evaluated, and incorporated into the training program. This meeting has been a standing practice for the HEF for several years. A formal agenda is developed for each meeting, the DOE Facility Representative is invited, and formal minutes are developed for each meeting.

