**Department of Energy**
Washington, DC 20585

August 3, 1995

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

Dear Mr. Conway:

In your letter dated June 14, 1995, concerning the Lawrence Livermore National Laboratory's (LLNL) Plutonium Facility (Building 332), you requested the Department of Energy's (DOE) plan for addressing the issues that led to the identified Technical Safety Requirements (TSRs) violations. This letter provides the requested information.

Building 332 was placed in administrative standby by LLNL's management after it was determined by a member of your staff that surveillance requirements identified in the Safety Analysis Report (SAR) were not being fully implemented. A subsequent internal investigation by LLNL and the Oakland Operations Office (OAK) discovered additional deficiencies in the implementation of the facility's Technical Safety Requirements. The cause of these deficiencies was a lack of formality in the conduct of the surveillance program. The situation was compounded by the deficiencies in the TSRs. The DOE's plan for addressing these issues is as follows:

- The LLNL has analyzed the observed deficiencies, reviewed related requirements and commitments, and has developed and implemented a Corrective Action Plan (CAP). Refer to Enclosure 1 - "LLNL Plutonium Facility Correction Action Plan for TSR Implementation Plutonium Facility - Building 332." The CAP covers the development and implementation of validated surveillance procedures and associated worker training. It also establishes a management program to ensure surveillance requirements (SRs) are conducted as defined in the TSRs. Finally, the plan refocuses attention on the completion of all remaining actions contained in the SAR/TSR Implementation Plan;

- The OAK will accelerate the certification of the Facility Representative (FR) for Building 332 and will make organizational adjustments to ensure that there is increased FR presence in the Facility; and

- The DOE Headquarters (HQ), Defense Programs (DP) will make highly qualified mentors available to LLNL and OAK to assist in assessing needs, reviewing procedures, and in developing training.

To determine the effectiveness of these actions and the readiness of the facility to resume operation, the following actions will be taken:

- The LLNL will conduct a Readiness Assessment (RA) beginning on July 31, 1995, in accordance with DOE Order 5480.31, "Startup and Restart of Nuclear Facilities." Refer to Enclosure 2 - "Implementation of Technical Safety Requirements for the Plutonium Facility - Building 332 - Readiness Assessment Plan;"

- The OAK will conduct an RA for Building 332 in August 1995, following completion of the LLNL assessment, in accordance with DOE Order 5480.31. Refer to Enclosure 3 - "Readiness Assessment Plan for the Implementation of Technical Safety Requirements at the Plutonium Facility - Building 332 located at the Lawrence Livermore National Laboratory;" and

- The DOE HQ, DP, will perform an independent assessment of OAK's readiness to conduct oversight of operations in Building 332.

While it is apparent that numerous operational deficiencies were identified in this Facility, I believe that the actions of your staff, LLNL, and OAK have been very positive.

If you need further information regarding this matter, please contact me or have your staff contact Dennis Miotla at (301) 903-5427.

Sincerely,

Victor H. Reis
Assistant Secretary
for Defense Programs

3 Enclosures

cc w/enclosures:
Mark Whitaker, EH-9

# LLNL Plutonium Facility Correction Action Plan

# for

# TSR Implemention

# Plutonium Facility — Building 332

**May 1995**

Prepared by:

Don F. Alves 5.3.95

Don F. Alves
Plutonium Facility Manager

Approved by:

Gordon L. Guenterberg
Deputy Associate Director, Operations
Defense & Nuclear Technologies

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# LLNL Plutonium Facility Corrective Action Plan for TSR Implementation

## 1.0 Introduction

The Lawrence Livermore National Laboratory Plutonium Facility's Safety Analysis Report (*Plutonium Facility—Building 332 Safety Analysis Report*) (SAR) and Technical Safety Requirements document (*Plutonium Facility—Building 332 Technical Safety Requirements*) (TSRs) were approved by the DOE Oakland Operations Office Acting Manager on March 6, 1995, along with the Safety Evaluation Report (SER). The SER contained a Plutonium Facility-generated Implementation Plan for the B332 SAR and TSRs. The Implementation Plan required that all Surveillance Requirements (SRs) be current and in effect by March 31, 1995.

During a Defense Nuclear Facility Safety Board (DNFSB) staff visit on April 4–6, 1995, it was noted that a daily Surveillance Requirement (SR) to verify the differential pressure between the corridors of each Increment in the Plutonium Facility and the outside atmosphere had not been conducted by the off-shift mechanical technicians during the weekend of April 1–2, 1995. During an internal self-assessment, additional deficiencies in the implementation of SRs were discovered.

LLNL did a root-cause analysis to define the causes that led to the missed SR and the additional deficiencies. Based on the results of the root-cause analysis, LLNL developed a Corrective Action Plan to: address the issues raised in the root-cause analysis, achieve continuing compliance with the SAR/TSR Implementation Plan; and accelerate compliance with all TSR/SR-related issues. Once the Corrective Action Plan has been implemented, LLNL will conduct a Readiness Assessment to assess compliance with the plan. The implementation of this Corrective Action Plan will be independently evaluated by DOE/OAK in their Readiness Assessment. At the successful completion of the DOE/OAK Readiness Assessment, it is the intent of LLNL to resume plutonium operations and remove itself from administrative Standby status. Activities within the facility are already underway to implement this Corrective Action Plan.

## 2.0 Scope

The scope of this Corrective Action Plan will be limited to those aspects of the facility that are directly related to the implementation of the TSRs and those actions identified in the root-cause analysis. The TSRs are described in their entirety in the approved TSR document and consist of Limiting Conditions of

Operations (LCOs), Surveillance Requirements (SRs), and Administrative Controls, including use and application instructions, and the bases for the TSRs. No Safety Limits or Limiting Control Settings were warranted.

## 3.0 General

The Corrective Action Plan covers the following activities:

1. The development and implementation of written, approved, and validated SR procedures.

2. The development and completion of SAR/TSR and SR training.

3. The establishment of a management program to:

   - Map the SRs to the organizations responsible for conducting and completing them.

   - Develop a "tickler system" to assure SRs are conducted at the intervals defined in the TSRs.

   - Develop a tracking system to verify that SRs have been completed.

   - Assure timely completion of milestones in the SAR/TSR Implementation Plan (IP) by establishing a team led by the Facility Manager.

4. LLNL Readiness Assessment.

## 3.1 SR Procedures

Surveillance Requirements (SRs) will be conducted at the defined intervals and in accordance with written and approved procedures. (The SRs are listed in Appendix A.) The SR procedures will be controlled documents, reviewed and approved by facility management. The procedures will include (at a minimum) the purpose, scope, responsibilities, and step-by-step procedures (instructions). Existing procedures used by the Plant Engineering (PE) Maintenance Operations Department and the Hazards Control Department will be incorporated into SR procedures as appropriate. Each SR procedure will be validated by subject matter experts and walked down by Facility Management. The purpose of these validations and walk-downs will be to evaluate the adequacy of the procedure to meet each SR as well as the abilities of the personnel conducting them. A system will be established to ensure that personnel conducting an SR are using the current approved copy.

## 3.2 SAR/TSR Training

SAR/TSR Briefing. A chapter-by-chapter briefing of the SAR/TSR will be held for all Radiation Zone Worker–1 (RZW-1) personnel, Facility Management Staff, Plutonium Handlers, and Facility Operators. PE Maintenance and Operations personnel will be briefed on the TSR document. A test will be given at the end of the briefing to evaluate the effectiveness of the briefing, and the briefing will be videotaped for future use. Additionally, facility workers will be required to read appropriate chapters of the SAR and TSR documents (as defined by facility management) and indicate with their signatures that the reading has been completed.

TSR Training. TSR training is being developed and will be implemented for facility management staff, Facility Operators, Room Responsible Personnel, and Plutonium Handlers. The TSR training will include material on generic and specific Limiting Conditions of Operations (LCOs), Actions, Surveillance Requirements (SRs), Administrative Controls, use and application instructions, and the bases for the TSRs. This training will also be videotaped for future use. Personnel requiring TSR training will be tested following the training.

Specific SR Training. Following the approval and validation of the SR procedures, specific SR training will be developed and implemented for personnel who will conduct surveillances. The training method to be employed will be the on-the-job (OJT) training concept for specific SR procedures. Personnel expected to conduct the surveillances will be trained and tested in accordance with the OJT guide or Training Lesson Plan.

## 3.3 Management Controls

SR Mapping: The Facility Engineer (FE) is responsible for identifying the organizations responsible for performing each surveillance.

Tickler system: The Facility Engineer is responsible for and has established a tickler system to ensure that all SRs are conducted in accordance with their committed schedule. The tickler identifies the surveillances due in each coming week. The FE will incorporate this information in a weekly plan that identifies these surveillances and will distribute the plan to those responsible for conducting the surveillances.

Tracking system: The Facility Engineer is responsible for developing a system that will allow him to track and document the completion of all surveillances. In addition, the Quality Assurance Coordinator is responsible for tracking the completion of all SRs on a monthly basis.

SAR/TSR Implementation Plan: The SAR/TSR Implementation Plan was issued as an attachment to the DOE/OAK SER for B332. The Facility Manager will establish and lead a team to assure the timely completion of the milestones identified in the SAR/TSR Implementation Plan (see Appendix B). The team will consist of members of the facility staff including the Deputy Facility Manager, the Assurance Manager, the Facility Engineer, the Quality Assurance Engineer, and Facility Operators. Each milestone of the Implementation Plan will be assigned to a team member who will be responsible to the Facility Manager for its completion.

## 4.0 Schedule

In order to return to the Operational Mode, LLNL is working on an aggressive schedule to complete the actions identified in this Corrective Action Plan (see attached schedule in Appendix C).

Additional personnel have been brought in to prepare procedures and develop training. To date, three additional personnel as well as several PE Maintenance personnel are assisting in procedure writing. Training staff will be supplemented with facility staff and other subject matter experts and will receive assistance from the Material Management training organization.

Preparation of the SR procedures has already begun. Draft procedures are expected to be submitted for review the first week of May. Many of the SRs will be conducted with existing Plant Engineering (PE) procedures. These procedures will be integrated into the new SR procedures. A process for controlling and reviewing all procedures (including those developed by PE) will be established. Once the procedures are approved, facility management and subject matter experts will walk down each procedure. Personnel who will be conducting the procedures will be trained on the SR procedures. Once procedures have been validated and personnel have been trained and can demonstrate proficiency, LLNL will conduct a Readiness Assessment. After the LLNL Readiness Assessment is complete, including the close-out of any findings, DOE/OAK will conduct a Readiness Assessment. It is anticipated that these assessments will be performed on specific SRs or groups of SRs (e.g., all SRs relating to criticality alarm system).

The training program for the SAR and TSRs will be conducted in parallel with the SR procedure preparation. SR-specific training will be conducted as OJT on specific procedures after the SR procedures are approved.

It is planned that all SR procedures and training and SAR/TSR training will be completed by May 26, 1995. The LLNL Readiness Assessment should be completed by June 3, 1995, and the DOE/OAK Readiness Assessment completed by June 10, 1995.

## 5.0 References

*Plutonium Facility—Building 332 Technical Safety Requirements*, UCRL-AR-119592, Lawrence Livermore National Laboratory, Livermore, CA (January 1995).

*Plutonium Facility—Building 332 Safety Analysis Report*, UCRL-AR-119434, Lawrence Livermore National Laboratory, Livermore, CA (January 1995).

# Appendix A

# Surveillance Requirements

## ORT 1.1 Performance of SRs 4.2: HEPA Filters

| SR No. Frequency | Surveillance | ORT No. | Responsible individuals | |
|---|---|---|---|---|
| | | | Facility | RA Team |
| SR 4.2.1 Weekly | Verify pressure differential across each stage of the HEPA filters is less than or equal to 5 in. WG or, for gauges with less than 5 in. WG range, less than the maximum gauge range. | ORT 1.1.1 | | |
| SR 4.2.2 Annually | Installed HEPA filters shall be retested to verify at least 99.97% removal efficiency for particles of the size ≥0.3 μm dia. ($0.3 \times 10^{-6}$ m). | ORT 1.1.2 | | |

## ORT 1.2 Performance of SRs 4.3 : Room Ventilation Systems

| SR No. Frequency | Surveillance | ORT No. | Responsible individuals | |
|---|---|---|---|---|
| | | | Facility | RA Team |
| SR 4.3.1.1 Daily | Verify less than or equal to a -0.05 in. WG between corridors in each Increment and the outside atmosphere by checking the ventilation system differential pressure. | ORT 1.2.1 | | |
| SR 4.3.1.2 Monthly | Test automatic closure of the room air supply fan dampers and automatic shutdown of the room air supply fans on loss of power. | ORT 1.2.2 | | |
| SR 4.3.2 Monthly | Test automatic actuation of the standby (redundant) room ventilation exhaust fans and automatic shutdown interlock on the room air supply fans for Increment 1 at low-flow alarm rate less than 20,000 cfm, and for Increment 3 at low-flow alarm rate less than 11,000 cfm. | ORT 1.2.3 | | |

## ORT 1.3 Performance of SRs 4.4 : Emergency Exit Doors

| SR No. Frequency | Surveillance | ORT No. | Responsible individuals | |
|---|---|---|---|---|
| | | | Facility | RA Team |
| SR 4.4.1 Monthly | Emergency exit doors must be checked to ensure that swing paths are clear of obstructions. | ORT 1.3.1 | | |
| SR 4.4.2 Annually | Emergency exit doors must be checked to ensure self-closure in 1 minute. | ORT 1.3.2 | | |

## ORT 1.4 Performance of SRs 4.5: Emergency Power

| SR No. Frequency | Surveillance | ORT No. | Responsible individuals | |
|---|---|---|---|---|
| | | | Facility | RA Team |
| SR 4.5.1 Monthly | Verify transfer response time of less than 2 seconds upon availability of emergency power to the main automatic transfer switch ATS-04/07 and the primary power-seeking automatic transfer switches ATS/E500A6, ATS/E500A8, and ATS/E410. | ORT 1.4.1 | | |
| SR 4.5.2.1 Monthly | Test the emergency power system and its components in a manner that transfers power.<br>EDG output voltage shall be 480 V, ±5%.<br>EDG frequency shall be 60 Hz, ±5%.<br>Lag generator will attempt to start within 120 seconds in case the lead generator fails to start.<br>Starting batteries of each generator are fully charged and have capacity to start generators. | ORT 1.4.2 | | |
| SR 4.5.2.2 Monthly | Verify each EDG day tank has at least minimum required fuel inventory of 7.5 gallons.<br>Verify each diesel fuel storage tank, TFO-2 and TK-332-DZA1, has at least minimum required fuel inventory of 1000 gallons.<br>Test OPERABILITY of each EDG fuel oil transfer pump | ORT 1.4.3 | | |
| SR 4.5.3.1 Annually | Conduct a full-load capacity check to a dummy load for UPS batteries, chargers, and inverters and verify ability to supply full load (greater than 80%) for 15 minutes. | ORT 1.4.4 | | |
| SR 4.5.3.2 Semiannually | Verify operability of UPS electrical power distribution systems. | ORT 1.4.5 | | |
| SR 4.5.3.3 Monthly | Verify operability of alternating current (ac) buses, load centers, motor control centers, and distribution panels. | ORT 1.4.6 | | |

## ORT 1.5 Performance of SRs 4.6: Criticality Alarm System

| SR No. Frequency | Surveillance | ORT No. | Responsible individuals | |
|---|---|---|---|---|
| | | | Facility | RA Team |
| SR 4.6.1 Weekly | Perform a channel check. | ORT 1.5.1 | | |
| SR 4.6.2 3 months | Perform a test of both audible and visual alarms. | ORT 1.5.2 | | |
| SR 4.6.3 Monthly | Perform a detector calibration for each detector, including alarm settings and readout. | ORT 1.5.3 | | |
| SR 4.6.4 6 months | Perform a functional check of the UPS power source to the criticality alarm system. | ORT 1.5.4 | | |
| SR 4.6.5 6 months | Perform a CHANNEL FUNCTIONAL TEST of each detector channel by using external radiation source. | ORT 1.5.5 | | |

## ORT 1.6 Performance of SRs 4.7: Fire-Suppression system

| SR No. Frequency | Surveillance | ORT No. | Responsible individuals | |
|---|---|---|---|---|
| | | | Facility | RA Team |
| SR 4.7.1.1 Annually | Test the fire-suppression system, valve tamper switches, and the fire alarm announcement tape. | ORT 1.6.1 | | |
| SR 4.7.1.2 Weekly | Verify minimum fire main pressure of 57 psig at each fire main (Second Street and Third Street). | ORT 1.6.2 | | |
| SR 4.7.1.3 Weekly | Verify that both contained secondary water supply tank levels are within prescribed check marks:<br>± 1 in. @ 2/3 full marks[a] for 2500-gallon tank<br>± 1 in. @ 2/3 full marks[b] for 7500-gallon tank | ORT 1.6.3 | | |
| SR 4.7.1.4 Weekly | Verify the pressure blanket for the secondary water supply tanks is greater than 65 psig. | ORT 1.6.4 | | |
| SR 4.7.2 Weekly | Test the function of the room air supply dampers, fire detectors, and controls. | ORT 1.6.5 | | |

[a] Located at the distance of 11-3/4 in. measured vertically from the center of the end cylinder.

[b] Located at the distance of 12 in. measured vertically from the center of the end cylinder.

# Appendix B

# LLNL Plutonium Facility SAR/TSR Implementation Plan

## LLNL Plutonium Facility
## SAR/TSR Implementation Plan

| Sect. & Par | Commitment | Priority Level | Action Schedule | Responsible Person |
|---|---|---|---|---|
| TSR | Surveillance Requirements Current | 1 | 3-31-95 | *Smuda* |
| TSR | Tickler System for Surveillance Requirements | 1 | 3-31-95 | *Smuda* |
| 7.4<br><br>Par. 7 | The Plutonium Facility Training Office is currently in the process of implementing the Training Implementation Matrix (TIM) in accordance with DOE Order 5480.20. | 3 | 3-31-95 | Tearney |
| 6.6.1<br><br>Par. 2 | An upgraded CAS—designed to the criteria established in DOE Order 5480.24—has been installed in the Building 332 RMA (see Figure 6-2). This upgraded system is currently undergoing preoperational checkout. | 1 | 4-30-95 | Kearns |
| 6.4.2.5<br><br>Par. 2 | Criticality Hazards Type 2 and 3 are posted on workstations and the hallway side of individual RMA room doors, as appropriate. The hazard types are as follows:.... | 3 | 5-31-95 | Taie |
| 1.4.2.2<br><br>Par. 9 | The LLNL 10,000-year flood plan is being developed to be in compliance with the requirements of DOE-STD-1020. | 3 | 6-30-95 | Chang |
| 2.7.1.1<br><br>Par. 4 | The doors appear to provide the equivalent protection required by NFPA 101. An Equivalency Request is being prepared and will be submitted to DOE-OAK for their approval. | 2 | 6-30-95 | *Chang* |
| 2.11<br><br>Table 2-6<br>Item 1 | The doors in the RMA meet the intent of NFPA 80A, but do not meet the labeling requirements. The doors were modified for security of the SNM.<br>An Equivalency Request is being developed and will be submitted to DOE/OAK for approval. | 2 | 6-30-95 | *Chang* |
| 10.5.9 | Limited equipment history and trending is currently maintained by Plant Engineering M/O Dept. using PM databases. | 4 | 6-30-95 | Singleton |
| 10.5.10 | A maintenance analysis program is necessary to determine and correct the root cause(s) of maintenance problems that affect safety or reliability or are of a recurring nature. | 4 | 6-30-95 | Singleton |
| 10.5.11 | Future maintenance activities(e.g., preventive maintenance and overhauls) applicable to modifications are not adequately addressed at the present time. (May require enhancements to the CFMP which is controlled by Plant Engineering) | 4 | 6-30-95 | Singleton |
| 11.3.2 | MOU with Materials Management Operations<br>MOU with Hazards Control Department<br>MOU Plant Engineering<br>MOU with Hazardous Waste Management<br>MOU with Safeguards and Security<br>MOU with Emergency Management Division | 4 | 6-30-95 | *Singleton* |

| Sect. & Par | Commitment | Priority Level | Action Schedule | Responsible Person |
|---|---|---|---|---|
| 12.4.2<br><br>Par. 4 | All employees facility training will, in the future, be tracked via the Training Requirement and Qualification (TRAQ) System to ensure proper worker qualification and certification. | 4 | 6-30-95 | Tearney |
| 12.4.4 | Develop and deliver required training for the LCOs, SRs and TSRs to Plutonium Facility Staff. | 1 | 6-30-95 | *Tearney* |
| 14.3.4<br><br>Par. 5 | The QA implementing procedure entitled *Procurement Control* (LLNL, 1994d, Appendix) requires the QA Engineer to confirm that procurement specification and inspection and test requirements are satisfied and nonconformances are properly dispositioned. Implementation of this procedure is intended to stop nonconforming materials, parts, or components at the source. | 2 | 6-30-95 | Chang |
| 17.4.2 | The management of the Plutonium Facility is described in the *Facility Management Plan* (FMP) (LLNL, 1986). The plan is presently being revised. The revised FMP will describe the safety and quality assurance management system and delincate a clear line of safety responsibility from the AD for D&NT to the facility personnel. | 4 | 6-30-95 | Alves |
| TSR | Operating/Surveillance Procedures completed | 1 | 6-30-95 | *Smuda* |
| 4.3.7.5 | The secondary system pressure shall be continuously monitored and alarmed. | 1 | 7-1-95 | *Kearns* |
| 2.11<br><br>Table 2-6 Item 8 | Safety alarms are tested periodically. Ventilation alarms are currently being tested and will be periodically tested in the future. A complete program is being developed. | 2 | 7-31-95 | *Kearns* |
| 3.4.4.2.6<br><br>Par. 1 | An administrative control will be in place that requires plutonium handling operations to cease if wind speeds exceed 65 mph. | 2 | 7-31-95 | *Perkins* |
| 4.3.7.4.2<br><br>Par. 4 | Increment 1 room exhaust plenums are provided fire water from the normal fire mains, but are not connected to the secondary water supply tanks. A detailed evaluation will address the question of providing a secondary water supply for the Increment 1 room exhaust plenums. | 1 | 8-31-95 | *Chang* |
| General | Update the Plutonium Facility FSP to agree with the Safety Analysis Report. | 2 | 9-30-95 | Taie |
| Chapter 5 | Fully implement Administrative Controls from the TSRs | 2 | 9-30-95 | Taie |
| 2.11<br><br>Table 2-6 Item 5 | Design shall include appropriate redundancy to ensure that a single-point failure does not reduce the capabilities of the Safety-Class Systems. A single-point failure analysis is continuing. | 2 | 12-31-95 | *Chang* |
| 2.11<br><br>Table 2-6 Item 7 | A Human Factors Engineering program plan is being prepared and necessary modifications to the Plutonium Facility will be implemented. (See Chapter 13) | 3 | 12-31-95 | Taie |

| Sect. & Par | Commitment | Priority Level | Action Schedule | Responsible Person |
|---|---|---|---|---|
| 3.4.3.7.6 | Gas cabinet concentration monitors and alarms were assumed to be continuously operating, and it was further assumed that they are inspected and tested annually. | 2 | 12-31-95 | *Kearns* |
| 3.4.5.1 | Modifications to the Downdraft Table ventilation system are planned. New, uncontaminated ducting is being installed. | 4 | 12-31-95 | *Smuda* |
| 4.4.2.2 Par. 2 | A project is currently underway to replace the storage vessels with a 9000-gallon vessel. | 4 | 12-31-95 | *Smuda* |
| 8.5 Par. 3 | Area supervisors (room-responsible personnel) within the facility are required to compile and maintain an accurate inventory of all chemical, physical and biological agents in use in their area. | 3 | 12-31-95 | *Singleton* |
| 8.5 Par. 3 | A complete inventory of potential carcinogens and hazardous chemicals in the facility is maintained by the Facility Assurances Manager. | 3 | 12-31-95 | *Singleton* |
| 8.5 Par. 5 | Researchers who make or use chemicals for which no MSDS exists must assist their ES&H Team in preparing an LLNL MSDS. | 3 | 12-31-95 | *Singleton* |
| 10.5 | Fully implement the *Building 332 Maintenance and Operations Manual*, including features of the Conduct of Operations applicable to maintenance activities. | 2 | 12-31-95 | *Smuda* |
| General | Complete the Seismic Action Plan for B332. (Alves, 1994) | 3 | 12-31-95 | *Chang* |
| 6.4.2.3 Par. 1 | All operations that require liquids or solid moderating materials have posted moderator limits identified in the approved safety procedure. | 2 | 3-1-96 | Taie |
| 2.11 Table 2-6 Item 6 | Testing of the controls systems for Safety Class Items is being incorporated into the MIP. | 3 | 7-98 | *Smuda* |

Priority Level:

1- Applies to SC SSC or LCO, or supporting Chapter 3 accident analysis assumptions.

2- Applies to SS SSC or AC.

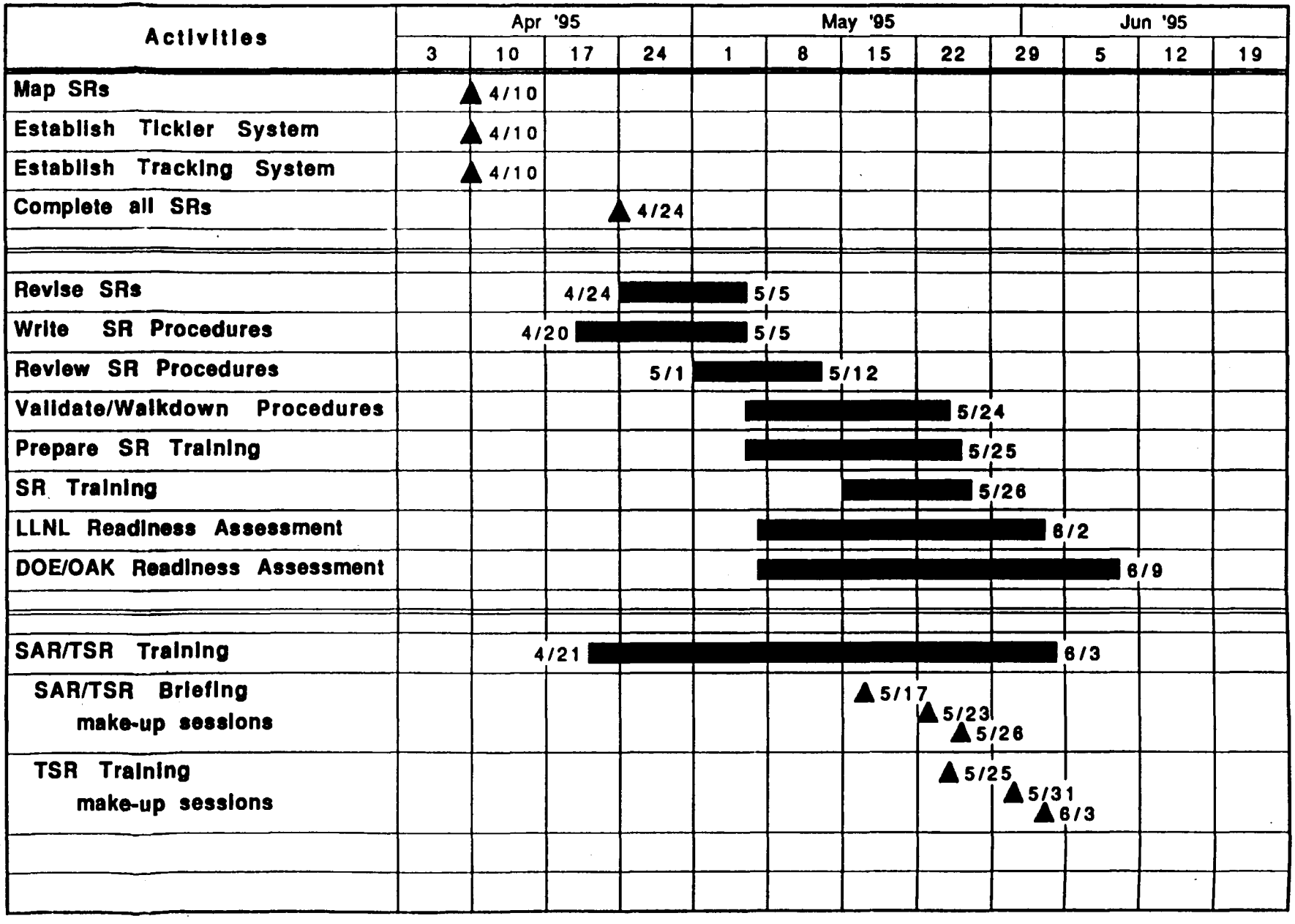
3- Applies to normal operations.

4- Reference only

# Appendix C

# TSR Schedule

# B332 SAR/TSR Training and SR Implementation Schedule




Tuesday, May 2, 1995

# Implementation of

# Technical Safety Requirements for the

# Plutonium Facility — Building 332

# Readiness Assessment Plan

**May 1995**


Prepared by:

Howard H. Woo
Applied Research Engineering Division
Mechanical Engineering Department

Approved by:

Gordon L. Guenterberg
Deputy Associate Director, Operations
Defense & Nuclear Technologies

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# Implementation of Technical Safety Requirements for the Plutonium Facility — Building 332

# Readiness Assessment Plan

May 1995

Defense & Nuclear Technologies

Lawrence Livermore
National Laboratory

# Contents

# 1. Introduction and Purpose

On March 6, 1995, the Plutonium Facility—Building 332 at Lawrence Livermore National Laboratory (LLNL) received approval of its Safety Analysis Report (SAR) (*Plutonium Facility—Building 332 Safety Analysis Report*, UCRL-AR-119434, Rev. 0, January 1995), Technical Safety Requirements (TSRs) (*Plutonium Facility—Building 332 Technical Safety Requirements*, UCRL-AR-119592, Rev. 0, Janauary 1995), and implementation plan (IP) from the DOE Oakland Operations Office (DOE/OAK). The first dated commitment (March 31, 1995) listed in the IP that was related to TSRs. That commitment required all Surveillance Requirements (SRs) be conducted at the committed intervals.

During a Defense Nuclear Facility Safety Board (DNFSB) visit on April 4–6, 1995, it was noted that a daily Surveillance Requirement (SR) that is part of the TSRs requiring verification of the differential pressure between the corridors of Increments 1 and 3 of the Radioactive Materials Area (RMA) and the outside atmosphere had not been conducted by the off-shift mechanical technician over the weekend of April 1–2, 1995. In addition, the feasibility of the monthly SR to check the Increment 1 interlock between the room ventilation supply and exhaust fans was brought into question. As a result, on April 7, 1995, facility management placed the facility in the administrative Standby mode. After discussion with DOE/OAK and DOE Headquarters, it was determined that a contractor readiness assessment of the TSR implementation is required before the facility may return to the Operation mode.

The goal of the TSR Implementation Readiness Assessment (RA) is to verify that management has achieved readiness to resume operation (i.e., return to Operation mode from the current administrative Standby mode). The purpose of this RA plan is to assist in conducting the RA in a systematic manner while covering all appropriate areas and to ensure that the RA results are properly documented. Note that the RA activities described in this Plan are not intended to replace facility management's primary responsibility for action completion, quality assurance, technical adequacy, and resolution of safety-related deficiencies.

# 2. Scope

The scope of the RA for Building 332 TSRs implementation covers four areas:

- Status of Surveillance Requirements.
- Surveillance procedures.
- TSRs training.
- Management control system for TSRs implementation.

To facilitate a detailed review, a TSRs Implementation Basic Occupancy–Use Readiness Tree (ORT) to cover the above four areas is provided in Appendix A. The ORT is a graphic tree that displays information to aid the reviewers in recalling what details must be considered and their relationship to one another (Refs. 1 and 2). The tree is arranged with the goal stated at the top, with all of the elements needed to achieve that goal listed below. The TSR Implementation ORT, derived from part of the *Plutonium Facility Corrective Action Plan for TSR Implementation* (Ref. 3), was prepared as a result of a meeting with the facility personnel responsible for these elements to determine if review elements at a lower level were required. The information given in Appendix A will be updated as appropriate to reflect any changes in the facility corrective action plan.

# 3. RA Team

The LLNL RA Team has been established by the LLNL Deputy Associate Director (DAD) for Operations of the Defense & Nuclear Technologies (D&NT) Directorate. The team, as shown in Appendix B, is composed of six senior LLNL professionals who represent engineering, quality assurance (QA) and environment, safety, and health specialties. Furthermore, these members have no direct administrative relationship to the Plutonium Facility and their performance on the TSR Implementation RA will not be evaluated by the facility management.

Although the team is responsible for conducting the review described in this RA Plan, the team may use additional qualified specialists external to the facility to assist in the review process. Based on the review results, the RA Team shall advise the DAD for Operations of the D&NT Directorate of its findings and recommendations by a formal RA report.

# 4. TSR Implementation Readiness Assessment Process

The TSR Implementation Readiness Assessment will be conducted in accordance with the guidelines in References 1 and 2. The TSR Implementation RA process provides management with well-organized, auditable, and objective evidence demonstrating the readiness for the resumption of facility operation involving fissile materials. The documented objective evidence provides management with increased confidence to authorize the operation. The TSR Implementation RA process consists of three stages:

- Preparation of an RA plan.
- Performance of the RA.
- Reporting of results and recommendations to the DAD for Operations of the D&NT Directorate.

The performance of an RA comprises two types of work: (1) continuous review and (2) final report of concerns/issues along with recommended action items. The purpose of the continuous review is to identify areas that require actions to meet RA requirements throughout the review process. The final report of concerns/issues along with recommended action items represents the RA Team's final position and will involve the entire RA Team. The performance of the RA will involve a systematic consideration of documentation, personnel training, and witnessing of sample surveillance activities consistent with the scope of the facility corrective action plan concerning TSRs implementation.

## 4.1 TSR Implementation Readiness Assessment Objectives and Criteria

The objectives of the TSR Implementation RA are to ensure that:

- All SRs listed in the approved TSRs document have been conducted as scheduled and documented.
- All SR procedures have been prepared, reviewed, validated, and approved.
- The facility will be operated by trained and qualified personnel.
- TSRs training has been provided to personnel from the facility and supporting groups who perform work for the facility.

- A management system has been established to ensure that TSR/SAR commitments can and will be met.
- A documentation system has been established to auditably demonstrate that the requirements of the TSR's have been met.
- Proper corrective actions have been taken by the facility to resolve deficiencies identified by the RA Team.
- All assessment findings, associated resolutions, and final assessment recommendations have been documented.

To achieve these objectives, the RA Team will apply the appropriate criteria or requirements described in the following subsections to focus on four areas:

- Performance of SRs.
- SR procedures.
- TSRs training.
- Management control system for TSRs compliance.

### 4.1.1 SRs Performance Assessment Criteria

The RA Team will verify that all SRs have been performed on the committed schedule in accordance with the DOE-approved TSRs document and that all records of successful completion of SRs have been filed.

### 4.1.2 SR Procedures Assessment Criteria

The RA Team will verify that SR procedures used for performing the SRs have been prepared, reviewed, validated, and approved by appropriate organizations.

### 4.1.3 TSRs Training Assessment Criteria

The RA Team will verify that sufficient supervisory and operations staff have been selected, trained, and qualified to perform specific SR procedures.

### 4.1.4 Management Control System Assesament Criteria

The RA Team will verify that the facility has established a management control system to ensure that all TSRs commitments (i.e., Limiting Conditions of Operations, Surveillance Requirements, and Administrative Controls) given in the DOE-approved TSRs document can be readily identified, monitored, and met.

## 4.2 Performance of the Assessment Readiness

Following the objectives and guidelines stated in Section 4.1 above, the RA Team will perform the assessment and will also document results in detail for four areas:

- Performance of SRs.
- SR procedures.
- TSRs training.
- Management control system for TSRs compliance.

### 4.2.1 SRs Performance Readiness Assessment

The SRs performance readiness assessment will focus on reviewing approved SR procedures and SR performance records, observing selected SRs performance, and conducting interviews with SRs performance personnel.

### 4.2.2 SR Procedures Readiness Assessment

The SR procedures readiness assessment will be a documentation review whose purpose will be to ensure that a process exists to guarantee the technical adequacy of these SR procedures through review, validation, and approval. It should be noted, however, that the RA Team assessment is not part of the approval process for the procedures.

### 4.2.3 TSRs Training Readiness Assessment

The TSR training readiness assessment will focus on the training and qualification program for facility personnel and people from supporting oganizations. The RA Team will verify that the required training has been identified, that a training program plan has been developed and implemented, and that training records and tests results with passing marks have been documented. Furthermore, the RA Team will verify that the facility has been adquately staffed to comply with TSRs.

### 4.2.4 Management Control System Readiness Assessment

To ensure that facility operations comply with the DOE-approved TSRs document, the RA Team will focus on the review of the facility management control system to determine whether the system is adequate to track and schedule all SRs that are committed to in the TSRs document. This system includes appropriate written procedures and file systems containing all records required for auditing purposes.

### 4.2.5 Review Responsibilities and Documentation

The responsibility for various ORTs has been assigned to individuals on the RA Team. Each of the ORTs corresponds with proper corrective action elements. The primary focus of the RA Team will be to review the adequacy of facility corrective actions by identifying any significant issues and concerns related to performance of SRs, SR procedures, TSRs training, and the management control system as identified in Section 4.2. Appendix C shows a format sheet for the documentation of issues and concerns. The definitions of "issue" and "concern" are as follows:

- Issue: A problem identified by the RA Team that could impact the safe operations of the facility and whose correction is recommended prior to authorizing startup of the facility.

- Concern: A deficiency identified by the RA Team that does not impact safe facility operations and therefore does not require completion prior to authorizing startup of the facility but that should be formally tracked to completion to achieve program goals in the most efficient and effective manner.

## 4.3 Report

The RA Team shall document its findings and recommendations in a draft report to the DAD for Operations of the D&NT Directorate shortly after the completion of the RA Team work. This draft report will then be submitted to DOE/OAK for review and comment. The final report, which will be derived from the RA draft report and which will also incorporate comments from the DOE/OAK RA reviewers, is scheduled for completion approximately one week before the restart of the facility.

It is important to note that the LLNL RA Team shall also monitor the facility progress and report significant findings or make recommendations to the DAD for Operations of the D&NT Directorate on a continuous basis to allow him to consider actions if necessary.

# 5. Readiness Assessment Process and Schedule

DOE has required that DOE/OAK approval be obtained prior to returning the facility from the Standby mode to the Operation mode. This RA Plan reflects the requirement for DOE/OAK approval for the restart of the facility.

The facility has developed a detailed schedule (see Appendix D) for returning to the Operation mode. Preparing SR procedures has already begun, and draft procedures will be ready for internal review in the first week of May. Several SRs presently are being conducted by using existing Plant Engineering (PE) procedures. These PE procedures will be integrated into facility SR procedures through a formal review, validation, and approval process. Personnel who perform SRs will be trained using facility-approved SR procedures. Since there are more than twenty SR procedures, it is anticipated that these procedures and personnel training will be reviewed as each is completed. Once an individual procedure or training on that procedure is ready for review, the RA teams will be informed by the facility management. Regular RA meetings will be called by the LLNL RA Team. The DOE/OAK RA Team and facility representative will be invited to the meetings. At these meetings, the LLNL RA Team will present review findings and identify issues and concerns, as appropriate. Resolution of these issues and concerns will be formally closed out at the meetings. The DOE/OAK RA Team's comments or inputs will be incorporated.

# 6. Readiness Assessment Plan Changes

Changes to the body of this plan shall be reviewed by the DAD for Operations of the D&NT Directorate for approval. Changes to the Appendices shall be directed by the RA Team Chairman and do not require other approvals. Additions are usually considered valid. However, deletions or major modifications will be subjected to thorough consideration including technical justification and results documented. The RA schedule in Appendix D will be revised as appropriate when the corrective action milestones are changed by the facility.

# 7. Interaction With DOE

To facilitate the approval process, it is anticipated that the DOE/OAK RA Team will participate in the LLNL RA Team activities, such as documentation review, witness to selected SRs performance, and attending LLNL RA meetings. Regular meetings between LLNL RA Team and DOE/OAK RA Team will be held to discuss identified issues and concerns raised during the assessment. Recommended corrective actions for those issues or concerns will be forwarded to the facility immediately. Completed corrective actions will be recorded and signed off in a timely manner by the LLNL RA Team with concurrence from the DOE/OAK RA Team using the review sheet shown in Appendix C.

# References

1. *Occupancy–Use Readiness Manual—Safety Considerations*, Energy Research and Development Administration, Washington, DC, ERDA 76-45-1, SSDC-1 (1975).

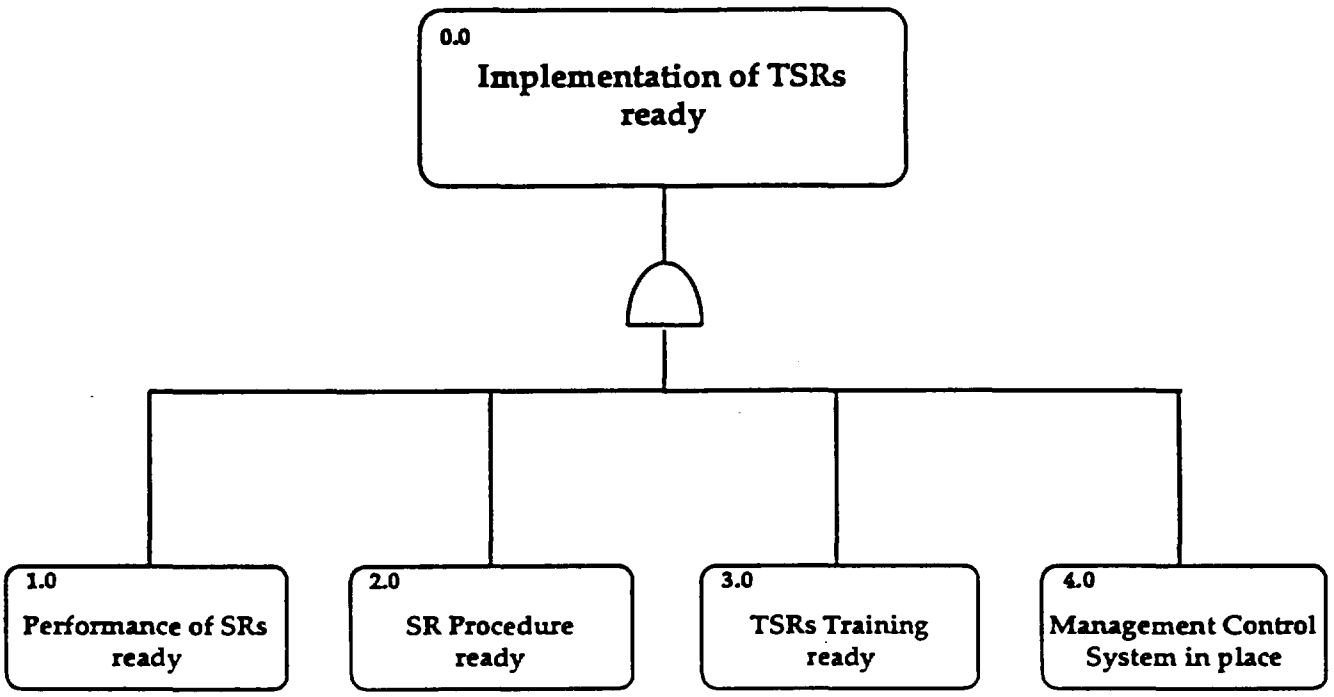
2. *Process Operational Readiness and Operational Follow-on*, System Safety Development Center, EG&G Idaho, Inc., Idaho Falls, ID, DOE-76-45/39 SSDC-39 (1987).

3. *Plutonium Facility Corrective Action Plan for TSR Implementation*, Plutonium Facility—Building 332, Lawrence Livermore National Laboratory, Livermore, CA (April 28, 1995).

# Appendix A

## TSRs Implementation Occupancy–Use Readiness Tree for Plutonium Facility (Building 332)

Fig. A-1. Implementation of TSRs Readiness ORT.




Key:

= Event

= And

# Appendix B

## TSRs Implementation Readiness Assessment Team for Plutonium Facility (Building 332)

The LLNL TSRs Implementation RA Team and their areas of expertise are listed below.

| Name | RA function | Area of expertise |
|---|---|---|
| Howard Woo | Team Chairman | General/ORR process |
| Bill Banks | Team Member | Human factors |
| Winslow Brough | Team Member | Electronics engineering |
| Deb Pal | Team Member | Power systems |
| Art O'Grady | Team Member | Mechanical systems |
| Bill Shea | Team Member | Health Physics |

# Appendix C

## TSRs Implementation Readiness Assessment Issue/Concern Format Sheet

**Implementation of TSRs**
**Plutonium Facility—Building 332**
**READINESS ASSESSMENT**
**ISSUE/CONCERN SHEET**

| SUBJECT | ISSUE DATE | REVIEW NO. | PAGE<br>OF |
|---|---|---|---|
| | | | |

ISSUE
CONCERN

Prepared by: _____ Date: _____ Reviewed by: _____ Date: _____
*RA Originator* *M/D/Y* *Facility* *M/D/Y*

RECOMMENDED CORRECTIVE ACTION:

Prepared by: _____ Date: _____
*RA Member* *M/D/Y*

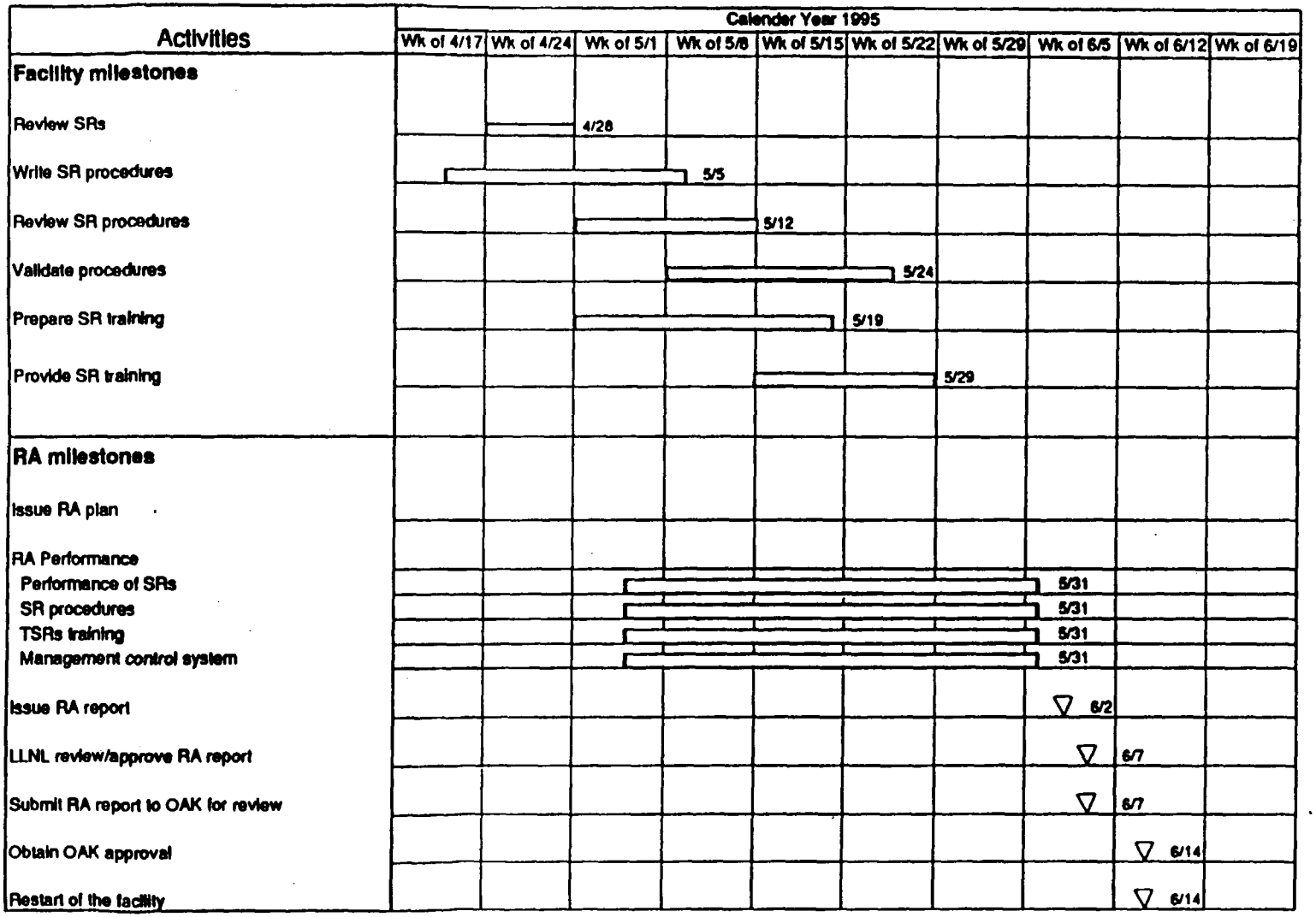
COMPLETED CORRECTIVE ACTION:

Confirmed by: _____ Date: _____ Approved by: _____ Date: _____
*RA Originator* *M/D/Y* *RAMember* *M/D/Y*

# Appendix D

## TSRs Implementation Readiness Assessment Schedule for Plutonium Facility (Building 332)

## Implementation of TSRs Readiness Assessment Schedule for Plutonium Facility (Bldg. 332)



HHW 95-007
July 14, 1995

Mr. Mark Lee
Building 332 Readiness Assessment Team Leader
Department of Energy
Oakland Operations Office
P. O. Box 808, L-573
Livermore, CA 94551

Subject: LLNL Readiness Assessment Plan for the Plutonium Facility TSR Implementation

Dear Mr. Lee:

This is in response to comments contained in your letter of May 31, 1995 concerning the *LLNL Readiness Assessment Plan for the Implementation of Technical Safety Requirements for the Plutonium Facility—Building 332* (dated May 1995). Specifically, you expressed two concerns: (1) missing ORR/RA core requirements described in DOE Order 5480.31, and (2) the qualifications of the LLNL RA members. I am taking this opportunity to address each of those concerns.

**ORR/RA Core Requirements**

Among the source documents used in preparing the LLNL RA Plan, two documents in particular relate to core requirements:

- *Occupancy-Use Readiness Manual—Safety Considerations*, System Safety Development Center, EG&G Idaho, Inc., prepared for Department of Energy, DOE-76-45/1, SSDC-1, Rev. 1, June 1992.
- *Process Operational Readiness and Operational Readiness Follow-on*, System Safety Development Center, EG&G Idaho, Inc., prepared for Department of Energy, DOE-76-39/1, SSDC-39, February 1987.

Therefore, although the DOE 5480.31 ORR/OR core requirements are not mentioned in the plan, the plan does cover relevant review criteria and approaches, as expressed in the above source documents, that are consistent with the core requirements of the DOE Order. Attachment A presents a review of these core requirements to determine their applicability to the scope of this RA.

**Qualifications of the LLNL RA Team**

University of California ◦ PO Box 808 L-360 Livermore, California 94550 ◦ (510)423-1353 ◦ FAX (510)423-7942

The selection of the RA Team (six members including myself) was based on base skills, review experience, and knowledge of the Plutonium Facility. The team was approved by the Deputy Associate Director for Operations, Defense & Nuclear Technology. Since not all members fully met all requirements when the team was established, a training program was developed. The training focused on three areas: (1) technical knowledge of the area assigned to evaluate, (2) knowledge of evaluation process and method, and 3) facility-specific information. For each of these areas, detailed requirements were defined:

- Technical knowledge of the area assigned to evaluate (R stands for required reading)
  —Plutonium Facility Corrective Action Plan (R)
  —Chapters 3, 4 (R), and 5 of the *Plutonium Facility—Building 332 Safety Analysis Report* (SAR)
  —*Plutonium Facility—Building 332 Technical Safety Requirements* (TSR) document (R)
  —SAR/TSR Implementation Plan (R)
  —TSRs training.
- Knowledge of evaluation process and method
  —LLNL RA Plan for the Plutonium Facility TSRs Implementation (R)
  —DOE/OAK RA Plan for the Plutonium Facility TSRs Implementation (R)
  —DOE Order 5480.31 (R)
  —DOE-STD-3006 (R).
- Facility-specific information (that may be gained through a combination of required reading and facility tours and presentations)
  —Required reading as stated above (each individual's responsibility)
  —Facility tours
  —TSRs training.

As Team Leader, I am using the above approach to ensure the qualifications of the team members before they conduct reviews. Also, as mentioned in the LLNL RA Plan, the team may seek the help of additional experts during the review should the need be identified.

All this information was included as part of my presentation to Defense Nuclear Facilities Safety Board during their June 6–8 visit. It was my impression that no outstanding concerns from DNFSB were expressed during my briefing. Additionally, the information was discussed at the June 12, 1995, LLNL RA meeting and included in the meeting minutes (RA-MM-05). I plan to include the information in the final RA report also.

I very much appreciate your concerns, and I hope my responses have answered them. Should you have additional comments, please do not hesitate to contact me at 3-1353.

Sincerely,

**University of California ○ PO Box 808 L-360 Livermore, California 94550 ○ (510)423-1353 ○ FAX (510)423-7942**

Howard H. Woo
LLNL RA Leader
Building 332 TSR Implementation

cc (w/enclosure):
D. Alves, L-360
E. Ballard, L-573 DOE/OAK
T. Chang, L-526 DOE/OAK
D. Eddy, L-573 DOE/OAK
A. Garcia, L-352
G. Guenterberg, L-360
G. Miller, L-20
W. Vance, L-38
Greg Yuhas, DOE/OAK

Appendix A to Letter from H. Woo to M. Lee dated July 14, 1995

## Comparison of ORR/RA Core Requirements with the *LLNL Readiness Assessment Plan for the Plutonium Facility TSR Implementation*

(A): Applicable
(N/A): Not applicable

1. There are adequate and correct procedures and safety limits for operating process systems and utility systems. **(A); Sections 4.1, 4.1.2, and 4.2.2.**

2. Training and qualification programs for operating and operations-support personnel have been established and documented, and implementation is established.(The training and qualification program encompasses the range of duties and activities required to be performed.) **(A); Sections 4.1, 4.1.3, and 4.2.3.**

3. Level of knowledge of operating and operations-supporting personnel is adequate based on reviews of examinations and examination results and selected interviews of operating and operations-support personnel. **(A); Sections 4.1 and 4.2.3.**

4. Facility safety documentation is in place that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards or risks associated with the facility and should identify mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards or risks. Safety systems and systems essential to workers' and public safety are defined and a system to retain control over designing and modifying facilities and safety-related utility system is established. **(NA); this is related to approved SAR and TSR, not part of scope of the RA Plan.**

5. A program is in place to confirm and periodically reconfirm the condition and operability of systems, including safety-related process systems and safety-related utility systems. This includes examinations of records of tests and calibration of safety system and other instruments that monitor Limiting Conditions for Operations or that satisfy Technical Safety Requirements. All systems are currently operable and in a satisfactory condition. **(A); Section 4.1, 4.1.4, and 4.2.4.**

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6. A process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor. **(NA); this is not part of the RA scope. However, the RA Team will play such a role once the RA is done.**

7. A systematic review of the facility's conformance to applicable DOE Orders has been performed, any nonconformances have been identified, and schedules for gaining compliance have been justified in writing and formally approved. **(NA); this is not part of the RA scope.**

8. Management programs are established, sufficient numbers of qualified personnel are provided, and adequate facilities and equipment are available to ensure operational support services (e.g., training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection, quality assurance, criticality safety, and engineering) are adequate for operations. **(A); Sections 1, 4.1, 4.1.1, 4.1.3, 4.1.4, 4.2.1, 4.2.3, and 4.2.4.**

9. A routine and emergency drill program, including program records, have been established and implemented. **(NA); this is not part of the RA scope.**

10. An adequate startup or restart test program has been developed that includes adequate plans for graded operations testing to simultaneously confirm operability of equipment, the viability of procedures, and operator training. **(A); This is demonstrated by the *LLNL Plutonium Facility TSR Implementation RA Plan.***

11. Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and effectively implemented with line management responsible for control of safety. **(A); this only applies to the implementation of the TSR.**

12. The implementation status for DOE 5480.19, CONDUCT OF OPERATIONS REQUIREMENTS FOR FACILITIES, is adequate for operations. **(NA); although this is part of Administrative Controls addressed in the TSR.**

13. There are sufficient numbers of qualified personnel to support safety operations. **(A); Sections 4.1, 4.1.3, and 4.2.3. This applies only to the implementation of the TSR.**

14. A program is established to promote sitewide culture in which personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements. **(NA); although the RA process does elevate the awareness of safety culture.**

15. The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, its procedures, and the accident analysis included in the safety basis. **(A); Sections 4.1, 4.1.1, 4.1.2, 4.2.1, and 4.1.2.**

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

17. The results of responsible contractor Operational Readiness Review are adequate to verify readiness of hardware, personnel, and management programs for operations (DOE operational Readiness Review only). **(NA)**

18. Modifications to the facility have been reviewed for potential impacts on procedures and training and qualification. Procedures have been revised to reflect these modifications and training has been performed to these revised procedures. **(NA); no modification to the facility is being done at this stage.**

19. The technical and management qualifications of contractor personnel responsible for facility operations are adequate. **(A); this applies only to the TSR area.**

20. Operations Office Oversight Programs such as Occurrence Reporting, Facility Representative, Corrective Action, and Quality Assurance Programs are adequate (DOE Operational Readiness Review Only). **(NA); this is not part of the RA scope.**

# READINESS ASSESSMENT PLAN FOR THE IMPLEMENTATION

# of

# TECHNICAL SAFETY REQUIREMENTS

# at the

# PLUTONIUM FACILITY-BLDG 332

# located at

# LAWRENCE LIVERMORE NATIONAL LABORATORY

**June 1995, revision 1**

Prepared by: _____
Carl Ingram DOE/OAK/ESFOD

Concurrence: _____
Mark Lee, Team Leader, OAK

Approved: _____
Tom Chang, Director
Weapons, Lasers and Reimbursables Division

**DOE/OAK Readiness Assessment Plan**

**for the**

**B-332 TSR Implementation**

## 1.0 Introduction

The DOE Oakland Operations Office (OAK) is responsible for the management and oversight of the Lawrence Livermore National Laboratory (LLNL) as stipulated in Contract No. W-7405-ENG-48 with the University of California Regents. One of OAK's primary roles is to review and assure safe operation of the facilities at LLNL.

During a Defense Nuclear Facility Safety Board (DNFSB) staff visit during April 4-6, 1995, it was noted that a daily Surveillance Requirement (SR) to verify the differential pressure between the corridors of each increment in the Plutonium Facility, B-332, and the outside atmosphere had not been conducted by the off-shift mechanical technicians. After an internal self-assessment, additional deficiencies in the implementation of SRs were discovered.

The Plutonium Facility Safety Analysis Report (SAR) and Technical Safety Requirements (TSRs) were approved by the Oakland Operations Office Acting Manager on March 6, 1995 along with the Safety Evaluation Report (SER). The SER contained a Plutonium Facility generated Implementation Plan for the B-332 SAR and TSRs. The Implementation Plan required that all SRs be current and in effect by March 31, 1995. The Plutonium Facility management has drafted a plan of action to address coming into compliance with the B-332 SAR/TSR Implementation Plan. LLNL placed the facility in Standby until it can document compliance with the Implementation Plan. Because this issue concerned the facility's ability to maintain its safety basis, DOE and LLNL determined that prior to returning to normal operations, the facility undergo the readiness assessment process, with independent evaluations conducted both by LLNL and OAK.

The OAK Readiness Assessment (RA) Team will perform an independent readiness assessment to ensure that adequate management controls are in place to ensure that the B-332 TSRs will be implemented per the DOE approved SAR/TSR Implementation Plan. A list of references governing this review is provided in section 6 of this plan.

The OAK RA Team Leader will provide the DOE Site Manager with the OAK RA report consisting of an independent evaluation of the status of the SRs and the management systems in place to assure compliance with the TSRs for Building 332. The review is not intended to replace LLNL line management's responsibility for TSR implementation, quality assurance, safety, procedural technical adequacy, or operation of the facility's Safety Structures, Systems, and Components. Rather, the review's function is to validate that all necessary actions have been completed, before the facility comes out of administrative standby.

## 2.0 Scope

GENERAL

The primary focus of the OAK RA is to validate the LLNL RA process. This will involve a review of adequacy of the B-332 SAR/TSR Implementation process in four areas: current status of TSRs, SR procedures, TSR training, and management controls. The Review Team will identify any significant unresolved issues and concerns relating to the implementation of TSRs. Issue and concern as used by the Review Team are defined as:

(a) Issue: A problem identified that could impact the safe operation of the facility and which must be corrected prior to coming out of administrative standby.

(b) Concern: A deficiency identified in the documentation or in the TSR Implementation process that does not impact safe facility operations. The deficiency does not require completion prior to coming out of administrative standby, but should be corrected in a timely manner. The deficiency should be formally tracked to completion.

This plan addresses the process which will be used in conducting the review of TSR implementation. The scope will be limited to only those aspects of the facility which are directly related to the implementation of the TSRs.

The Review Team will document the results of the review using the acceptance criteria established in this plan.

DESCRIPTION OF THE B-332 TECHNICAL SAFETY REQUIREMENTS

The Plutonium Facility TSRs consist of Limiting Conditions of Operation (LCOs), Surveillance Requirements (SRs), Administrative Controls, use and application instructions, and the bases thereof. No Safety Limits or

Limiting Control Settings were found warranted during performance of the Safety Analysis.

The bases of the TSRs are consistent with the assumptions identified in the hazard and accident analyses and Safety Systems, Structures, and Components (SSC) chapters. Safety-Class SSCs have LCOs to assure their availability to mitigate the consequences of an accident. In addition, the Criticality Alarm System has LCOs due to its importance in preventing a possible worker lethal radiation exposure in the event of a criticality. The LCOs define the lowest functional capability or performance levels of equipment, restrictive parameters, or states required for safe operation of the facility. In association with those systems which have LCOs, Surveillance Requirements are specified which are related to the testing, calibration, or inspection required to ensure that necessary operability of systems and components is maintained or that operations are within the specified LCOs.

Administrative controls are those requirements that define the conditions, the safe boundaries, and the management systems necessary to ensure the safe operation of a nuclear facility, reduce the potential risk to the public and facility workers from uncontrolled releases of radioactive materials or from other hazardous material and from radiation exposure due to inadvertent criticality. They consist of programs, procedures, and management structures.

## 3.0 Approach of the Readiness Assessment

The review will be conducted concurrently with the LLNL RA. The review focuses on four areas: current status of TSRs, SR procedures, TSR training, and management controls. The OAK RA Team has developed top level acceptance criteria to provide a basis for the evaluation of the adequacy of the Plutonium Facility's Management Processes for the Implementation of the B-332 TSRs.

The review criteria are as follows:

1. All Surveillance Requirements (SRs) have been completed in accordance with the DOE approved Technical Safety Requirements document and are current. The procedure used to perform the SRs is documented and records of successful completion of the SRs exist. The procedures are technically correct and adequate to ensure the SR is performed.

2. The facility's Safety-Class SSCs are currently operable and in satisfactory condition as defined in the Limiting Conditions of Operation.

3. The facility has a process in place to identify all TSR commitments, including Administrative Controls; their current status; and a plan to achieve them by the Implementation Plan deadlines. Actions completed for TSR implementation and interim measures are in place where required to maintain the Facility's Safety Envelope.

4. Sufficient supervisory, operations and support staff have been selected, trained, and qualified to specific SR procedures.

5. The breadth, depth, and results of the LLNL Readiness Assessment are adequate to verify readiness for resumption of operations including a management system to track and schedule SRs.

6. Unreviewed Safety Question Evaluations of changes to the Safety Analysis Report including Technical Safety Requirements have been completed and any TSR changes have been approved by the Oakland Operations Manager.

7. Facility management practices are adequate to identify and correct deficiencies related to the TSRs.

## 4.0 Conduct of Review

Because the Oakland Operations office does not have a local implementing procedure for DOE Order 5480.31, Startup *and Restart of Nuclear Facilities* , OAK and LLNL (under OAK's guidance) will follow the requirements and guidance set out in DOE Order 5480.31 and DOE Std 3006, *Planning and Conduct of Operational Readiness Reviews*..

The review process will be conducted within the scope described in section 2.0. The OAK RA Team will review the Plutonium Facility's documentation, conduct interviews, and selectively observe the performance of surveillances to confirm that the equipment, management controls, procedures, and personnel are adequate to operate the facility in accordance with the DOE approved TSRs.

The Review Team will primarily focus on assuring the Plutonium Facility Management properly addressed all actions called out in the B-332 Corrective Action Plan. The Review Team, utilizing the specific knowledge and best judgment of each member, will endeavor to assure that all LLNL actions meet the acceptance criteria defined in Section 3.0

It is not the intent of the OAK Review Team to perform a 100% review of the LLNL actions unless deficiencies warrant a more detailed review. The review will be sufficient to determine that all significant issues are resolved and that the safety envelope of the facility will be maintained. The procedures for all SRs will at a minimum be walked down to assure their compliance with the intent of the SR.

All issues and concerns be documented and a copy provided to both the Plutonium Facility Manager and the Superblock Manager for immediate resolution.

Review Procedure

The LLNL project group will provide the necessary information to the RA Teams through meetings with the Team Leaders and members if necessary. The OAK RA Team Leader will be the primary point of contact with LLNL. The Team Leader will rely on the technical expertise of his team members to validate any concerns or issues identified during the review.

If an issue or concern is identified it will be documented on the appropriate form (Appendix 3 or 4) and identified to both Project Management and the LLNL RA Team for resolution.

All Issue or Concern items (resolved & unresolved) will be used as part of the final data package for the final report. Issues and Concerns will be integrated into the final report. The data package will remain a matter of record as submitted. If issues remain, it will be up to the LLNL RA Team leader working with LLNL Project Management and the OAK RA Team to seek a resolution. The persons raising the issue will be closely involved in the process to assure that the issue is resolved in a satisfactory manner.

The independent OAK RA final report will identify all issues and concerns with the recommended corrective actions to be taken.

The OAK RA Team leader will review each data package to determine if it is of sufficient scope and depth to support the team's recommendations. The signature on the data package signifies that the assigned area has been reviewed and found to be complete or deficient as noted.

Prior to release, the final report will be reviewed by the Director of the OAK Environmental, Safety, and Facility Operations Division (ESFOD). A briefing will be held, so that there will be an opportunity to clarify any issues before the report is sent to the DOE Site Manager.

## 5.0 Process for Authorizing Operations

Upon completion of the OAK RA, the team leader will submit a report to the Assistant Manager for Defense Programs (AMDP) for his review and approval. The AMDP will send a letter to LLNL authorizing start of Fissile Material programmatic operations provided all issues have been resolved to his satisfaction.

## 6.0 References


(1) Plutonium Facility-Building 332, Technical Safety Requirements, UCRL-AR-119592.

(2) Safety Evaluation report for the Lawrence Livermore National Laboratory Plutonium Facility (Building 332), dated March 6, 1995.

(3) LLNL Plutonium Facility Corrective Action Plan for TSR Implementation, dated May 1995.

(4) DOE Order 1324.1A, Records Management is within the scope because records management is a necessary element in the oversight and implementation of the TSRs.

(5) DOE Order 4330.4A, Maintenance Management is within the scope of this assessment where procedures, training and actions are required of maintenance personnel in relation to the TSRs.

(6) DOE Order 5000.3B, Occurrence Reporting is within the scope of this review where action statements associated with the TSRs require its implementation.

(7) DOE Order 5480.7A, Fire Protection applies because there TSRs related to Fire Protection Systems

(8) DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities, July 9, 1990, Change 1: May 18, 1992

(9) DOE Order 5480.20, Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities, February 20, 1991, Change 1:June 19, 1991 Note: Revision A currently not in effect for the University of California

(10) DOE Order 5480.21, Unreviewed Safety Questions, December 24, 1991

(11) DOE Order 5480.22, Technical Safety Requirements, February 25, 1992, Change 1: September 15, 1992

(12) DOE Order 5480.23, Nuclear Facility Safety Analysis Reports, April 10, 1992, Change 1: March 10, 1994

(13) DOE Order 5480.24, Nuclear Criticality Safety, August 12, 1992

(14) DOE Order 5480.31, Startup and Restart of Nuclear Facilities, September 15, 1993.

(15) DOE-STD-3006-93, Planning and Conduct of Operational Readiness Reviews (ORR), November 1993.

(16) DOE Order 5483.1A, Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated Facilities, June 22, 1983

(17) DOE Order 5500.3A, Planning and Preparedness for Operational Emergencies, April 30, 1991, Change 1, February 27, 1992

(18) DOE Order 5700.6C, Quality Assurance, August 21, 1991

# Appendix 1

## RA TEAM ASSIGNMENTS

| | |
|---|---|
| 1. Mark Lee | Team Leader - Safety Analysis, Technical Safety Requirement and Unreviewed Safety Question |
| 2. Mike Cornell | Radiological Protection Support |
| 3. Claire Holtzapple | Training and Qualifications Requirements |
| 4. Carl Ingram | Management Controls |
| 5. Phil Duarte | Weapons, Lasers and Reimburseables Division |
| 6. TBD | Office of Research, Development and Testing Facilities, DP-13 |
| 7. TBD | Technical support for Fire Detection and Suppression System (DP-30?) |
| 8. TBD | Technical support for Emergency Power System (DP-30?) |

Mark A. Lee

Nuclear Engineer: 10 years experience in the areas of radiological controls, nuclear emergency planning, safety documentation and safety analysis consisting of: three years DOE experience in nuclear safety and operations with the Oakland Operations Office, and seven years experience as a civilian engineer for the naval nuclear propulsion program.

Subject Matter Specialty Areas:

1. Safety Analysis: Provide guidance to contractor for the development of SARs (nuclear and non-nuclear) as well as reviewing documents for accuracy/adequacy.

2. Nuclear Criticality Safety: Team lead for review of criticality safety at Lawrence Livermore National Laboratory. Reviews of Criticality Safety Evaluations, and implementing safety procedures.

Education: B.S. Physics (with additional studies in Nuclear Engineering)

**Name:** Michael J. Cornell

**Position**: Health Physicist
Environment, Safety, and Facility Operations Division
Livermore Site Office
DOE/SF

**Phone**: (510)422-0138

**1991 to Present**:

Staff Health Physicist with oversight responsibility of Radiation Protection Program at Lawrence Livermore National Laboratory.

**1983 to 1991**:

Supervisory, Radiation Protection Technician with Radiological Control Division at Mare Island Naval Shipyard (MINS). Involved with Nuclear Repair and Overhaul of Naval Submarines and Surface Ships nuclear propulsion plants.

**1973 to 1982**:

Production Chemist with Amersham Corporation in Arlington Heights, Illinois. In charge of the production of Liquid Scintillation Standards for this company.

**1968 to 1971**:

Health Physics Technician with U.S. Army Chemical Center and School at Fort McClellan, Al. In charge of the dosimetry program at this school and conducted oversight of radiological training at the school.

**Education:**

B.S. Degree in Chemistry, Northern Illinois University

Claire S. Holtzapple

Environmental Engineer: 5 years experience in the areas of environmental monitoring and implementation of the National Environmental Policy Act.

Mechanical Engineer: 5 years experience as a civilian engineer conducting Navy shipboard diagnostic testing.

Subject Matter Specialty Areas:

Technical Training: Provide guidance to contractor for the development of Training Implementation Matrices (TIMs) in accordance with the requirement of DOE Order 5480.20A. Review and approve LLNL TIMs.

Education: B.S., Mechanical Engineering

Carl A. Ingram

Nuclear Engineer: 6-1/2 years experience in the areas of radiological controls, repair and maintenance of reactor plants, review and assessment of facility operations a consisting of: three years DOE experience in facility operations and explosives safety with the Oakland Operations Office, and three and one half years experience as a civilian engineer for the naval nuclear propulsion program.

Subject Matter Specialty Areas:

1. Facility Oversight/Conduct of Operations: Day to day oversight of contractor operations. Team Lead for appraisal of Conduct of Operations implementation.

2. Explosives Safety: Oakland member of DOE Explosives Safety Committee. Provide guidance to contractor on implementation of DOE requirements and oversee institutional performance.

Education: B.S. Mechanical Engineering

Phillip Duarte
DOE/OAK/WLD

General Engineer: 10 years experience in the areas of management oversight and program implementation of weapons research development and testing at the Lawrence Livermore Lab and Lockheed Missiles Systems Division. This includes three years DOE/OAK experience with nuclear explosive safety requirements and operations at the DOE test and production sites.

Subject Matter Specialty Areas:

1. Nuclear Explosive Safety: including, experience with or knowledge of the development, testing and production of nuclear explosives, and the understanding of DOE directives governing nuclear explosive production, test and transportation activities. Member of the DOE Nuclear Explosive Safety Study Group and the HQs Nuclear Explosive Safety Appraisal Team.

2. Project Management: knowledge with the engineering, construction, and operational activation requirements for DOE construction of weapon's research and development facilities.

Education: B.S. Mechanical Engineering

# Appendix 2

## READINESS ASSESSMENT EVALUATION ELEMENTS

**Note:** Those elements which are not affected by the TSRs will be reviewed only in enough detail to determine that this is the case

I. Current Status of Technical Safety Requirements (TSRs)

- A. Records indicating performance of Surveillance Requirements
- B. Physical inspection of facility systems and equipment
- C. Personnel knowledge of TSRs and related requirements
- D. Adequacy of interim and completed actions vs. the facility safety envelope

II. Surveillance Requirement (SR) Procedures

- A. Technical validity of the procedures
- B. Field implementation of procedures
  - a. Observation of procedure performance
  - b. Review of records relating to procedures

III. Technical Safety Requirement (TSR) Training

- A. Personnel selection
- B. Verification of appropriate scope and depth of training
- C. Qualification process
- D. Review of training records against implementation matrix and related program requirements

IV. Management Controls

- A. Oversight of TSRs
  1. Tracking System for Surveillance Requirements
  2. Accountability system for personnel and organizations responsible for performing surveillance requirements and applying TSR requirements
     - a. Facility Staff
     - b. Facility Operators
     - c. Engineering
     - d. Plant Engineering
     - e. Hazards Control

3. LLNL Assessment of TSR requirement performance
4. DOE Facility Representative coverage
5. DOE OAK safety personnel (technical support to facility representatives)

B. Related Facility Overview Processes and Programs

1. Unreviewed Safety Question Evaluation
2. Quality Assurance Program,
3. Conduct of Operations Implementation Plan
4. SAR/TSR Implementation Process
5. Emergency Preparedness Program
6. Criticality Safety Program
7. Fire Protection
8. Radiation Protection
9. Maintenance Plan
10. Measuring and Test Equipment
11. Configuration Management
12. Facility Radioactive and Hazardous Materials Shipping and Receiving Program
13. Occurrence Reporting
14. Safety Training
15. Maintenance Training
16. Deficiency Tracking
17. Order Compliance Self Assessment Process

C. Adequacy of LLNL Readiness Assessment

1. Review and Approval of LLNL RA Plan
2. Conduct of assessment versus plan
3. Review of report

# Evaluation Elements for Areas of Assessment

| HEPAs | Ventilation | Doors | Emergency Power |
|---|---|---|---|
| LCO 3.2.a,b | LCO 3.3.a,b | LCO 3.4.a | LCO 3.5.a,b,c |
| SR 4.2.1 | SR 4.3.1.1 | SR 4.4.1 | SR 4.5.1 |
| SR 4.2.2 | SR 4.3.1.2 | SR 4.4.2 | SR 4.5.2.1 |
| | SR 4.3.2 | | SR 4.5.2.2 |
| | | | SR 4.5.2.3 |
| | | | SR 4.5.3.1 |
| I.A | I.A | I.A | I.A |
| I.B | I.B | I.B | I.B |
| I.C | I.C | I.C | I.C |
| I.D | I.D | I.D | I.D |
| II.A | II.A | II.A | II.A |
| II.B.1 | II.B.1 | II.B.1 | II.B.1 |
| II.B.2 | II.B.2 | II.B.2 | II.B.2 |
| III.A | III.A | III.A | III.A |
| III.B | III.B | III.B | III.B |
| III.C | III.C | III.C | III.C |
| III.D | III.D | III.D | III.D |
| IV.B.3 | IV.B.3 | IV.B.3 | IV.B.3 |
| IV.B.5 | IV.B.5 | IV.B.5 | IV.B.5 |
| IV.B.9 | IV.B.9 | IV.B.9 | IV.B.9 |
| IV.B.10 | IV.B.10 | IV.B.10 | IV.B.10 |
| IV.C.1 | IV.C.1 | IV.C.1 | IV.C.1 |
| IV.C.2 | IV.C.2 | IV.C.2 | IV.C.2 |
| IV.C.3 | IV.C.3 | IV.C.3 | IV.C.3 |
| **HOLTZAPPLE** | **HOLTZAPPLE** | **CORNELL** | **INGRAM** |
| **DUARTE** | **DUARTE** | | **TBD** |

# Evaluation Elements for Areas of Assessment

| Criticality Alarm | Fire | Admin Controls | SR Map & TICKLER |
|---|---|---|---|
| SR 4.6.1 | LCO 3.7.a,b,c,d | | |
| SR 4.6.2 | SR 4.7.1.1 | | |
| SR 4.6.3 | SR 4.7.1.2 | | |
| SR 4.6.4 | SR 4.7.1.3 | | |
| SR 4.6.5 | SR 4.7.1.4 | | |
| | SR 4.7.1.5 | | |
| | SR 4.7.2 | | |
| | 4.7.3.1 | | |
| | 4.7.3.2 | | |
| I.A | I.A | I.B | IV.A.1 |
| I.B | I.B | II.A | IV.A.2 |
| I.C | I.C | III.A | IV.B.3 |
| I.D | I.D | III.B | IV.C.1 |
| II.A | II.A | III.C | IV.C.2 |
| II.B.1 | II.B.1 | III.D | IV.C.3 |
| II.B.2 | II.B.2 | IV.A.1.d | |
| III.A | III.A | IV.A.2.d | |
| III.B | III.B | IV.A.2.e | |
| III.C | III.C | IV.B.1 | |
| III.D | III.D | IV.B.2 | |
| IV.B.3 | IV.B.3 | IV.B.3 | |
| IV.B.5 | IV.B.5 | IV.B.5 | |
| IV.B.9 | IV.B.9 | IV.B.6 | |
| IV.B.10 | IV.B.10 | IV.B.7 | |
| IV.C.1 | IV.C.1 | IV.B.8 | |
| IV.C.2 | IV.C.2 | IV.B.9 | |
| IV.C.3 | IV.C.3 | IV.B.10 | |
| | | IV.B.11 | |
| | | IV.B.12 | |
| | | IV.B.13 | |
| | | IV.B.14 | |
| | | IV.B.15 | |
| LEE | TBD | ALL | CORNELL |
| | TBD | | PETERSON |

## Evaluation Elements for Areas of Assessment

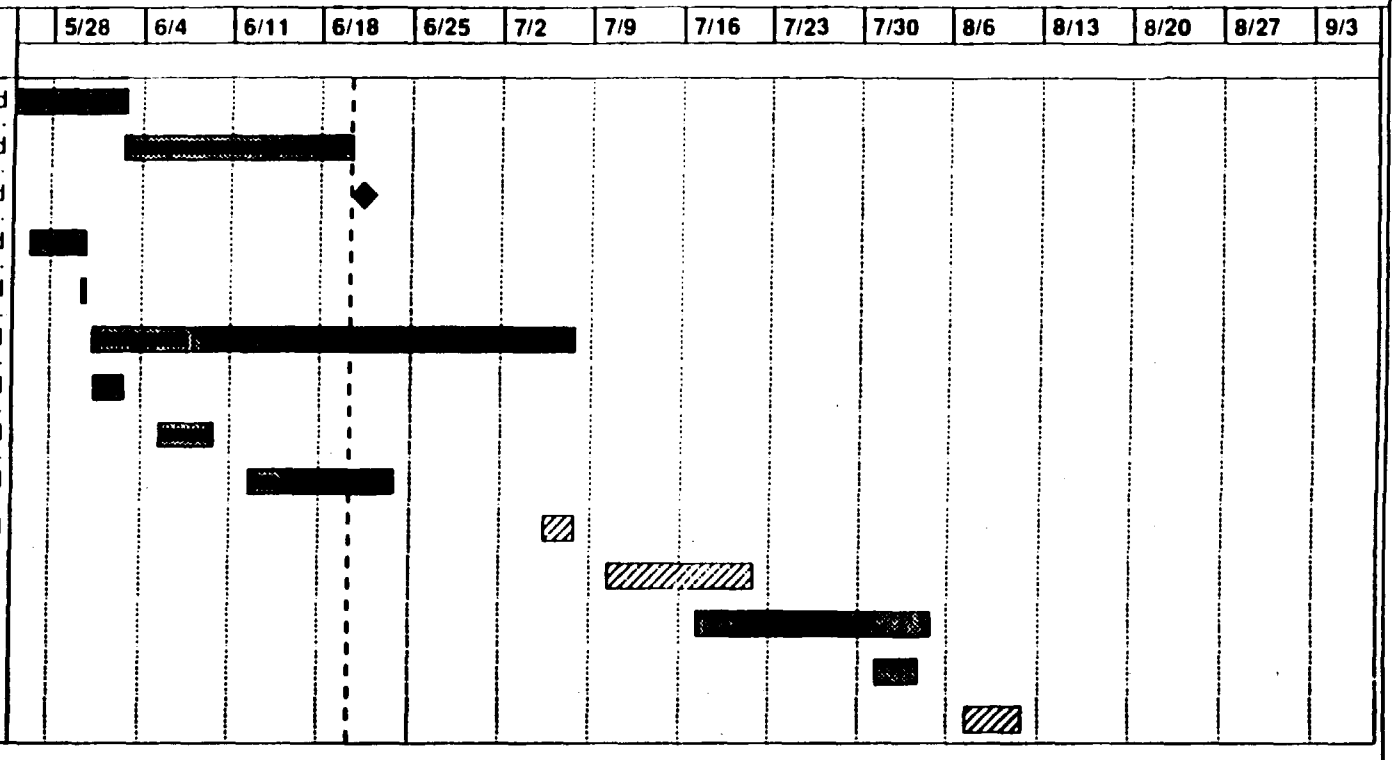
| DOCSA | Outstanding Corrective Actions | LLNL RA | OAK OVERSIGHT |
|---|---|---|---|
| IV.B.17 | IV.B.1<br>IV.B.16 | IV.C.1<br>IV.C.2<br>IV.C.3 | IV.A.4 |
| **ALL** | **ALL** | **ALL** | **PETERSON** |

# Appendix 3

# Schedule

# DOE Readiness Assessment Schedule

| ID | Name | Duration |
|---|---|---|
| 1 | OAK RA IP | 12d |
| 2 | EH IP Comments | 12d |
| 3 | Revise/Complete IP | 0d |
| 4 | RA TSR Assignments | 3d |
| 5 | Initial TSR Training Session | 1d |
| 6 | TSR Trng | 28d |
| 7 | Map TSRs to RA Plan | 3d |
| 8 | DNFSB Visit | 5d |
| 9 | ESFOD Staffing Assessment | 10d |
| 10 | TSR Approval | 3d |
| 11 | LLNL RA | 10d |
| 12 | OAK RA | 15d |
| 13 | HQ Participation | 4d |
| 14 | OAK Report Preparation | 5d |




Project: DOE RA of B332
Date: 6/20/95

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

# Appendix 4

# Review of

# 20 Core Requirements

# Minimum Core Requirements
# for
# DOE/OAK Readiness Assessment

The following discussion documents the conformance of the DOE/OAK Readiness Assessment to the Minimum Core Requirements listed in Attachment 2 of DOE Order 5480.31. Appendix 2 lists the specific review elements that will be applied to the assessment of the core requirements. While the DOE/OAK RA will not cover 100% of the evaluation elements, the RA must address the following:

a) All TSRs will require some review.
b) All Review Elements identified in the RA plan will require some review.
c) TSRs changed as a part of the facility's preparation process will require a greater depth of review
d) Any weaknesses identified as part of the Team Leader's periodic review (Step 6) will require a greater depth of review.

## Core Requirement No. 1

There are adequate and correct procedures and safety limits for operating the process systems and utility systems.

**Applicability:**

The scope of the Readiness Assessment is limited to the implementation of approved Technical Safety Requirements (TSR) derived from the Safety Analysis Report (SAR). Core requirement applies where procedures for process and utility systems are required to implement the TSRs. The need for Safety Limits is an issue that would was decided during SAR preparation, review and approval process and none were needed.

**Implementation:**

The adequacy and accuracy of procedures which operate equipment related to the TSRs will be reviewed. (elements I.D and II)

## Core Requirement No. 2

Training and qualification programs for operations and operations support personnel have been established, documented, and implemented (the training and qualification program encompasses the range of duties and activities required to be performed).

**Applicability:**

Requirement applies to facility staff and operators as well as Plant Engineering and Hazards Control personnel who are responsible for performing surveillances and ensuring that administrative controls are adhered to where these activities relate to the TSRs.

**Implementation:**

Training and qualification of personnel responsible for implementation of the TSRs will be reviewed. (element III)

**Core Requirement No. 3**

Level of knowledge of operations and operations support personnel is adequate based on reviews and examination results, and selected interviews of operating and operations support personnel.

**Applicability:**

Requirement applies in the same manner as Core Requirement No.2.

**Implementation:**

Core requirement will be met by review of training records and examination results pertaining to TSRs (element III) and knowledge will be assessed by field observation of procedure performance for surveillance requirements (element II.B.a) and interviews with personnel regarding their knowledge of TSRs (element I.C)

**Core Requirement No. 4**

Facility safety documentation is in place that describes the "safety envelope" of the facility. The safety documentation should characterize mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety systems and systems essential to worker and public safety are defined and a system to maintain control over the design and modification of facilities and safety-related utility systems is established.

**Applicability:**

The SAR is the facility safety documentation which describes the safety envelop. In accordance with DOE Order 5480.23, it characterizes mitigating features such as systems, procedures and controls which must be put in place to maintain the safety envelope. It also identifies safety class and safety significant systems. Another review of the SAR is not in the

scope of this assessment. The existence of system(s) to maintain configuration control of systems and equipment related to the TSRs is, however, within the scope of this assessment.

**Implementation:** Applicable portions of core requirement will be met by review of the Unreviewed Safety Question, Quality Assurance, Conduct of Operations and Configuration Management processes (elements IV.B.1, IV.B.2, IV.B.3 and IV.B.11). This element will be given spot validation through physical inspection of facility systems and equipment. (elements I.B)

**Core Requirement No. 5**

A program is in place to confirm and periodically confirm the condition and operability of safety systems, including safety related process systems and safety related utility systems. This includes other instruments which monitor limiting conditions of operation or that satisfy Technical Safety Requirements. All systems are currently operable and in satisfactory condition.

**Applicability:**

This requirement is applicable in it entirety for safety class and safety significant Systems, structures and components (SSCs) required to be operable and in satisfactory condition by the TSRs.

**Implementation:**

1) Review of records indicating performance of surveillance requirements (element I.A)
2) Physical inspection of facility systems and equipment (element I.B)
3) Review of Surveillance Requirement Procedures (element II)
4) Review of Measuring and Test Equipment Program (element IV.B.10)
5) Review of Maintenance Plan (element IV.B.9)

**Core Requirement No. 6**

A process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

**Applicability:**

When limited to scope of the TSRs, the Unreviewed Safety Question process and some type of deficiency tracking and correction process are essential.

**Implementation:**

1) Review of Unreviewed Safety Question Process (element IV.B.1)
2) Review of Facility DefTrack Process (element IV.B.16)

**Core Requirement No. 7**

A systematic review of the facility's conformance to applicable DOE Orders has been performed, any nonconformances have been identified, and schedules for gaining compliance have been justified in writing and formally approved.

**Applicability:**

There are several DOE Orders which relate to the TSRs. Some are within the scope of this assessment and others fall outside the scope. They are:

1) DOE Order 1324.1A, Records Management is within the scope because records management is a necessary element in the oversight and implementation of the TSRs.
2) DOE Order 4330.4A, Maintenance Management is within the scope of this assessment where procedures, training and actions are required of maintenance personnel in relation to the TSRs.
3) DOE Order 5000.3B, Occurrence Reporting is within the scope of this review where action statements associated with the TSRs require its implementation.
4) DOE Order 5480.7A, Fire Protection applies because there TSRs related to Fire Protection Systems
5) DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities applies because its elements are used to implement the TSRs
6) DOE Order 5480.20, applies because training and qualification is required of those personnel responsible for implementing the TSRs.
7) DOE Order 5480.21, Unreviewed Safety Questions applies because the exceedance of TSRs can result in evaluation of the facility's operating condition as an Unreviewed Safety Question.
8) DOE Order 5480.22 Technical Safety Requirements applies its entirety because it is the subject of this assessment.
9) DOE Order 5480.23 Nuclear Facility Safety Analysis Reports applies where it contains requirements for the use and implementation of TSRs. The general requirements for the Safety Analysis Report itself, however, fall outside the scope of this review as B/332 has an approved 5480.23 SAR.
10) DOE Order 5480.24, Criticality Safety applies to this assessment because its requirements affect the implementation of TSRs which pertain to criticality safety.
11) DOE Order 5480.28, Natural Phenomena Hazards does not apply to this assessment because although there are natural phenomena hazards associated with TSRs, the requirements of the order pertain only to TSR development as opposed to TSR implementation and action statements.

12) DOE Order 5480.31, Startup and Restart of Nuclear Facilities applies with respect to this assessment the LLNL assessment
13) DOE Order 5483.1A, Contractor Occupational Safety and Health Program applies where administrative controls must meet requirements of the order.
14) DOE Order 5500.3A, Planning and Preparedness for Operational Emergencies applies because its implementation is required for the response to some TSR violations.
15) DOE Order 5700.6C, Quality Assurance applies because some of its elements apply to the documentation of TSR implementation.

**Implementation:**

Facility's Requests for Approvals (RFAs) generated under the DOE Order Compliance Self Assessment (DOCSA) Project will be reviewed for the fourteen applicable orders that are listed above (element IV.B.17). The review will determine whether non-compliances identified under this assessment will adversely affect adherence to the TSRs.

**Core Requirement No. 8**

Management programs are established, sufficient numbers of qualified personnel are provided, and adequate facilities and equipment are available to ensure operational support services (e.g., training maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering) are adequate for operations.

**Applicability:**

Those programs which are identified as part of the TSRs are applicable to this assessment. These programs are:

1) Unreviewed Safety Question Program
2) Emergency Preparedness Program
3) Criticality Safety Program
4) Fire Protection Program
5) Radiation Protection Program
6) Maintenance Plan
7) Measuring and Test Equipment
8) Configuration management Control
9) Facility Radioactive and Hazardous Materials Shipping and Receiving Program
10) Quality Assurance Program
11) Occurrence Reporting

12) Authorization of Startup or restart by DOE (not applicable to this assessment due to length of shut down and placement of facility in standby mode with curtailment of operations was undertaken by contractor)
13) Safety Training Program
14) Maintenance Training Program

**Implementation:**

The applicable programs will be reviewed as follows. Because past oversight of these programs has provided data, the depth of these reviews will be only that which is necessary to determine that a functioning program exists unless otherwise noted.

1) Unreviewed Safety Question Program will be assessed by reviewing the facility's USQ process including procedures and past evaluations related to TSRs (element IV.B.1)
2) Emergency Preparedness Program will be assessed through review of Facility plans, procedures and records of drills conducted as they relate to TSR actions. (element IV.B.5)
3) Criticality Safety Program will be assessed through review of data collected during a recently conducted criticality safety appraisal. (elements IV.A.2.e and IV.B.6)
4) Fire Protection Program will be assessed through review of previously conducted appraisals and physical inspection of the facility. (elements I.B and IV.B.7)
5) Radiation Protection Program will be assessed through review of the LLNL Radiological Control Manual Implementation Plan, relating those portions that are not implemented with the TSRs (element IV.B.8)
6) Maintenance Plan will be assessed to determine if it provides adequate coverage of the TSRs (elements IV.A.2.d and IV.B.9)
7) Measuring and Test Equipment will be assessed through review of procedures which govern their control and inspection of the equipment to determined if it is being controlled as required. (elements IV.A.2.d and IV.B.10)
8) Configuration Management Control will be assessed through the review of related Quality Assurance and Conduct of Operations program elements which apply configuration control to TSR adherence. Physical inspection will be used to ensure that these programs are working. (elements I.B, IV.B.2, IV.B.3 and IV.B.11)
9) Facility Radioactive and Hazardous Materials Shipping and Receiving Program will be assessed through review of the LLNL implementing documentation and ensuring that those personnel who implement this program have proper training (elements II and IV.B.12)
10) Quality Assurance Program will be assessed through review of facility implementing documents and physical inspection of the facility and its records to ensure that the procedures are in effect where required to implement the TSRs. (elements I.B, IV.B.2)

11) Occurrence Reporting will be assessed through review of the LLNL and directorate specific procedures. Adherance to these requirements will be assessed by reviewing previous occurrences. (element IV.B.13)
12) Safety Training Program will be assessed by review implementation training matrix requirements completed against that which is required for adherence to the TSRs. (elements III and IV.B.14)
13) Maintenance Training Program will be assessed through review of maintenance personnel records against tasks and knowledge required for adherence to the TSRs. (elements III, IV.A.2.d and IV.B.15)

**Core Requirement No. 9**

A routine and emergency operations drill program, including program records, has been established and implemented.

**Applicability:**

The requirement applies because emergency response is part of the actions associated with the TSR actions.

**Implementation:**

Program records will be reviewed to determine if performance of emergency drills is adequate. (element IV.B.5)

**Core Requirement No. 10**

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

**Applicability:**

The testing program for equipment related to TSRs along with its procedures and training are applicable to this assessment.

**Implementation:**

Review of the test program will conducted as follows:

1) Observation of testing in progress (element I.B)
2) Review of surveillance procedures (element II)
3) Review of training records for those personnel required to perform training (element III)
4) Review of records indicating performance of testing (element I.A)

**Core Requirement No. 11**

Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and effectively implemented with line management responsible for control and safety.

**Applicability:**

Requirement is applicable when related to performance and conformance for TSRs.

**Implementation:**

Requirement will be assessed through review of Chapter I implementation of Conduct of Operations and relating it to specific TSRs (element IV.B.3)

**Core Requirement No. 12**

The implementation status for DOE 5480.19, Conduct of Operations Requirements for DOE Facilities is adequate for operations.

**Applicability:**

Conduct of Operations applies to this review as discussed in Core Requirement No. 7 above.

**Implementation:**

Applicable requirements of Conduct of Operations will be reviewed as part of the facility's Conduct of Operations implementation process. (element IV.B.3)

**Core Requirement No. 13**

There are sufficient numbers of qualified personnel to support safe operations.

**Applicability:**

Requirement applies to personnel responsible for the implementation and performance of TSRs

**Implementation:**

Personnel selection and training records will be reviewed to ensure qualified personnel exist to meet TSR commitments.

**Core Requirement No.14**

A program is established to promote a sitewide culture in which personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high priority commitment to comply with these requirements

**Applicability:**

Requirement applies to facility and Laboratory elements which support the facility with respect to its TSRs. A sitewide review is not within the scope of this assessment. Not all requirements are associated with this review only those associated with the TSRs.

**Implementation:**

An assessment will be made in the final report of the facility's commitment and that of its support services towards meeting the commitments of TSRs. This assessment will be made based on information collected from all the elements reviewed as part of the RA Plan.

**Core Requirement No.15**

The facility systems and procedures, as affected facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

**Applicability:**

Requirement applies to systems and procedures which are part of TSR implementation.

**Implementation:**

Systems will be reviewed by physical inspection (element I.B) and surveillance procedures will be reviewed (element II) through a combination observation and records review. Safety Class equipment operating procedures will be reviewed by combining elements involving adequacy of completed and interim actions, surveillance procedures and Conduct of Operations implementation (elements I.D, II and IV.B.3) and making a determination as to the adequacy of these procedures. Modifications are addressed as part of the review of the configuration management system under Core Requirement No. 8.

## Core Requirement No.16

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

### Applicability

As applied to scope of this review, the DOE Facility Representative (FR) is the only critical position responsible for providing guidance and direction to the Plutonium Facility regarding the TSRs. All guidance and direction promulgated from other sources regarding the TSRs must pass through the Facility Representative before being sent to the facility. FR does receive support from his management and other technical staff with regard to the TSRs.

### Implementation

Record Review: Review completed FR Qual-Cards, and oral and written exam results demonstrating qualification. Review FR assignments. Review training and qualifications of safety personnel at the Oakland Operations Office.

Interviews: Interview the FR(s) to determine his understanding of operations, safety envelope, past incidents and occurrences, conduct of operations principles, and stop work authority. Interview members of the Oakland Operations safety department and assess understanding of operations and the safety envelope.

Shift Performance: Perform a walkthrough of the facility with the FR to determine the FR's understanding of the building layout, system operation, normal operator routines, and shift activities.

## Core Requirement No.17

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

### Applicability

The conduct and results of the Contractor Readiness Assessment are within the scope of this review.

**Implementation**

The Contractor Readiness Assessment Plan will be reviewed and approved by DOE/OAK as part of this assessment. The conduct of the assessment will be evaluated against the plan and the results from the contractor report will be reviewed against the observations of this assessment. (element IV.C)

**Core Requirement No.18**

Modifications to the facility have been reviewed for potential impacts on procedures and training and qualification. Procedures have been revised to reflect these modifications and training has been performed to these revised procedures.

**Applicability**

This assessment is not being performed as a result of facility modifications. However, due to revision of surveillance procedures and requirements some facility equipment modification is anticipated and review of this equipment and its procedures is within the scope of this readiness assessment.

**Implementation**

New and modified equipment will be reviewed by physical inspection. (element I.B) Procedures for modified equipment will reviewed during review of surveillance procedures and field observation of surveillances (element II.B.1)

**Core Requirement No.19**

The technical and management qualifications of contractor personnel, responsible for facility operations, are adequate.

**Applicability**

The technical qualifications of contractor personnel responsible for adherence to the TSRs is within the scope of this assessment. The managerial qualifications are not within the scope of this assessment because facility staffing and personnel selection for managerial positions occurred separately from the TSR implementation and this implementation requires no difference in managerial qualifications.

**Implementation**

Technical qualifications of contractor personnel will be reviewed as part of the review of the training and qualification program (element III)

**Core Requirement No.20**

Operations Office Oversight Programs such as Occurrence Reporting, Facility Representative, Corrective Action, and Quality Assurance Programs are adequate (DOE Operational Readiness Review only).

**Applicability**

The requirement applies to Operations Office oversight of the TSRs and programs identified in core requirements no.8 which support the TSRs. The only element performing oversight of the TSRs is the Facility Representative Program.

**Implementation**

The Facility Representative Program and its supporting elements will be reviewed to ensure that oversight of the TSRs and their supporting programs is adequate. (element IV.A.4) Recent reviews of DOE Oakland programs can be used in lieu of further reviews (such as recent EH review of OAK Occurrence Reporting program).