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Maintenance Management Department Operational Safety Requirements Program

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Instrumentation and Controls Division

MAINTENANCE MANAGEMENT DEPARTMENT OPERATIONAL SAFETY REQUIREMENTS PROGRAM

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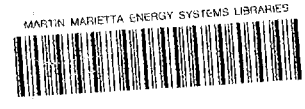

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Office of Operational Safety	Date

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ABSTRACT

This document describes the requirements, procedures, and responsibilities of the I&C Maintenance Management Department for instrument maintenance in nonreactor nuclear facilities at the Oak Ridge National Laboratory that have Operational Safety Requirements. Applicable DOE, Martin Marietta Energy Systems, Inc., and ORNL procedures are outlined.

The objective of this document is to present a surveillance plan for nonreactor nuclear facility safety hardware, thereby fulfilling the requirements of the responsible operating division. Scheduled maintenance and surveillance plans for components or systems as required by the ORNL Facility Operational Safety Requirements are also addressed.

DEFINITIONS OF TERMS USED IN THIS DOCUMENT

Facility. A single operation, system, or experiment or a structure or building containing one or more operations, systems, or experiments considered a Department of Energy-Oak Ridge Operations activity as defined in DOE Order 5480.1A (ref. 1) and OR 5481.1B.[2]

Final Safety Analysis Report (FSAR). A safety document that systematically identifies the hazards associated with a facility; describes and analyzes the adequacy of the measures taken to eliminate, control, or mitigate identified hazards; and analyzes and evaluates potential accidents and their associated risks.

Health and Safety Review Committees(s). A standing review committee designated by a committee charter, the ORNL Director or Executive Director, or the Office of Operational Safety to review safety analyses (SAs), preliminary safety analysis reports (PSARs), final safety analysis reports (FSARs), and Operational Safety Requirements (OSRs), as well as conduct preoperative and periodic facility reviews. (Ad hoc committees appointed by the ORNL Executive Director may perform special reviews.)

Instrumentation and Controls (I&C) and Plant and Equipment Divisions. ORNL service organizations responsible for maintaining facility safety systems, components, and structures in accordance with established practices.

Maintenance Management Department (MMD). A department of the I&C Division responsible for the maintenance and calibration of facility instruments and safety systems.

Office of Operational Safety. The representatives of the Laboratory Director and Executive Director for facility safety. The manager of this office is designated as the ORNL Facility Safety Manager.

Operational Safety Requirements (OSR). Requirements that define the conditions, safe boundaries, and administrative controls required to ensure safe operation of a facility. These requirements are based on analyses and commitments made in FSARs.

Operating Division/Operator. The ORNL division/operator responsible for the operation, safety, and scheduling of periodic maintenance, inspection, and test activities of a facility.

Preliminary Safety Analysis Report (PSAR). A safety document that identifies the basic safety systems and administrative controls required in facility design and operation. It establishes the functional criteria applied to these systems, documents an accident analysis that examines the behavior of the safety systems for all reasonable accident situations, and sets forth safety system concerns to be included in the quality assurance plan for each project. The level of detail will be commensurate with the available design definition.

Quality Department. The department responsible for developing and documenting the planning and implementation of specific hardware surveillance programs required for each facility as requested by the operating division.

Safety Systems. Equipment and/or hardware that actively provides a safety function by preventing or mitigating accidents, thus ensuring that the operation of the facility will not cause unacceptable risk to the safety and health of employees and the public.

Surveillance. A deliberate and systematic inspection, test, calibration, or check of equipment to verify continuing safe performance in accordance with established criteria.

1. INTRODUCTION

This document describes requirements, procedures, and supervisory responsibilities for instrument maintenance in nonreactor nuclear facilities that have identified Operational Safety Requirements (OSR). Implementation of these requirements and procedures shall comply with the requirements of Department of Energy Order 5480.5,[3] DOE Order OR 5481.1B,[2] Martin Marietta Energy Systems, Inc., Policy Procedure ESH-8,[4] and ORNL Standard Practice Procedure 29.[5]

2. OBJECTIVE

The objective of this document is to present a surveillance plan for nonreactor facility safety hardware, thereby assisting the responsible operating division in fulfilling the requirements of the OSR. This document outlines scheduled maintenance and surveillance procedures for components or systems as required by the OSR.

3. REQUIREMENTS

The following requirements apply to each nonreactor nuclear facility as defined in ORNL Standard Practice Procedure (SPP) 29 (ref. 5) and referred to in Martin Marietta Energy Systems, Inc., Policy Procedure ESH-8 (ref. 4) and DOE Order 5480.5.[3]

a. The Maintenance Management Department (MMD) shall assist the operating division when requested in the development and review of operational safety requirements.

b. The MMD shall assist the Quality Department when requested by either it or the operating division in the development of a surveillance plan for facility hardware.

c. The MMD shall develop and document a scheduled maintenance surveillance plan for facility systems, components, and structures.

d. The MMD shall ensure that department personnel are trained in generic operational safety topics and are trained and aware of specific procedures and safety requirements for each facility. Personnel training shall be documented and records retained on file as outlined in MMD's training manual, *ORNL Nonreactor Nuclear Facility Training Program for I&C Division Maintenance Personnel*.[6]

4. RESPONSIBILITIES

4.1 MAINTENANCE MANAGEMENT DEPARTMENT HEAD

The Maintenance Management Department Head shall:

a. Review requests for service; assure compliance with the OSR program described herein; review and approve revisions to this program; and review and approve each MMD OSR facility plan. Draft OSRs will be implemented as above when they become available to MMD.

b. Receive from the Office of Operational Safety or the facility division OSR and authorize preparation of an MMD OSR facility plan.

c. Distribute copies of the OSR to the responsible general supervisors and OSR Program Coordinator.

4.2 MMD OSR PROGRAM COORDINATOR

The MMD OSR Program Coordinator shall be responsible for administration of the MMD OSR program. These duties include:

a. Acting as liaison to the operating division and the Office of Operational Safety.

b. Arranging training sessions for maintenance personnel working in or on nonreactor nuclear facilities.

c. Ensuring systematic documentation of instrumentation, training, and notices or memos concerning each facility.

d. Reviewing annually each MMD OSR facility plan with MMD supervisors involved with the facility and reporting the results of this review to the MMD Head and appropriate facility supervisor.

e. Reviewing biennially the OSR program described herein.

4.3 GENERAL SUPERVISORS

Each general supervisor shall:

a. Receive from the MMD Head copies of the OSR and assign the OSR to the responsible supervisors.

b. Assist the responsible supervisors in preparation of their MMD facility OSR plans.

c. Ensure compliance with the OSR program described herein and with each facility plan within the scope of his responsibility.

4.4 SUPERVISORS

Supervisors shall review the OSR supplied by the operating division and ensure that the operating division has documented provision of services such as identification, maintenance, scheduling, and calibration of instruments. MMD supervisors shall interface with operating division personnel to clarify maintenance requirements. Supervisors shall be responsible for the following actions:

a. Assisting the operating division in identifying instruments, components, or systems requiring special tags and ensuring that these are tagged.

b. Preparing lists of designated OSR SAFETY SYSTEM instruments with information as required on the OSR SAFETY SYSTEM instrument listing form (see the Appendix).

c. Identifying maintenance personnel working in or on a given facility and providing training as directed by facility requirements and the MMD training program.

d. Placing instruments in the MMD Maintenance Accountability, Jobs, and Inventory Control (MAJIC) recall system for surveillance, calibration, and preventive maintenance (PM), identifying them as safety or limiting-condition instruments in the MAJIC database, and removing from MAJIC any instrument no longer a component of an OSR system.

e. Maintaining documentation indicating special actions or procedures needed to maintain components or systems.

f. Ensuring that all work required by approved change notices originated by the facility supervisor, I&C Division, or the appropriate engineering section has been performed and that copies of approved change notices are filed at the shop location and supplied to the MMD OSR Coordinator.

g. Notifying the facility supervisor and the MMD OSR Coordinator by memo or letter of interruptions in maintenance or calibration schedules.

h. Maintaining spare parts and a spare-parts list identifying each piece of safety system equipment and maintaining in storage an adequate identified inventory to meet maintenance requirements.

i. Updating MAJIC work requests to indicate instruments "on hold."

j. Verifying that all OSR identification tags have been removed from instruments no longer components of an OSR system.

5. PROCEDURES FOR DEVELOPING MMD OSR FACILITY PLANS

5.1 MMD OSR FACILITY PLANS

The purpose of an MMD OSR facility plan is to ensure compliance with all surveillance requirements of the facility OSR. The facility plan shall contain the following items:

a. Approval Page. Signed by the responsible MMD and operating division representatives upon completion of all initial requirements (see the Appendix).

b. Action Check List. Initialed and dated by the MMD OSR Coordinator upon verification of completion of required actions by responsible personnel (see the Appendix).

c. OSR SAFETY SYSTEM Instrument Listing. Includes ID number, description, instrument location, maintenance information file point and location, spare parts location, set points and/or limits, preventive maintenance, and calibration and associated alarm systems (see the Appendix).

d. Attachments. Contains special procedures, training documentation, change notices, and other information as needed. (See the appendix for examples of supplemental information.)

5.2 DOCUMENTATION

Procedures for documenting the operational safety requirements are as follows:

a. Scope. A copy of the OSR as submitted by the operating division shall be retained with the MMD OSR facility plans.

b. OSR Log. Each OSR document on file shall be logged and assigned a unique identifier containing the department initials (MMD), operational safety requirement initials (OSR), the year, and a consecutive number (e.g., MMD OSR-85/1).

c. Distribution. Copies of MMD OSR facility plans and any change notices will be distributed to responsible supervisors and operating division representatives by the MMD OSR Coordinator.

d. Status Report. A summary of the current status of OSR facilities shall be maintained by the OSR Coordinator.

e. Location. Copies of OSR, MMD OSR facility plans, OSR logs, status reports and other pertinent information will be filed in the office of the Maintenance Management Department Head in Building 3500.

5.3 INSTRUMENT DESIGNATION AND TAGGING

Procedures for tracking OSR instruments are as follows:

5.3.1 OSR SAFETY SYSTEM Instruments

Any instrument considered to be an integral part of the safety system shall be designated an OSR SAFETY SYSTEM instrument and tagged with a yellow sticker, Form UCN-15544 (Fig. 1). The tag shall contain the following information:

No.: ID Number
Date: Date tag is applied
Description: MMD OSR number

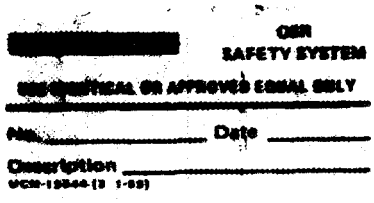

Fig. 1. OSR SAFETY SYSTEM sticker (Form UCN-15544).

5.3.2 OSR Instruments

Any instrument that must be present as a limiting condition of the facility operation shall be designated an OSR INSTRUMENT and tagged with a green sticker, Form UCN-15545 (Fig. 2). The sticker shall contain the same information as the OSR SAFETY SYSTEM instrument.

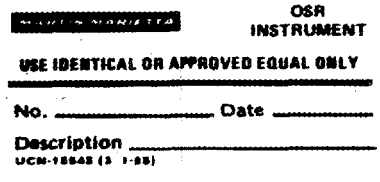

Fig. 2. OSR INSTRUMENT sticker (Form UCN-15545).

5.4 INSTRUMENT IDENTIFICATION IN THE MAINTENANCE ACCOUNTABILITY, JOBS, AND INVENTORY CONTROL (MAJIC) SYSTEM

Instruments designated as OSR SAFETY SYSTEM instruments or OSR INSTRUMENTs shall be identified in the MAJIC inventory using form

UCN-10598. This information is entered in the field labeled OSR using the following codes:

S** to designate OSR SAFETY SYSTEM instruments
R** to designate OSR instrument

The asterisks (**) represent the last two digits of the MMD OSR number. Numbers below 10 require a leading zero (e.g., 01, 02).

I & C INSTRUMENT INVENTORY

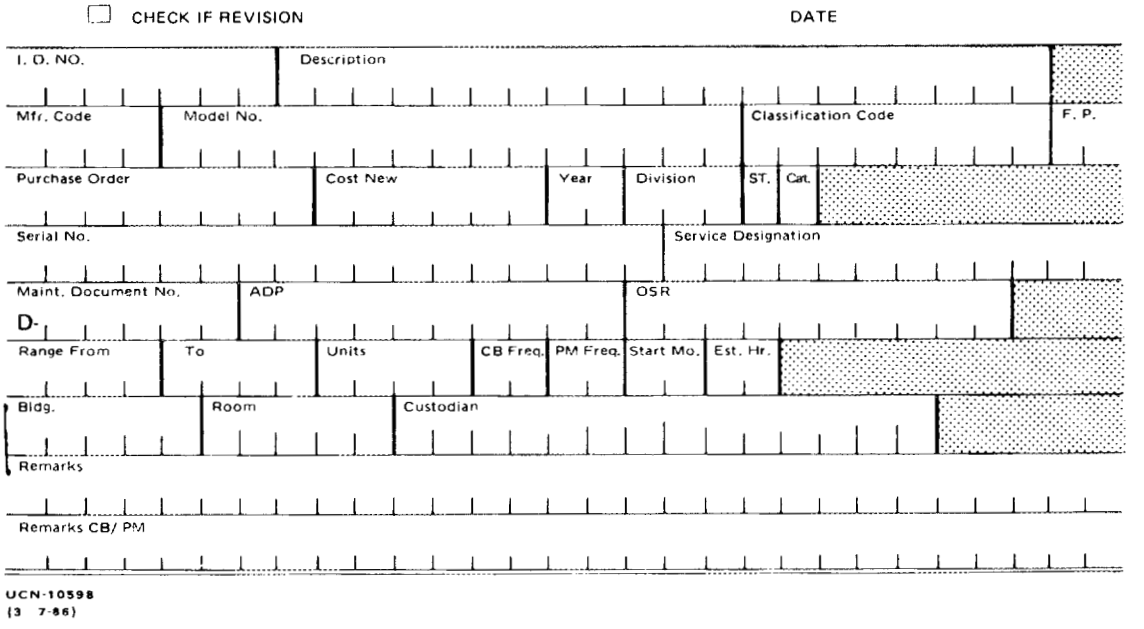

Fig. 3. I&C instrument inventory Form UCN-10598.

5.5 HANDLING OF INSTRUMENTS "ON HOLD"

Instruments on hold are those awaiting parts to complete repair. The following shall apply:

a. The work request shall remain open until the instrument is repaired.

b. The backlog code in MAJIC shall be changed to indicate an instrument on hold by using backlog code B4.

c. A copy of the work request shall be affixed to the instrument.

d. When parts are ordered on a purchase requisition specifically for an instrument on hold, the purchase requisition number shall be written on the work request.

5.6 REMOVAL OF INSTRUMENTS FROM OSR SERVICE

Instruments removed from OSR service as a result of equipment upgrade, excessive maintenance, or changes to the OSR shall have all OSR identification tags (yellow or green stickers) removed. Additionally, MAJIC will be immediately updated to indicate that these instruments are no longer components of an OSR system.

6. TRAINING

The MMD training manual, *ORNL Nonreactor Nuclear Facility Training Program for I&C Division Maintenance Personnel*,[6] was designed to meet the requirements of DOE Order 5480.5 (ref. 3) and Martin Marietta Energy Systems, Inc., Policy Procedure ESH-8.[4] This training program ensures that competent maintenance personnel are available to perform the work necessary to support nonreactor nuclear facilities at the Oak Ridge National Laboratory. Training for maintenance personnel is performed and documented for each operating facility. See the appendix for a copy of the documenting form, "Facility Maintenance Personnel (I&C)."

7. OSR REVIEW PROCEDURES

MMD facility plans for nonreactor nuclear facilities are regularly reviewed, consistent with the requirements of Martin Marietta Energy Systems, Inc., and DOE procedures.

7.1 FACILITY PLAN REVIEW OBJECTIVES

The objectives of the MMD OSR facility plan reviews are to ensure that:

a. Changes in facility operation affecting MMD's responsibility are systematically and regularly identified.

b. Maintenance personnel working in or on the facility are regularly identified and trained as required by applicable DOE procedures and the MMD training program for nonreactor nuclear facilities.

c. Scheduled maintenance and surveillance plans are followed as outlined in the facility OSR.

d. Proper documentation is maintained on file for each facility and MMD personnel involved in that facility.

7.2 ANNUAL REVIEW RESPONSIBILITIES

Every year MMD supervisors and the MMD OSR Coordinator shall perform the activities outlined below.

7.2.1 MMD Supervisors

MMD supervisors shall:

a. Identify MMD personnel working in or on the facilities.

b. Inventory OSR instruments and spares for approved markings (i.e., green and yellow stickers) and documentation.

c. Review maintenance procedures and access requirements with the technicians.

d. Ensure proper documentation in MAJIC of OSR instruments, using I&C instrument inventory Form UCN-10598.

e. Notify the appropriate facility supervisor and the MMD OSR Coordinator by memo or letter of interruptions in maintenance and calibration schedules.

f. Provide documentation of listed actions to the MMD OSR Coordinator, as outlined in the facility review notification.

7.2.2 MMD OSR Coordinator

Every year, the MMD OSR Coordinator shall:

a. See that the MMD OSR file in Building 3500 maintains copies of every OSR facility plan, facility review, training schedule, notice, and memorandum relating to OSR.

b. Interface with facility supervisors, Office of Operational Safety, and MMD personnel on any developments concerning OSR.

c. Review each facility plan and see that it is updated as required.

d. Notify the appropriate facility supervisor of any needs for facility-specific training of MMD personnel.

e. Schedule reviews of OSR and facility plans with the general supervisors and maintenance supervisors.

f. Inform MMD staff and appropriate facility supervisor upon completion of a facility review.

REFERENCES

1. *Environmental Protection, Safety, and Health Protection Program for DOE Operations*, U.S. Department of Energy, DOE Order 5480.1A, August 13, 1981.

2. *Safety Analysis and Review System*, U.S. Department of Energy, Oak Ridge Operations Office, DOE Order OR 5481.1B, originally published September 23, 1986.

3. *Safety of Nuclear Facilities*, U.S. Department of Energy, DOE Order 5480.5, September 23, 1986.

4. *Safety Review and Documentation Program*, Martin Marietta Energy Systems, Inc., Policy Procedure ESH-8, May 10, 1985.

5. *Safety Review and Documentation Program*, ORNL Standard Practice Procedure 29, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory, July 15, 1986.

6. *ORNL Nonreactor Nuclear Facility Training Program for I&C Division Maintenance Personnel*, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory, October 31, 1985.

APPENDIX

EXAMPLES OF FORMS USED FOR FACILITY PLAN PROCEDURES, MAINTENANCE PERSONNEL ASSIGNMENTS, AND INSTRUMENT LISTINGS

MMD/OSR FACILITY PLAN

Operation Safety Requirements Procedures

For

_____

Facility

Prepared by Maintenance Management Department

Instrumentation and Controls Division

Oak Ridge National Laboratory

_____ _____

Approved by: MMD Department Head, Instrumentation and Controls Division — Date

_____ _____

Approved by: MMD/OSR Coordinator, Instrumentation and Control Division — Date

_____ _____

Approved by: Operating Division Supervisor — Date

MMD OSR Facility Plan Check List

FACILITY

	Action	Initial	Date
1.	OSR documentation received from the Facility Supervisor. (Department Head)	_____	_____
2.	Assign MMD OSR identification number and initiate Facility Plan; open new facility file in Bldg. 3500. (Coordinator)	_____	_____
3.	Distribute OSR to responsible supervisor(s) for review. (Department Head)	_____	_____
4.	Review OSR with responsible supervisor(s) and facility supervisor. (Coordinator)	_____	_____
5.	Identify facility instrumentation that will be designated critical; tag OSRS Safety System with a yellow sticker and OSRR instruments with a green sticker. (MMD Supervisor*)	_____	_____
6.	Prepare listing of designated OSR SAFETY SYSTEM Instruments by ID number with pertinent information per attachment. [Supervisor(s)]	_____	_____
7.	Identify and label spare parts associated with OSR Safety Systems per attachment. [Supervisor(s)]	_____	_____
8.	Enter instruments into MAJIC for scheduled recall on calibration and PM and identify as a SAFETY-RELATED INSTRUMENT per attachment. [Supervisor(s)]	_____	_____
9.	Provide guidance for action concerning any unusual calibration or maintenance procedures unique to this OSR facility which are to be included in the MMD OSR Facility Plan per attachment. [Supervisor(s)]	_____	_____
10.	Identify maintenance personnel working in or on the facility and provide training as directed in facility requirements and MMD maintenance procedures per attachment. [Supervisor(s)]	_____	_____
11.	Submit final draft of Facility Plan for approval of MMD Staff and Facility Supervisor. (Coordinator)	_____	_____

NOTE: Changes in procedures, instrumentation, or requirements should be brought to the attention of the MMD OSR Coordinator.

*In collaboration with Facility Supervisor(s).

QUALIFIED FACILITY MAINTENANCE PERSONNEL (I&C)

FACILITY

A. The following maintenance personnel have been identified to perform maintenance and calibration on instruments at this facility.

B. Training included the following:

1. Receiving orientation and training in maintenance procedures and access requirements as outlined in the ORNL Nonreactor Nuclear Facility Training Program for I&C Division Maintenance Personnel training manual.

2. Observing technicians performing actual maintenance and calibration on these or similar instruments.

3. Identifying names and locations of contact persons for this facility.

Technician Signature	Badge No.

MMD Supervisor	Date

MMD OSR Number

MAINTENANCE MANAGEMENT DEPARTMENT
OSR SAFETY SYSTEM Instrument Listing
for

Supervisor

Date

IC Number	Description	Instrument Location	Maintenance Information Location (file Point)	Spare Parts Location	Set Points Limits	Cal. Freq.	PM Freq.	Associated Alarms

INTERNAL DISTRIBUTION

1. B. P. Adkisson
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