

U.S. Department of Energy Orders Self-Study Program



DOE O 425.1C

STARTUP AND RESTART OF NUCLEAR FACILITIES

**NATIONAL NUCLEAR SECURITY ADMINISTRATION
LEARNING AND CAREER DEVELOPMENT DEPARTMENT**

**DOE O 425.1C
STARTUP AND RESTART OF NUCLEAR FACILITIES
FAMILIAR LEVEL**

OBJECTIVES

Given the familiar level of this module and the resources, you will be able to perform the following:

1. State the purpose of implementing DOE O 425.1C, Startup and Restart of Nuclear Facilities.
2. State the general requirements for operational readiness reviews (ORRs), readiness assessments (RAs), and authorization authority.
3. State the requirements for the following components of the ORR:
 - ORR documentation
 - breadth of ORR
 - ORR plans of action, approval, and content
 - ORR teams
 - criteria and review approaches
 - approval and use of implementation plans
 - certification and verification
 - final report
 - closure of prestart findings
4. List the conditions that require an ORR.
5. State the minimum core requirements (CRs) for developing the breadth of an ORR.

Note: If you think that you can complete the practice at the end of this level without working through the instructional material and/or the examples, complete the
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practice now. The course manager will check your work. You will need to successfully complete the practice in this level before taking the criterion test.

RESOURCES

DOE O 425.1C, Startup and Restart of Nuclear Facilities, 3/13/03.

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INTRODUCTION

DOE O 425.1C establishes the requirement for startup of new nuclear facilities and for the restart of existing nuclear facilities that have been shut down. The information provided will meet the relevant requirements in the following DOE Functional Area Qualification Standards:

- DOE-STD-1150-2002, *Quality Assurance*
- DOE-STD-1151-2002, *Facility Representative*
- DOE-STD-1173-2002, *Criticality Safety*
- DOE-STD-1175-2006, *Senior Technical Safety Manager*
- DOE-STD-1176-2004, *Chemical Processing*
- DOE-STD-1178-2004, *Technical Program Manager*
- DOE-STD-1179-2004, *Technical Trainer*

Throughout the module you will find examples and practices to help familiarize you with the material. The practices will also help prepare you for the criterion test.

Completion of this module also meets certain requirements associated with the DOE Facility Representative (FR) Program and the DOE Intern Program. The information contained in this module addresses specific requirements and as such does not include the entire text of the source document.

Before continuing, you should obtain a copy of the. Copies of the DOE Directives are available at <http://www.directives.doe.gov/> or through the course manager.

SECTION 1, GENERAL REQUIREMENTS

OPERATIONAL READINESS REVIEW

DOE line management must determine if operational readiness reviews (ORRs) are required for startup or restart of nuclear facilities. DOE must conduct an ORR according to DOE O 425.1C when any of the following conditions occur:

- Initial startup of a new hazard category 1, 2, or 3 nuclear facility.
- Restart after a DOE management official directs the unplanned shutdown of a nuclear facility for safety or other appropriate reasons.
- Restart after an extended shutdown for hazard categories 1 and 2 nuclear facilities. Restart of hazard categories 1 and 2 nuclear facilities after substantial process, system, or facility modifications.
- Restart after a nuclear facility shutdown because of operations outside the safety basis.
- When deemed appropriate by DOE management officials, including restarts of hazard category 3 nuclear facilities.

READINESS ASSESSMENTS

For restarts of nuclear facilities not requiring an ORR, DOE line management must evaluate the need for performing a readiness assessment (RA) prior to restart. This includes the startup or restart of program work associated with operating facilities when the new or restarted program work does not require DOE approval of changes to facility limits or requirements as stated in operational safety requirements/technical safety requirements, basis for interim operations, or other equivalent authorization basis documents. When a RA is required, operations offices must develop procedures and ensure that the contractors use these procedures to gain operations office approval of the startup or restart of nuclear facilities. If a RA is not to be performed, the contractor's standard operating procedures for startup or restart will be used.

AUTHORIZATION AUTHORITY

The authorization authority for startup or restart approval is determined by the following guidelines:

- For initial startups of new hazard category 1 and 2 nuclear facilities, the Secretary of Energy (or designee) shall approve startup. For initial startups of new hazard category 3 nuclear facilities, the Secretarial Officer (or designee) shall approve startup. If other DOE Orders require a higher level of startup authorization than this Order, the official described in this Order will recommend startup to the higher level official.
- For shutdowns directed by a DOE management official for safety or other appropriate reasons, authorization to restart shall be granted by an official of a level commensurate with the official ordering the shutdown unless a higher level is designated by the Secretarial Officer.
- For extended shutdowns of hazard category 1 nuclear facilities, the Secretarial Officer shall approve restart. For extended shutdowns of hazard category 2 nuclear facilities, the Secretarial Officer (or designee) shall approve restart.
- For shutdowns because of substantial plant or facility modifications of hazard category 1 nuclear facilities that require changes in the safety basis previously approved by DOE, the Secretarial Officer shall approve restart. For such shutdowns of hazard category 2 nuclear facilities, the Secretarial Officer (or designee) shall approve restart.
- For facility shutdowns due to operations outside the safety basis, the official approving restart shall be commensurate with the approval authority for the safety basis. If a Headquarters official approved the safety basis, the Secretarial Officer (or designee) shall approve restart. If a field official approved the safety basis, the operations office manager (or designee) shall approve restart.
- For startups or restarts of nuclear facilities for which ORRs were required as a result of a DOE official deeming it appropriate, the official approving startup or restart shall be of a level commensurate with the official directing the review. If a Headquarters official directed an ORR be performed, the Secretarial Officer (or designee) shall approve the startup or restart. If a field official directed an ORR, the operations office manager (or designee) shall approve the startup or restart.

STARTUP NOTIFICATION REPORT

The contractor is required to prepare startup notification reports (SNRs). SNRs must be submitted at a periodicity specified by DOE. Each SNR must

- project at least 1 year ahead,

- update information from previous periods for startups that have not yet occurred, and
- add information for each startup or restart that has been identified since the last report.

DOE approves the SNR. The procedures should require the following elements:

- a brief description of the facility or program work,
- the reason for non-operation,
- the approximate date operations were last conducted (for restarts) and the projected date for the startup,
- the proposed type of readiness review,
- the basis or justification for proposed type of readiness review, and
- the proposed authorization authority.

Contractor readiness review action to start or restart operations should not commence until the DOE authorization authority has approved the proposed readiness review process.

Every startup or restart of a nuclear operation other than routine resumption of operations after a short, planned interruption should be included in the SNR. These startups, requiring review, should be started or restarted using an ORR or a properly scoped RA.

SECTION 2, REQUIREMENTS APPLICABLE TO STARTUPS OR RESTARTS OF NUCLEAR FACILITIES INVOLVING ORRs

OPERATIONAL READINESS REVIEW DOCUMENTATION

For ORRs, DOE line management must require contractors to prepare the following documents: startup/restart notification reports, plans of action, ORR implementation plans, and final reports. DOE line management must prepare its plans of action, and ensure the ORR team leaders prepare ORR implementation plans and final reports. The resolution of all findings from the ORRs must be documented and maintained with the plans of action, implementation plans, and final reports.

BREADTH OF ORR

DOE line management must develop the breadth of the ORR and document it in each plan of action. A minimum set of CRs must be addressed when developing the breadth of the ORR. The plan of action may reference a timely, independent review that addressed the requirement in a technically satisfactory manner to justify not performing further evaluation of a CR or portion thereof. During the ORR, the breadth may be expanded by the ORR team, if appropriate.

ORR REVIEW PLAN OF ACTION, APPROVAL, AND CONTENT

The contractor and DOE ORR plans of action must be approved by the authorization authority. DOE line management must ensure the contractor's plan of action specifies the prerequisites for starting the responsible contractor's ORR. The prerequisites must address each minimum CR that is determined to be applicable when developing the scope of the ORR. The DOE plan of action must specify additional prerequisites, such as certification of readiness to oversee facility operations by operations office and Headquarters management. The DOE and contractor plan of action must be provided to the Deputy Assistant Secretary for Corporate Safety Assurance for review and comment.

ORR TEAMS

DOE line management must appoint ORR teams according to the following qualifications and training requirements:

- technical knowledge of the area assigned for evaluation, including experience working in the technical area;
- knowledge of performance-based assessment processes and methods; and
- knowledge of facility-specific information.

The ORR teams must not include as senior members (including team leader) individuals from offices assigned direct line management responsibility for the work being reviewed;

any exceptions require approval of the authorization authority. Additionally, no ORR team member should review work for which he or she is directly responsible.

The ORR team leaders must determine and document qualifications of ORR team members.

CRITERIA AND REVIEW APPROACHES

DOE line management requires that the DOE ORR team to determine (and ensures that the contractor's ORR team determines) the criteria and review approaches to be used for their review based on the approved breadth given in their plan of action. DOE line management must also ensure that the team documents the criteria and review approaches in their ORR implementation plan.

APPROVE AND USE IMPLEMENTATION PLANS

DOE line management requires that the DOE ORR team leader approves their respective implementation plans and use the implementation plans to conduct the ORRs. DOE line management requires that the DOE implementation plan be provided to the Deputy Assistant Secretary for Corporate Safety Assurance for review and comment. DOE line management must also require the contractor to provide its ORR implementation plan to the Deputy Assistant Secretary for Corporate Safety Assurance for review and comment.

CERTIFICATION AND VERIFICATION

The prerequisites for starting the DOE ORR are as follows:

- DOE line management has received correspondence from the responsible contractor certifying that the facility is ready for startup or restart, and this has been verified by the contractor ORR.
- DOE line management has verified that the contractor's preparations for startup or restart have been completed.
- DOE line management has certified that the ORR meets the DOE plan of action that includes the applicable DOE-specific CRs.

At the start of the DOE ORR, all actions required for startup or restart shall be complete with the exception of a manageable list of open prestart findings that have a well-defined schedule for closure to allow review of the results of the closure process by the DOE ORR team. In the certification and verification process, DOE operations office line management shall document their actions taken to verify operations office and contractor readiness, including review of closure of contractor ORR findings, assessments of completion of defined prerequisites, and other assessments performed to ascertain readiness. The DOE

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ORR team shall review specific events significant to the startup and restart process that occur before the formal commencement of the DOE ORR when they are conducted.

ORR FINAL REPORT

Upon completion of the contractor or DOE ORR, DOE line management must ensure the DOE ORR team leader prepares and approves a final report. The final report must document the results of the ORR and make a conclusion as to whether startup or restart of the nuclear facility can proceed safely. Each ORR final report must state whether the facility has established the following: an agreed-upon set of requirements to govern safe operations of the facility; that this set of requirements has been formalized with DOE through the contract or other enforceable mechanism; that these requirements have been appropriately implemented in the facility, or appropriate compensatory measures, formally approved, are in place during the period prior to full implementation; and that, in the opinion of the ORR team, adequate protection of the public health and safety, worker safety, and the environment has been maintained.

CLOSURE OF FINDINGS

The mechanism for closure of DOE ORR findings must include the following:

- Development of plans of action approved by DOE to correct the findings. Action plans must provide evaluation of any overall programmatic deficiencies and root causes.
- Documentation of completion of response actions responding to the findings in a closure package. Closure packages must include a brief description of actual corrective actions taken and reasons for concluding that closure has been achieved.
- DOE verification of closure of prestart findings. The organization verifying the closure will be designated by the authorization authority.

Note: You do not have to do example 1 on the following pages, but it is a good time to check your skill and knowledge of the information covered. You may do example 1 or go to section 3.

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4. Describe how ORR team members are selected.

Note: When you are finished, compare your answers to those contained in the example 1 self-check. When you are satisfied with your answers, go to section 3.

EXAMPLE 1 SELF-CHECK

Using the familiar level of this module and the resources, complete the following exercises.

1. State what DOE hopes to achieve by implementing DOE O 425.1.B.
DOE O 425.1C establishes the requirement for startup of new nuclear facilities and for the restart of existing nuclear facilities that have been shut down.
2. List the documents that are generated in an ORR process.
 - Startup/restart notification reports
 - Plans of action
 - ORR implementation plans
 - Final reports
3. State what must be addressed when developing the breadth of the ORR.
A minimum set of CRs must be addressed when developing the breadth of the ORR.
4. Describe how ORR team members are selected.
DOE line management and contractor management appoint teams. Selection is based on knowledge of and experience with the activity being reviewed.

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SECTION 3, READINESS ASSESSMENTS

Operations offices must establish procedures for their offices that specify when a RA is required and that provide requirements for conducting RAs, including procedures by which contractors will gain operations office approval for the startup or restart of nuclear facilities. The procedures must require submittal of a SNR to obtain approval to use a RA and preparation of a formal plan of action that includes, as a minimum, the breadth of the assessment, team leader designation, and prerequisites for the assessment; SNR and plan of action must be approved by the authorization authority. A copy of the plan of action should also be provided to the Deputy Assistant Secretary for Corporate Safety Assurance. For shutdowns directed by contractor management, these procedures may indicate that, except for serious safety reasons, the contractor management may be the authorization authority.

MINIMUM CRS

To achieve the necessary breadth, each of the minimum CRs listed on the following pages must be addressed when developing an ORR. Justification must be provided in the plan of action if it is determined that a particular CR will not be reviewed. An appropriate set of the CRs should be selected when developing the breadth of an RA. The purpose of these CRs is to assess the readiness of facility personnel, programs, and equipment to conduct work safely. These CRs are directly related to the seven guiding principles of integrated safety management. The CRs apply to DOE and the contractor.

GUIDING PRINCIPLE 1

Line management is responsible for the protection of employees, the public, and the environment.

1. Line management has established programs to ensure safe accomplishment of work. 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.

GUIDING PRINCIPLE 2

Clear and unambiguous lines of authority and responsibility for ensuring environment, safety, and health are established and maintained at all organizational levels.

2. Functions, assignments, responsibilities, and reporting relationships are clearly defined, understood, and implemented with line management responsibility for control of safety.

GUIDING PRINCIPLE 3

Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.

3. The selection, training, and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers ensure competence commensurate with responsibilities.
4. The level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, operating, and operations support personnel.
5. Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

GUIDING PRINCIPLE 4

Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting employees, the public, and the environment is a priority whenever activities are planned and performed.

6. Sufficient numbers of qualified personnel are available to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services are adequate for operations.

GUIDING PRINCIPLE 5

Before work is performed, the associated hazards are evaluated and an agreed-upon set of standards and requirements is established which, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences.

7. Facility safety documentation describes the safety envelope of the facility. The safety documentation should characterize the hazards and risks associated with the facility and should identify preventive and mitigating measures that protect workers and the public from those hazards and risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design and modification is established.
8. A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examinations of records of tests and calibration of these systems. The material condition of all safety, process, and utility systems will support the safe conduct of work
9. The facility systems and procedures are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

GUIDING PRINCIPLE 6

Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be on designing the work controls to reduce or eliminate the hazards and to prevent accidents, unplanned releases, and exposures.

10. Adequate and correct procedures and safety limits are in place for operating the process and utility systems, including any revisions for modifications to the facility.
11. A routine drill and emergency operations drill program, including program records, has been established and implemented.
12. An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to confirm operability of the equipment, the viability of procedures, and the performance and knowledge of

the operators. The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations including any required restrictions and additional oversight.

13. The formality and discipline of operations is adequate to conduct work safely, and programs are in place to maintain this formality and discipline.

GUIDING PRINCIPLE 7

The conditions and requirements to be satisfied for operations to be initiated and conducted are established and agreed on by DOE and the contractor. These agreed-upon conditions and requirements are requirements of the contract and binding upon the contractor. The extent of documentation and level of authority for agreement shall be tailored to the complexity and hazards associated with the work and shall be established in a Safety Management System.

14. Formal agreements between the operating contractor and DOE have been established to govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place and formally agreed to during the period of implementation. DOE approves the compensatory measures and the implementation period.
15. A feedback and improvement 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.

Additional DOE oversight requirements include the following.

16. The technical and managerial qualifications of personnel at the DOE field organization and at DOE Headquarters who have been assigned responsibilities for providing direction and guidance to the contractor, including the facility representatives (FRs), are adequate.
17. The breadth, depth, and results of the responsible contractor RA are adequate to verify the readiness of hardware, personnel, and management programs for operations.

18. DOE operations office oversight programs, such as occurrence reporting, FRs, corrective action, and quality assurance programs, are adequate.

SECTION 4, RESPONSIBILITIES

The following responsibilities are assigned for this Order.

DOE AND NNSA LINE MANAGEMENT

- Establish procedures as necessary to manage startup and restart actions according to the requirements of this Order.
- Exercise the delegation authority and document all delegations of authority made under the provisions granted by this Order.

HEADS OF DOE ELEMENTS AND DEPUTY DIRECTOR, NNSA

- Ensure that initiators of procurement requests indicate if the requirements in the contractor requirements document are to be applied to the award or sub-awards resulting from the procurement request.

ASSISTANT SECRETARY FOR ENVIRONMENT, SAFETY AND HEALTH (EH-1)

- Performs independent reviews of startup and restart activities and provides results of these reviews to DOE ORR team leaders, cognizant operations office managers, and CSOs for resolution.
- Assesses the Secretarial Officer, operations office, and contractor procedures for startup or restart of nuclear facilities and provides periodic reports to the Secretary on their effectiveness.
- Reviews and comments on contractor and DOE plans of action and ORR implementation plans for startup or restart of nuclear facilities.
- Reviews and comments on the ORR final report recommendations regarding startup or restart to the DOE approving official.
- Provides any dissenting opinion on the readiness of a facility to startup or restart to DOE line management or the Secretary if a significant safety concern is not being properly corrected.

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- Concurs in the final decision to startup or restart a nuclear facility, if requested to do so.

Note: You do not have to do example 2 on the following pages, but it is a good time to check your skill and knowledge of the information covered. You may do example 2 or go directly to the practice.

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EXAMPLE 2 SELF-CHECK

1. State the conditions under which an RA should be considered.

An RA should be considered any time an ORR is not required for a restart or startup of a nuclear facility.

2. What position approves the startup notification report and the plan of action for a readiness assessment?

The authorization authority.

3. Identify the position that is responsible for establishing procedures to manage startup and restart actions.

DOE line management.

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4. State five minimum CRs for the breadth of an ORR.

5. What Federal position is the authorization authority for initial startups of a new hazard category 3 nuclear facility?

Note: The course manager will check your practice and verify your success at the familiar level. When you have successfully completed this practice, go to the general level module.

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**DOE O 425.1B
STARTUP AND RESTART OF NUCLEAR FACILITIES
GENERAL LEVEL**

OBJECTIVES

Given the familiar level of this module, a scenario, and an analysis, you will be able to perform the following:

1. Answer a series of questions related to the scenario and the resources presented in this module.
2. State which requirements included in the resources apply to the situation described in the scenario.

Note: If you think that you can complete the practice at the end of this level without working through the instructional material and/or the examples, complete the practice now. The course manager will check your work. You will need to complete the practice in this level successfully before taking the criterion test.

RESOURCES

DOE O 425.1C, Startup and Restart of Nuclear Facilities, 3/13/03.

DOE Orders Self-Study Program, DOE O 425.1B, Familiar Level, 6/15/01.

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INTRODUCTION

The familiar level of this module introduced DOE O 425.1C, Startup and Restart of Nuclear Facilities. Several requirements from the resources were discussed. In the general level of this module, students are asked to apply the information contained in the resources to a series of questions related to the Order. Students are also presented with a scenario that depicts a work situation related to the Order. Students will be asked to answer questions that are related to the scenario and the resources covered in this module. Please refer to the resources to make your analysis and answer the questions. You are not required to complete the example. However, doing so will help prepare you for the criterion test.

Note: You do not have to do the example on the following page, but it is a good time to check your skill and knowledge of the information covered. You may do the example or go on to the practice.

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EXAMPLE

Please review the following scenario and then answer the question that follows.

SCENARIO

On December 23, 1996, a facility manager learned that the sensor in a flammable gas detector system for a rotary mode, core-sampling portable exhauster failed its quarterly calibration. Technicians identified inconsistencies in sensor calibration results. The sensor also failed to meet response time requirements. The sensor was not installed in a climate-controlled enclosure, and ambient temperature during the calibration was 20 to 30 °F. The manufacturer's specifications for the sensor required operating temperatures of 70 to 120 °F. Investigators determined that inadequate system design and design reviews resulted in the installation of equipment that could not reliably perform its safety function at low ambient temperatures.

An operational readiness review (ORR) for this facility was completed and startup was authorized on August 13, 1996.

QUESTION

1. Based on your knowledge of DOE O 425.1C, should the inadequate system design have been discovered during the ORR? Explain why or why not.

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EXAMPLE SELF-CHECK

1. Based on your knowledge of DOE O 425.1C, should the inadequate system design have been discovered during the ORR? Explain why or why not.

No. The ORR would not be expected to detect design deficiencies. There is no requirement in the Order that is related to reviewing design adequacy.

PRACTICE

This practice is required if your proficiency is to be verified at the general level. The practice will prepare you for the criterion test. You will need to refer to the resources to answer the questions in the practice correctly. The practice and criterion test will also challenge additional analytical skills that you have acquired in other formal and on-the-job training.

Please review the following scenario and answer the questions that follow.

SCENARIO

On June 25, 1997, two nuclear criticality safety (NCS) representatives noted infractions of the posted storage requirements for a fissile material control area (FMCA) during a periodic inspection. The NCS personnel observed that there were five 55-gallon drums, one 10-gallon container, and one 5-gallon container inappropriately located in the FMCA that was only approved for the storage of enriched uranium ingots, derbies, and containers of enriched uranium tetra-fluoride. The inappropriately located containers were filled with samples taken from ingots and derbies stored in the FMCA. The samples consisted of uranium metal turnings with enrichments of 0.95 and 1.25 weight percent (wt.%) U-235.

The ingots and derbies were moved from the FMCA and sampled. The sampled ingots and derbies were then returned to the FMCA. The sampling activity began in October of 1996 and was completed in June of 1997. During that time span, over 1,000 samples were obtained, placed in 4-ounce sample jars, and packaged into the seven containers described above. During the sampling project, some personnel changes occurred, including the assignment of a new supervisor.

After discovering the inappropriately stored containers in the FMCA, NCS personnel initiated an evaluation of the problem. The evaluation revealed that three of the containers (two 55-gallon drums and the 5-gallon container) were inappropriately identified as enriched unrestricted materials and should have been identified as enriched restricted materials. These containers were re-coded as enriched restricted (by painting the containers red) and moved into a separate, temporary FMCA on June 25, along with the other four containers. It was later discovered that the supervisor assigned to the project had not been

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trained as a fissionable material handler's (FMH's) supervisor. DOE suspended nuclear material activities at the facility.

An investigation of the situation revealed the following.

In October 1996, the sample line workers began placing 0.95 wt.% U-235 metal into red-striped, black drums (thereby identifying the material as enriched unrestricted). According to the requirements, this material should have been placed into a red drum and identified as enriched restricted. The workers incorrectly believed that if the enrichment of the metal was less than 1.0 wt.% U-235, then it was enriched unrestricted. All the workers originally assigned to the sample line were trained and qualified as FMHs, but a review of the lesson plan for FMH personnel revealed that packaging requirements were not included in the training. No learning objective was developed for the proper packaging of enriched restricted materials.

In November 1996, an NCS employee removed the FMCA posting for the sample line project. The purpose of an FMCA posting is to alert employees of the presence of enriched restricted materials and to inform employees of the requirements for the storage and handling of the materials inside the area. The NCS employee stated that he checked the area for red drums, and after seeing that all of the red drums in the area were empty, he removed the FMCA postings from around the sample line. What he did not realize was that the enriched restricted metal samples had been placed into black drums and were stored in the area. The procedure for removing FMCA postings requires that the area be checked for the presence of enriched restricted materials before removing the posting. The procedure does not say how to perform the verification. The practice has been for the NCS employee to look for red drums, and if none are present, then the postings are removed. Policy states that FMCAs are to be used exclusively for the storage of enriched restricted materials, but that has not been the practice. Due to logistical circumstances, enriched restricted materials have been located with other materials within an FMCA. The requirements manual states that the primary means for material identification is the lot code marking stenciled on the drums, implying that the color coding of the drums is secondary. The materials involved in this event were properly lot coded, but improperly color coded.

The authorization for the sample line expired in November 1996, and work at the sample line resumed in December 1996. NCS personnel notified management of the pending

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expiration of the authorization in November, but the information was not passed on to the people performing the work. Personnel did not check to see if the authorization was still valid before activities were resumed. The condition of the workers performing activities with enriched restricted materials without an authorization is a violation of NCS requirements.

The supervisor when the job was restarted was trained as an FMH supervisor and was aware of his responsibilities with regard to NCS requirements. After the job had been restarted with the expired authorization, a new supervisor was assigned to the project (in February 1997) who was not trained as an FMH supervisor. The training matrix indicated that this individual had the required training. However, the individual was not profiled as a supervisor on the matrix. Therefore the fact that he did not have FMH supervisor training was not identified. The training evaluation standard (TES) gives responsibility to project management personnel to ensure that their personnel are properly profiled and trained, but the FMHs were not aware of their responsibilities under the TES and were ignorant of the requirements stated in the TES.

In June 1997, the samples collected during the project were all moved back into the derby and ingot FMCA. This created another NCS procedural violation because the posting for the FMCA prohibited the storage of enriched restricted materials in the area other than derbies, ingots, and uranium tetra-fluoride cans. The area was clearly posted with the storage restrictions described on the posting, but FMHs moved the drums containing the samples into the area anyway. Their rationale was that the metal samples came from that FMCA (in the form of derbies and ingots), so it should be acceptable for them to be returned to that area. They did not understand the reason for the size restriction on storage nor did they note the restriction described on the posting for the area.

The root cause for most of the deficiencies described in this report was management problems, and procedures and policies not adequately defined, disseminated, or enforced. As described above, the policies and procedures used for this task were incomplete, inaccurate, conflicting, or ambiguous. The policies and procedures were confusing to the user, not known to the user, or did not define the correct communication or relationship between departments or groups. When this environment exists, the employees are not aware that what they are doing is wrong or outside of the intended requirements. Without

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enforcement of the policies and procedures, there is no accountability for the requirements and no communication to the workforce of management's expectations.

QUESTIONS

1. Do the activities described in the scenario warrant an ORR? Support your answer with a reference from the resources for this module.
2. State the minimum core requirements (CRs) that apply to this situation.

Write your answers to questions 1 and 2 and then bring the completed practice to the course manager for review.

Note: The course manager will check your practice and verify your success at the general level. When you have successfully completed this practice, the course manager will give you the criterion test.
