

RADIOACTIVE MATERIAL CONTROL

1.0 SCOPE

This Performance Assessment Guide for Radioactive Material Control will be used to carry out the oversight responsibility of the U.S. Department of Energy (DOE) Brookhaven Group. This guide was prepared to assist in conducting performance-based assessments of both DOE prime contractors and subcontractors to ensure that their radioactive material control programs identify, disposition, and take corrective action on issues that affect satisfactory facility performance. The goals are to ensure that laboratory employees and the public do not experience injuries and illness as a result of radiological activities and that there is little or no economic loss to the Government.

Conduct of radioactive material control assessments will be directed at all prime contractors and subcontractors working at DOE sites. DOE line management must ensure that these contractors comply with DOE Orders and with Federal and State regulations. Information developed from this assessment will determine the degree to which this is being done as well as the effectiveness of the laboratory's program.

2.0 ATTRIBUTES AND LINES OF INQUIRY

This section provides lines of inquiry to help assess whether the laboratory has established and implemented a program that ensures that radioactive material control requirements are incorporated into line activities. This section will be used to evaluate the laboratory's line organization.

2.1 The laboratory has identified and established methods of identifying, storing, and controlling radioactive materials.

- Do labels include contact radiation levels, removable surface contamination levels (e.g., alpha or beta-gamma), date(s) of survey, surveyors' names, and a description?
- Is yellow plastic wrapping material used for packaging radioactive material? Is this material prohibited from being used for non-radiological purposes?
- Do containers used for storage provide at least one barrier for containment? Are the containers adequate for the physical conditions in the storage location?
- Is radioactive material stored in designated radioactive material storage areas?

- Is a custodian assigned responsibility for each radioactive material storage area? Does the custodian conduct periodic walkthroughs to verify container integrity and conduct documented periodic reviews for the radioactive material storage areas?
- Do inventories of stored radioactive materials specify locations, quantities, and characteristics? Are the inventories current and are they periodically audited?

2.2 The laboratory has established controls on release and transportation of radioactive materials.

- Are procedures in place to handle, ship, and receive source material? Do procedures address ALARA principles?
- Are materials in contamination, high contamination, or airborne radioactivity areas considered radioactive material until surveyed and released to controlled areas?
- Are radioactive materials in controlled areas and radioactive material areas surveyed prior to release to uncontrolled areas?
- Do records for the release of potentially contaminated materials to controlled areas identify the items, date of last survey, person who performed survey, type and identification number of survey instrument used, and survey results?

2.3 The laboratory has identified and established controls on sources of radioactive materials, including sealed sources.

- Are procedures in place to control and label sources of radioactive material?
- Do the controls for radioactive sources meet 10 CFR 835 Requirements?
- Are integrity checks performed on all sources at least every 6 months or whenever damage might have occurred?
- Are natural, depleted, or enriched uranium and natural thorium stored and processed separately from highly toxic alpha emitters?
- Does the radiological control organization maintain an inventory of sources?

- Are sources labeled to identify the radionuclide, activity, date of assay, source model and serial number, and source custodian?

2.4 The laboratory has identified and established radioactive waste management requirements related to waste minimization.

- Are waste minimization goals and objectives developed and reviewed periodically to ensure that minimization occurs?
- Are mixed wastes prevented through re-use, identification, and segregation?

2.5 The laboratory has identified and established solid radioactive waste management requirements.

- Do personnel use and adhere to procedures addressing loss of control of radioactive materials?
- Are the requirements of DOE 5820.2A adhered to?

2.6 The laboratory has identified and established liquid and airborne radioactive waste management requirements.

- Does the laboratory have a method of determining their operational requirements for air and liquid that might become contaminated?
- Are waste-producing activities assessed for processing, collection, and storage capacity prior to conducting the activity?
- Are radioactive drains and vents assessed to ensure they do not release directly to the environment without processing?
- Is there a system to ensure that confinement and containment devices or engineering controls that appear to be compromised are repaired as soon as possible, and that appropriate compensatory measures for worker protection are implemented?

3.0 STANDARDS AND REQUIREMENTS

3.1 Specific DOE Orders and Directives.

- DOE 440.1A, "Worker Protection Management for DOE Federal and Contractor Employees."
- DOE 5400.5, "Radiation Protection of the Public and the Environment."
- DOE 5480.4, "Environmental Protection, Safety, and Health Protection Standards."
- DOE 5700.6C, "Quality Assurance."
- DOE 5820.2A, "Radioactive Waste Management."
- DOE/EH-0256T, "U.S. Department of Energy radiological Control Manual, Rev. 1."
- DOE P441.1, "Department of Energy Radiological health and Safety Policy."

3.2 Title 10 CFR Requirements.

- 10 CFR 830.120, "Quality Assurance requirements for DOE Nuclear Facilities."
- 10 CFR 835, "Occupational Radiation Protection."

3.3 Title 40 CFR Requirements.

- 40 CFR 61, "National Emissions Standards for Hazardous Air Pollutants (NESHAP)."

4.0 GUIDANCE TO ASSESSOR

This assessment guide is intended to assist in conducting a performance assessment of radiological controls. It is not to be considered as all inclusive, inflexible, or limiting reasonable assessment concentration when lines of inquiry responses dictate that an area must be more thoroughly probed.

The attributes of a comprehensive program are provided above as lines of inquiry regarding procedures, managers, training, and the like, and should give the assessor some insight as to whether there is a working program in place. Talking to the radiological controls workers

themselves will let you know if they feel safe working in radiological controls and if they feel the controls are adequate.