

RADIOLOGICAL CONTROL BARRIERS AND POSTINGS

1.0 Objective

The objective of this surveillance is to ensure that the laboratory has appropriately identified areas that pose radiological hazards to workers, provided appropriate notice to employees regarding the hazards and, where necessary, provided barriers to preclude entry into areas where hazards are present. The surveillance activities provide a basis for determining if laboratory practices are providing effective protection and to evaluate if the laboratory is complying with DOE requirements.

2.0 References

- 2.1 10 CFR 835, *Occupational Radiation Protection*
- 2.2 G-10 CFR 835/G-1, *Posting and Labeling for Radiological Control Implementation Guide*, Rev. 1
- 2.3 DOE/EH-0256T, *U.S. Department of Energy Radiological Control Manual*
- 2.4 DOE P441.1, *Department of Energy Radiological Health and Safety Policy*

3.0 Surveillance Activities

The Facility Representative or Environmental, Safety, and Health Support Specialist conducts a walkthrough of selected areas at the laboratory that are known to contain radiological hazards. The Facility Representative or Environmental, Safety, and Health Support Specialist examines barriers and posting in these areas. As a minimum, the Facility Representative or Environmental, Safety, and Health Support Specialist should evaluate in detail postings on at least one radiation area and at least one contamination area. Facility Representatives or Environmental, Safety, and Health Support Specialist should examine barriers for at least one radiological area and control or access to one high or very high radiation area.

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2. Are signs posted to identify contamination areas in accordance with the following? YES NO N/A

AREA	CRITERIA	POSTING
Contamination	Contamination levels (dpm/100 cm ²) > 1 time but ≤100 times below values as specified	"CAUTION, CONTAMINATION AREA"
High Contamination	Contamination levels (dpm/100cm ²) > 100 times below as specified	"DANGER, HIGH CONTAMINATION AREA" "RWP Required for Entry"
Fixed Contamination	Removable contamination levels < specified value removable values and total contamination levels > specified total values	"CAUTION, FIXED CONTAMINATION"
Soil Contamination	Contaminated soil not releasable in accordance with DOE 5400.5	"CAUTION, SOIL CONTAMINATION AREA"
Airborne Radioactivity	Concentrations (CI/cc) >10% of any Derived Air Concentration value	"CAUTION, AIRBORNE RADIOACTIVITY AREA" "RWP Required for Entry"

For specified contamination values, see below.

NUCLIDE (See Note 1)	REMOVABLE (dpm/100 cm ²)	TOTAL (FIXED + REMOVABLE) (dpm/100 cm ²)
U-natural, U-235, U-238 and associated decay products	1,000 alpha	5,000 alpha
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-129	20	500
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-125, I-126, I-131, I-133	200	1,000
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above. Includes mixed fission products containing Sr-90.	1,000 beta-gamma	5,000 beta-gamma
Tritium organic compounds, surfaces contaminated by HT, HTO and metal tritide aerosols	10,000	10,000

Notes: 1. The values in this Table apply to radioactive contamination deposited on, but not incorporated into the interior of the contaminated item. Where contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for the alpha- and beta-gamma-emitting nuclides apply independently.

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YES NO N/A

3.	Do postings identify the nature of the radiological hazard including dose rate and contamination levels and appropriate directions to personnel, including pertinent radiation work permits or required personal protective equipment?	_____	_____	_____
4.	Are postings current, legible, and updated based on results from the most recent surveys?	_____	_____	_____
5.	Do physical barriers around radiological areas minimize the potential for inadvertent employee intrusion into the posted area?	_____	_____	_____
6.	Is the type of physical barrier used appropriate for the specific radiological hazard?	_____	_____	_____
7.	Are physical barriers placed so that they are clearly visible from all directions?	_____	_____	_____
8.	Do physical barriers impede emergency egress exits or evacuation routes from the radiological area?	_____	_____	_____
9.	Are access points to radiological areas appropriately posted?	_____	_____	_____
10.	Are postings of doors arranged so that the posting remains visible whether the doors are open or closed?	_____	_____	_____
11.	Are positive controls used to ensure that personnel cannot enter high radiation or very high radiation areas without management approval?	_____	_____	_____
12.	If entrances to high radiation or very high radiation areas are locked, is effective control maintained of keys?	_____	_____	_____
13.	Are alarms or electronic surveillance devices used to monitor entry into high radiation or very high radiation areas operable?	_____	_____	_____

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	<u>YES</u>	<u>NO</u>	<u>N/A</u>
14. Are radiological buffer areas established around contamination, high contamination, and airborne contamination areas?	_____	_____	_____
15. Are radiological buffer areas appropriately posted?	_____	_____	_____
16. Are postings for hot spots visible and legible?	_____	_____	_____
17. Do any fixed contamination areas show signs that the bottom layer of fixative coating is exposed?	_____	_____	_____
18. Has the contractor initiated actions to replace eroded fixative coatings?	_____	_____	_____
19. Are areas where radioactive materials are located underground such as pipelines, cribs, abandoned and covered over ponds, ditches, catch tanks, burial grounds and covered over spills posted as UNDERGROUND RADIOACTIVE MATERIALS?	_____	_____	_____
20. Do postings for underground radioactive materials include appropriate warnings not to dig in that area without approval from the Radiological Control Organization?	_____	_____	_____
21. If the area where underground radioactive materials are stored is not subject to access control, does the contractor have a valid analysis demonstrating that access by an individual will not produce a dose greater than 100 mrem/year?	_____	_____	_____

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OTHER:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

NOTES/COMMENTS:

PERSONNEL CONTACTED: _____

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**IF MORE SPACE IS NEEDED FOR FINDINGS, OBSERVATIONS, AND FOLLOWUP
ITEMS - USE ADDITIONAL SHEETS**

FINDINGS:

Finding No.: _____

Description: _____

Finding No.: _____

Description: _____

Finding No.: _____

Description: _____

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OBSERVATIONS:

Observation No.: _____

Description: _____

Observation No.: _____

Description: _____

Observation No.: _____

Description: _____

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FOLLOWUP ITEMS:

Followup Item No.: _____

Description: _____

Followup Item No.: _____

Description: _____

Followup Item No.: _____

Description: _____

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LABORATORY MANAGEMENT DEBRIEFED AND RESULTS: _____

Signature: _____ Date: _____

Facility Representative or
Environmental, Safety, and Health Support Specialist