

Attachment One: List of RPP documents



Environment, Safety, Health & Assurance

Interoffice Communication

G40 TASF

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cc: Shawn Nelson, Assistant Manager ESH&A
Topical Appraisal 2015

From: Michael McGuigan, Radiation Safety Officer, ESH&A

Date: May 28, 2015

Subject: RPP Functional Element Area, Radiological Controls, Entry and Exit Controls

The Topical Appraisal is attached.

Topical Appraisal - RPP Functional Element Area, Rad. Controls, Entry and Exit Controls

1.0 Scope

This topical appraisal was conducted to review the Laboratory’s RPP functional element area, Radiological Controls, Entry and Exit Controls, 10 CFR 835, Subpart F, and Chapter 7 of Guide 441.1-1C.

2.0 Dates

May 14-19, 2015

3.0 Methodology

The Laboratory’s Radiation Protection Program’s organization was reviewed within the Ames Laboratory’s administrative and safety oversight system. Applicable regulations, guidance, and standards were reviewed to assure that the Laboratory is meeting current industry standards. The Radiological Control, Entry and Exit Controls were also reviewed.

3.1 References

The following references were reviewed for this appraisal:

- Title 10 of Code of Federal Regulations, Part 835 (10 CFR 835), *Occupational Radiation Protection*,
- DOE Guide 441.1-1C, *Radiation Protection Programs Guide, Chapter 7*
- DOE Standard 1098-2008 Ch1, *Radiological Control*,

The regulatory requirements from 10 CFR 835, Subpart F, Radiological Controls, Entry and Exit Controls requirements have been placed in the matrix below. The Compliance/Comments column points to the documentation and coverage of the rule.

<i>Subpart F--Entry Control</i>	Compliance/Comments
§ 835.501 Radiological areas.	
(a) Personnel entry control shall be maintained for each radiological area.	Procedure 10202.016 page 5: Personnel entry control shall be maintained for each radiological area.
(b) The degree of control shall be commensurate with existing and potential radiological hazards within the area.	Procedure 10202.016 page 5: The degree of control is to be commensurate with the existing or potential radiological hazard in the area.
(c) One or more of the following methods shall be used to ensure control: (1) Signs and barricades; (2) Control devices on entrances; (3) Conspicuous visual and/or audible alarms; (4) Locked entrance ways; or (5) Administrative controls.	Procedure 10202.016 page 5: One method to ensure personnel entry control is through the use of signs and barricades. Existing physical barriers, such as fences or walls, may be used as boundary identifiers if the posting is adequate to prevent inadvertent access to the radiological area. Clearer language needs to be placed into procedure 10202.016. Exact wording from 10 CFR 835 should be placed into supporting documentation.
(d) Written authorizations shall be required to control entry into and perform work within radiological areas. These authorizations shall specify radiation protection measures commensurate with the existing and potential hazards.	Procedure 10202.010 , Radiological Work Permits (RWP)

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<p>(e) No control(s) shall be installed at any radiological area exit that would prevent rapid evacuation of personnel under emergency conditions.</p>	<p>Procedure 10202.010, Radiological Work Permits (RWP), Page 7, step 6: Note: No controls shall be installed at any radiological area, high or very high radiation area exit that would prevent rapid evacuation of personnel under emergency conditions.</p>
<p>§ 835.502 High and very high radiation areas.</p>	
<p>(a) The following measures shall be implemented for each entry into a high radiation area: (1) The area shall be monitored as necessary during access to determine the exposure rates to which the individuals are exposed; and (2) Each individual shall be monitored by a supplemental dosimetry device or other means capable of providing an immediate estimate of the individual's integrated equivalent dose to the whole body during the entry.</p>	<p>Plan 10202.004 Radiation Protection Plan (RPP) page 17: One or more of the following features shall be employed for each entrance or access point to a high radiation area, (i.e., the area immediately around the x-ray port) where radiation levels exist such that an individual could exceed a deep dose equivalent to the whole body of 0.1 rem (0.01 sievert) in any one hour at 30 centimeters from the source or from any surface that the radiation penetrates: A control device that prevents entry to the area when high radiation levels exist or upon entry causes the radiation level to be reduced below that level defining a high radiation area; <input type="checkbox"/> A device that functions automatically to prevent use or operation of the radiation source or field while individuals are in the area; <input type="checkbox"/> A control device that energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry; <input type="checkbox"/> Entryways that are locked. During periods when access to the area is required, positive control over each entry is maintained; <input type="checkbox"/> A control device that will automatically generate audible and/or visual alarm signals to alert personnel in the area before use or operation of the radiation source and in sufficient time to permit evacuation of the area or activation of a secondary control device that will prevent use or operation of the source.</p>
<p>(b) Physical controls. One or more of the following controls shall be used for each entrance or access point to a high radiation area where radiation levels exist such that an individual could exceed an equivalent dose to the whole body of 1 rem (0.01 Sv) in any one hour at 30 centimeters from the source or from any surface that the radiation penetrates: (1) A control device that prevents entry to the area when high radiation levels exist or that, upon entry, causes the radiation level to be reduced below the level that defines a high radiation area; (2) A device that functions automatically to prevent use or operation of the radiation source or field while individuals are in the area; (3) A control device that energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry; (4) Entryways that are locked. During periods when access to the area is required, positive control over each entry is maintained; (5) Continuous direct or electronic surveillance that is capable of preventing unauthorized entry; (6) A control device that will automatically generate audible and visual alarm signals to alert personnel in the area before use or operation of the radiation source and in sufficient time to permit evacuation of the area or activation of a secondary control device that will prevent use or operation of the source.</p>	

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<p>(c) Very high radiation areas. In addition to the above requirements, additional measures shall be implemented to ensure individuals are not able to gain unauthorized or inadvertent access to very high radiation areas.</p>	<p>Plan 10202.004, RPP, Section 13.0, Radiation Generating Devices, “In the case of x-ray systems, high and very high radiation areas could be encountered at or near the x-ray port,…” Subsection, System Barrier, “All open beam x-ray systems shall have an enclosure housing and accessory equipment enclosure that meets all of the requirements of ANSI N43.2 and shall be interlocked such that all shutters will close if access doors are opened, unless the interlock is consciously defeated. Entryways should be locked or controlled during off normal states of x-ray systems such as a bypassed interlock.”</p>
<p>(d) No control(s) shall be established in a high or very high radiation area that would prevent rapid evacuation of personnel.</p>	<p>Procedure 10202.010, Radiological Work Permits (RWP), Page 7, step 6: Note no controls shall be installed at any radiological area, high or very high radiation area exit that would prevent rapid evacuation of personnel under emergency conditions.</p>

3.2 Program Documentation

The following programmatic documents were reviewed:

- *Radiation Protection Program Plan* (10202.004), due for review 07-01-2016

As a result of the June 2014 DOE Radiation Protection Program Assessment, level 2 finding, F2-1, the Laboratory’s RPP is currently being reviewed and reissued. The finding stated that the Laboratory’s RPP document does not address each §835 requirement. A matrix was developed to demonstrate whether all §835 requirements are being adequately addressed by the current RPP. The Laboratory also committed to developing additions/updates to the RPP as necessary and assuring the matrix will demonstrate compliance with §835 requirements. The June 2014 assessment team advised that exact wording from §835 should be imbedded in the RPP and/or supporting documentations. A matrix was developed and while accomplishing this action gaps in administrative coverage were identified. Exact wording from §835, in entirety, are not present within the Ames Laboratory’s RPP and/or supporting documentation. To correct the finding and improve the program exact wording from §835 is being inserted into The Ames Laboratory RPP, and an Ames Laboratory Radiological Safety Program Description documents is being developed.

- *Ames Laboratory ESH&A Program Manual* (10200.002),

The Laboratory’s Environment, Safety, Health & Assurance Program Manual (Safety Manual) was last updated in 2011. The Safety Manual is being revised. Subject Matter Experts have been assigned sections to update the Safety Manual. The Laboratory’s RSO is assigned section 7, Radiological Protection Program. Section 7 is under review and is being updated.

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- *Posting and Labeling for Radiological Control Procedure (10202.016)*, the procedure was last updated 06/2013. It is due for update 06/01/2016. More explicit language should be placed into the document describing the methods to ensure control of radiological areas throughout the Lab. Ambiguity will be reduced by inserting exact wording from 10 CFR 835.501(c) into the procedure.
- *Radiological Work Permit Procedure (10202.010)*, implemented 01/15/2015. Document was created as per the June 2014 RPP assessment corrective action plan. It is due for update 01/15/2018. No issues noted.

3.3 Training

No required training noted in this functional area.

3.4 Personnel Interviewed

No person interviewed

4.0 Assessment Results & Discussion

4.1 Strengths

None noted

4.2 Noteworthy Practices

None noted

4.3 Findings

Procedure 10202.016, Posting and Labeling for Radiological Control, needs to be updated to include more explicit language describing the methods that should be used to ensure control of radiological areas throughout the Lab. Exact wording from 10 CFR 835.501(c) placed into the procedure will correct the issue.

5.0 Overall Conclusions

Ames Laboratory is fulfilling its obligations pertaining to Radiation Protection Program organization for implementing a program that meets DOE, 10 CFR 835, Subpart F; Radiological Controls, Entry and Exit Control requirements.

6.0 Attachments

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DocNum	DocType	Current Title
10202.043	Form	MC&A Check List
10202.021	Form	Exchange of Quarterly TLD Badges
10202.034	Form	Occupational Radiation Exposure Record
10202.016	Form	Radiological Work Permit Guidance and Checklist
10202.025	Form	RWP Summary & Close Out Form
10202.047	Form	Radiological Material Datapage
10202.018	Form	General RWP Format Template
10202.044	Form	Lost Dosimeter Report
10202.041	Form	Materials Balance Area Inventory and Report Form
10202.019	Form	Specific RWP Format Template
10202.006	Form	Checklist for Initiating the use of Rad Mat/Rad Pro devices
10202.012	Form	Radiation Survey Instrument Training (AL-157)
10202.024	Form	Sealed Source Accountability Form
10202.028	Form	Ames Laboratory Air Monitoring Record
10202.023	Form	Sealed Source Inventory Form
10202.022	Form	Analytical X-Ray System Inspection and Survey Record
10202.042	Form	MC&A Nuclear Material Transfer Form
10202.003	Form	Application for Use of Radioactive Materials
10202.003	Form	Application for Use of Radioactive Materials
10202.005	Form	Application for Use of Radiation Producing Devices
10202.008	Form	Declaration of Pregnancy
10202.033	Form	Dosimetry History Request Form
10202.037	Form	Employee Radiation Dosimetry Badge Agreements and Commitments
10202.038	Form	Ames Laboratory Dosimetry Authorization Form
10202.048	Form	RW I/II (AL-207) Practical Factors Exam Employee Sign-off Record.
10202.049	Form	Laser Hazard Assessment Form
10202.052	Form	Rad Worker II (Rad Materials) Learning Assessment b (AL-077)
10202.054	Form	L A "General Employee Radiological Training (GERT) (AL-074)
48202.014	Form	Laser User Authorization Form
10202.003	Guide	Rad Worker Study Guide for Support Staff
10202.001	Guide	Radiation Safety Study Guide for Users of Radiation Generating Devices
10202.002	Manual	Radiological Worker Study Guide
10202.002	Plan	Materials Control and Accountability Program Plan
10202.001	Plan	Internal Radiation Dosimetry Contingency Plan
10202.005	Plan	External Dosimetry Technical Basis Document
10202.004	Plan	Radiation Protection Program (RPP)
10202.012	Policy	Walk Down of Posted General Radiological Work Permits
10202.001	Policy	ALARA Policy
10202.015	Procedure	Sealed Radioactive Source Accountability and Control
10202.031	Procedure	Health Physics Group Review of Service Order Requisitions
10202.008	Procedure	Control of Radioactive Contamination
10202.064	Procedure	Facility Categorization for Radiological Material

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10202.010	Procedure	Radiological Work Permit
10202.011	Procedure	Calibration of Portable Survey Instruments
10202.016	Procedure	Posting and Labeling for Radiological Control
10202.021	Procedure	Workplace Air Monitoring
10202.036	Procedure	External Dosimetry Program Implementation
10202.060	Procedure	Conducting Contamination and Area Monitoring Surveys
10202.014	Procedure	Receipt, Transfer, & Shipment of Radioactive Materials
10202.001	Procedure	ALARA Procedure
10202.001	Charter	ALARA Committee Charter
10202.002	Charter	Laser Safety Committee Charter
10202.001	Handout	Standard for Protection Against Radiation - Notice
10202.002	Handout	Radiation Protection Program
10200.002	Manual	ESH&A Manual "Radiation Protection"
10202.002	Manual	Radiological Worker Study Guide