



THE Ames Laboratory
Creating Materials & Energy Solutions
U.S. DEPARTMENT OF ENERGY

Environment, Safety, Health & Assurance

Interoffice Communication

G40 TASF

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

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

Date: August 12, 2015

Subject: RPP Functional Element Area, Radiological Controls, Work Planning

The Topical Appraisal is attached.

Topical Appraisal - RPP Functional Element Area, Rad. Controls, Work Planning

1.0 Scope

This topical appraisal was conducted to review the Laboratory’s RPP functional element area, Radiological Controls, Work Planning, 10 CFR 835.501(d), 1001(b), 1003, and DOE-STD-1098-2008, Radiological Control.

2.0 Dates

July 20, 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, Radiological Work Planning was 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 Standard 1098-2008 Ch1, *Radiological Control*,

The regulatory requirements from 10 CFR 835.501(d), 1001(b), 1003, Radiological Controls, Work Planning requirements have been placed in the matrix below. The Compliance/Comments column points to the documentation and coverage of the rule.

| | Compliance/Comments |
|---|---|
| § 835.501 Radiological areas. | |
| (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. | <p>Procedure 10202.010, Radiological Work Permits (RWP), Section 3.0, Purpose and Scope, “This document is guidance for work planning related to worker radiological protection at Ames Laboratory and completion of Radiological Work Permits in support of research and Facilities and Engineering Services work throughout the site.</p> <p>The Radiological Work Permit (RWP) is an administrative mechanism used to establish radiological controls for intended work activities. The RWP informs workers of area radiological conditions and entry requirements and provides a mechanism to relate worker exposure to specific work activities.”</p> |
| § 835.1001 Design and control. | |
| (b) For specific activities where use of engineered controls is demonstrated to be impractical, administrative controls shall be used to maintain radiation exposures ALARA. | <p>Policy 10202.001, ALARA, section 5.0: For specific activities where the use of physical design features is impractical, administrative controls and procedural requirements shall be implemented to maintain radiation exposure ALARA.</p> |

| § 835.1003 Workplace Controls. | |
|---|--|
| <p>During routine operations, the combination of engineered and administrative controls shall provide that:</p> <ul style="list-style-type: none"> (a) The anticipated occupational dose to general employees shall not exceed the limits established at § 835.202; and (b) The ALARA process is utilized for personnel exposure to ionizing radiation. | <p>Procedure 10202.008, Control of Radioactive Contamination,” section 4.1: Ames Laboratory’s contamination control program, as specified by this procedure, incorporates three types of control: (1) design control, (2) engineering control, and (3) administrative control.</p> <p>Plan 10202.004, Radiation Protection Plan, section 5.0. Ames Laboratory radiation protection program commitment to maintaining workers dose ALARA.</p> <p>Procedure 10202.010, Radiological Work Permit, Section 3.0, Purpose and Scope, states the Laboratory’s commitment to workers exposure to radiation ALARA.</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. 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. Matrixes were developed, and while completing the matrix 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 the Ames Laboratory Radiological Safety Program Description.
- *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.
- *ALARA Policy (10202.001)*, Rev. 5.1, the procedure was last revised 05/10/2013. It is due for update 02/01/2016. No issues noted.
- *Radiological Work Permit Procedure (10202.010)*, implemented 01/15/2015. Document was created per the June 2014 RPP assessment corrective action plan. It is due for update 01/15/2018. No issues noted.

3.3 Training

All Facilities and Engineering Services personnel required Radiation Worker One training is up-to-date. Next retraining cycle is October, 2015.

Persons past their due date for Radiological Worker retraining are not authorized to work with radiation generating devices or radioactive materials. Emails are sent to past due participants and their respective supervisors and group leader. Dosimetry rings and whole body badges are collected and held until retraining is up-to-date. As of July 20, 2015 five Radiation Workers were past due for retraining. All persons were emailed and dosimetry collected.

3.4 Personnel Interviewed

James Anderegg, Assistant Scientist III, works with x-ray systems and electron microscopes. Radiological Work Permit process was reviewed. James had no concerns with work planning. He has been pleased with the new RWP implementation so far since inception early 2015.

Vince Dahl, Manager Facilities Maintenance, F&ES, is the construction foreman for the Ames Laboratory craftsmen. No concerns were voiced. Vince said working with the Safety Office is a very important part of the work process and planning here at Ames Lab.

4.0 Assessment Results & Discussion

4.1 Strengths

None noted

4.2 Noteworthy Practices

None noted

4.3 Findings

None noted.

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 835.501(d), 1001(b), 1003; Radiological Controls, Work Planning requirements.

6.0 Attachments

Attachment One: List of RPP documents

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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 |

Attachment One: List of RPP documents

| | | |
|-----------|-----------|--|
| 10202.064 | Procedure | Facility Categorization for Radiological Material |
| 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 |

