

Interoffice Communication

640 TASF

Date: August 1, 2013
To: Tom Wessels
From: Shawn Nelson and Julia Sager
Subject: **2013 Review of Ames Laboratory Materials Control and Accountability Program**

Summary

The annual review of the Ames Laboratory Materials Control and Accountability (MC&A) Program is attached. Currently, B53 Spedding Hall is the sole Material Balance Area (MBA) for Ames Laboratory, with Michael McGuigan serving as the Nuclear Materials Representative and Radiation Safety Officer (RSO). Ken Ewing and Drew Fullerton are the two Radiation Control Technicians.

Review of the documentation, practices and processes for the MC&A Program appear to be adequate to the need. There were no Level-1 Findings discovered. There was one Level-2 Finding and one Level-3 Finding. The Level-2 Finding related to pending training since February 2, 2013. The Level-3 Finding related to adding page numbers to the MC&A Checklist (10202.002).

2013 Review of the Ames Laboratory Materials Control and Accountability Program

Scope

This review was performed by Julia Sager, Industrial Hygienist and Shawn Nelson, ESH&A Assistant Manager at the request of Tom Wessels, Ames Laboratory Safeguards and Security Program Manager. The review included:

- Applicable Department of Energy (DOE) Orders and Manuals, as detailed below.
- All MC&A logbook/transactions during the period of interest.
- Field demonstration of applicable security measures.
- Documentation of corrective actions in ALCATS pertaining to MC&A since July 1, 2011.
- Findings of last MC&A annual review (completed 7-31-12).
- Authorized user (Rad Worker II) training records.
- Interviews with the RSO, two Radiation Control Technicians, and one A-Shift Plant Protection Officer.

In addition, corrective action effectiveness verifications were assessed.

Copied: Mike McGuigan

Background

The Ames Laboratory Materials Control and Accountability (MC&A) Program is applicable to accountable source and special nuclear materials owned by the USDOE that are stored and used at Ames Laboratory. A listing of those materials classified as “accountable nuclear materials” may be found in DOE Order 474.2.

The program is administered by the Ames Laboratory Health Physics group, a subgroup of the Environment, Safety, Health and Assurance Office for the Ames Laboratory. Approximately 20 to 25 transactions take place annually. Inventories have been static in recent years. The Radiation Safety Officer is the lead for the Health Physics group and serves as the Ames Laboratory’s Nuclear Materials Representative (NMR).

Document(s) Reviewed

- Previous to this review, the MC&A Program was held to the requirements of Manual 470.4-6, Nuclear Material Control and Accountability approved August 26, 2005. This manual was canceled August 14, 2006 by DOE Order 474.2. Change 1 was approved August 3, 2011 and Change 2 was approved November 19, 2012. The Ames Laboratory Materials Control and Accountability Program Plan 10202.002 references the correct and current Order. The sequence of changes is attached to this review.
- Materials Control and Accountability Program Plan 10202.002, Revision 7, is current (due for three year review 11-1-13).
- Form 10202.041, Group Materials Balance Area Inventory Sheet
- DOE/NRC 742 - Materials Balance Report (including Composition of Ending Inventory Report (COEI))
- DOE/NRC 741 - Nuclear Materials Transfer Report
- Form 10202.042, “MC&A Nuclear Material Transfer Form”
- Form 10202.043, “MC&A Check List”

Results: All Ames Laboratory documents are up to date, there are no concerns. Forms are attached to physical report in audit file.

MC&A Transfers

Documentation was reviewed regarding the following types of MC&A transfers:

Accountable External Transfers (using DOE Form 741)

Accountable Internal Transfers (using DOE Form 741)

} No Accountable Transactions since last review.

Non Accountable External Transfers

Non Accountable Internal Transfers

} Observed by Nelson 7-30-13

Results: No concerns were noted.

MC&A Log Book Review

The MC&A Log Book is the document in which material balance reports, transfer records, and inventory records are maintained. Shawn Nelson reviewed this log and recorded the following observations on July 30, 2013.

#	Point of observation	Date Reviewed	Finding	Comments	Attachment
1	Inventory below DOE Order 474.2, Table C, Level E Facility - Category IV Attractiveness	7-30-13	0	No changed in status - Confirmed by McGuigan	#1
2	Inventoried once each year	7-30-13	0	Completed 6-28-13 (ALCATS 813)	
3	One person in each MBA is Nuclear Materials Custodian	7-30-13		Currently only one MBA (B53 Spedding), Custodian is McGuigan	
4	Nuclear Materials Custodian (NMC) signs and dates Materials Balance Annual Inventory Report (MBAIR) then returns it to Nuclear Materials Representative (NMR)	7-30-13	0	No active MBAs, therefore no MBAIRs, per McGuigan	
5	Quarterly Material Balance Report sent to Safeguard and Security (Frank Healy) and NMMSS (Nuclear Materials Mangement & Monitoring System)	7-30-13	0	Nelson observed	#2A & #2B
6	Separate DOE/NRC form #742 for each type of nuclear materials (including Composition of Ending Inventory Report (COEI) quarterly)	7-30-13	0	No changed in status - Confirmed by McGuigan	#2A
7	Entry should be made in the MC&A Log book for quarterly reports	7-30-13	0	Observed by Nelson	
8	Memo to file prepared for each quarter's reporting		0	Completed 7-5-13 (ALCATS 1759)	#3
9	DOE/NRC Form #741 if shipped/received	7-30-13	0	Confirmed by McGuigan	
10	Copies of transfer documents (Form 10202.002 Nuclear Materials Transfer Form) maintained in B53 Spedding	7-30-13	0	Observed by Nelson	
11	Scales and balances are calibrated annually	7-30-13	0	Completed 7-1-13 (ALCATS 820) and observed by Nelson	
12	MC&A Checklist is being used	7-30-13	0	Observed by Nelson	
13	Training status	7-31-13	1	Person pending since February 2, 2013	#4

Results: All transactions appeared to be thoroughly and completely recorded. It is strongly recommended adding page numbers in the format Page N of NN to the MC&A Checklist (10202.002). Someone could easily fail to realize its 6 pages long and only do part of it.

Observation of security measures of the Materials Balance Areas

The primary MBA site is B53 Spedding Hall. This area is the storage location for the bulk of the accountable materials in the Ames Laboratory's inventory. The area is locked 24 hours a day, 7 days a week and is only accessible by those with authorized proximity cards correlated with a personal identification keypad number. Mike McGuigan (RSO), and the two Radiation Control Technicians, Ken Ewing and Drew Fullerton, are the only individuals that have access to the room.

The door is monitored by two security systems, Simplex and C-Cure 9000, both monitored by Plant Protection Section. Entry into B53 Spedding requires radio/phone communication with Plant Protection Section prior to entry. Radio/phone communication is also required when exiting the room to document occupancy status as clear. If the door alarm is activated and radio/phone call is not received, PPS will respond to the site during working hours and ISU DPS will be contacted after hours. In the event of an emergency, a physical access key is kept in a sealed ampoule that is in a lockbox in Plant Protection Section. The key to the lock box is maintained in the safe.

Once inside B53 Spedding there are 10 individual, pad-locked, cabinets colloquially referred to as caves, each containing individual inventories. The locks are keyed alike and are rated to a specified security IV SNM Level. The definition of Level IV SNM locks is provided at the end of this document. Only the RSO and senior Radiation Control Technician have keys to the locks. New locks have been purchased to replace the aging locks and should be in place before the end of August. Individuals who are the custodians (users) of the material may put on their own lock (multi hasp with 2 locks) to ensure they are there when the caves are opened. This is not a required rule, rather an option for the materials custodian. For the caves that are not currently being used, a tamper tag has been attached to provide a readily-apparent visual cue that the cabinet remains empty.

Entry into B53 Spedding was observed. Plant protection was called prior to entry and after exiting the room. The electronic access worked as described. The individual caves in use were locked and secure. The caves were each posted with an inventory listing. The room was clean and orderly.

Results: No concerns were noted.

Review of ALCATS corrective actions pertaining to MC&A since July 1, 2011

Below are entries of corrective actions resulting from external and internal reviews pertaining to MC&A since August 18, 2011, the date of the last DOE External Review. All corrective actions are tracked to closure in the Ames Laboratory Corrective Action Tracking System (ALCATS).

S&S Review performed August 15-18, 2011 in which there was one finding and two suggestions pertaining to MC&A. (This review had 6 other suggestions related to Privacy, Cyber Security and Property, which are not addressed here.)

- Finding F-1: 11AUG18-CH-0033-SSPS-NMCA.2-001 - Transaction CAK-CAK 0901 did not accurately reflect the inventory adjustment and was not included in the September 30, 2009 Material Balance Report.
 - This was corrected November 14, 2011 and has completed its first of two effectiveness verifications 5-24-13.
- Suggestion 1: NMCA-1 Ames Laboratory should clearly mark materials removed from inventory as waste and segregate such materials from materials under safeguards.
 - This was corrected September 30, 2011 and has completed its first of two effectiveness verifications May 24, 2013.
- Suggestion 2: NMCA-2 Ames Laboratory should retain annotated inventory listing and other documentation concerning nuclear material physical inventories.
 - This was corrected November 3, 2011 and has completed its first of two effectiveness verifications May 24, 2013

This review was also categorized (E11-046) using the Event Reporting protocol. It was categorized as an Ames Local - NTS Event, below the threshold of reporting to DOE NTS.

Annual MC&A Review performed July 31, 2012 in which there were five Level-3 Findings.

- OFI#1: MC&A materials are not to be stored in the top row of caves.

- This was corrected August 22, 2012. However, this OFI has been rescinded since a mobile stair unit has been acquired. It has completed its first of two effectiveness verification February 27, 2013.
- OFI#2-5: The remaining four citations were due to an inadequate DOE/NRC Form 741.
 - These citations were corrected August 16, 2012; the first of two effectiveness verifications were completed on February 27, 2013.

This review was categorized (E12-028) as an Ames Local -NTS event.

Results: No concerns were noted.

Interviews

Shawn Nelson conducted interviews with the RSO, both Radiation Control Technicians, and one A-shift Plant Protection Officer. The following summarizes the findings:

- Mike McGuigan, RSO, was interviewed extensively in the completion of this review. He was able to answer all questions asked of him, was helpful in explaining the process and provided necessary documentation when requested.
- Ken Ewing, Radiation Control Technician was interviewed on 7-30-13. He indicated that the program is operating as intended and did not see any problems.
- Drew Fullerton, Radiation Control Technician was interviewed 7-30-13. He indicated that he has not performed any transactions in some time since Mike McGuigan (RSO) and Ken Ewing (Rad Tech) are the two main custodians of the MBA. He does have card and keypad code access but does not have a key to get into the caves. He primarily provides computer support for this program.
- Phyllis Mann, A-Shift Protection Officer was interviewed 7-30-13. She indicated that all three authorized to enter B53 Spedding consistently provide entry and exit notifications and that the CCURE and Simplex systems reliably monitor B53 Spedding. She confirmed that both audible and visual alarms activate in the guard station when the door is opened.

Results: No concerns were noted.

Training

There are 12 people authorized and trained to work with radioactive materials. Rad Materials Training, AL-077, is tracked by the Cyber Training Learning Management System maintained by the Ames Laboratory Training Office. According to their records, there are currently two people pending training: one since February 7, 2013 and the other since June 9, 2013. The Radiation Safety Officer is aware of these two individuals and has followed up with each and their supervisor to either remove the training requirement from the training profile, if no work with accountable materials is anticipated, or to complete the training.

The training pending since June 9, 2013 is not considered a concern yet, given a reasonable grace period and summer scheduling, but the case in which training has been pending since February 7, 2013 is a concern.

Result and Recommendation: One Level-2 Finding. Line management should ensure that the individual in question either completes the required training or has the training requirement deleted from their training profile, whichever is appropriate based upon the work requirements.

Conclusion

Review of the documentation, practices and processes for the MC&A Program appear to be adequate to the need. No Level 1 or 2 Corrective Actions were discovered. There was one Level-2 Finding and one Level-3 Finding. The Level-2 Finding related to pending training since February 2, 2013. If problems persist, it should be rolled up the management command until resolved. The Level-3 Finding related to adding page numbers in the format of Page N of NN to the MC&A Checklist (10202.002). Someone could easily fail to realize its 6 pages long and only do part of it.

Definitions

CAK = Ames Lab identification

CAA = DOE AMSO (Frank Healy) identification

QFA = NMMSS identification

NMMSS = Nuclear Materials Management & Safeguards System

Accountable Materials = Accountable Nuclear Material for purposes of DOE Order 474.2, refers to all nuclear materials that are accountable which are listed in Attachment 2, Tables A and B in the order. These materials differ in protection strategy but are accountable at the sites and reported electronically to the Nuclear Materials Management and Safeguards System (NMMSS).

Level IV SNM Locks =

B53 Spedding has Level IV SNM located inside the room on the caves. The Level IV SNM allows the use of low security padlocks. These padlocks must meet the classes and standards in Commercial Item Description A-A-59486B and A-A-59487B. The lock set ordered meets these standards.
<http://www.padlockoutlet.com/American-Lock-NSN-5340-01-463-5841.html>

DOE O 473.3 Attachment3, Section A 3 e 2

Security key padlocks must meet the following specifications:

(2) Low security, regular (open shackle, key operated padlocks) must meet the classes and standards in Commercial Item Description A-A-59486B and A-A- 59487B. The ODSA must determine low security padlock usage based upon the site analysis conducted on the security interest being protected.

Attachments:

1. Graded Safeguards Table
2. a. Material Balance Reports; b. Physical Inventory Report for 2nd Quarter
3. MC&A 2nd quarter CY2013 Report (Summary memo)
4. Training Status Report from Cyber Train
5. Record of Changes to DOE Manual 470.4-6
6. Forms
 - a. Form 10202.041 Rev 1 Materials Balance Area Inventory and Report
 - b. Form 10202-042 Rev 1 MC&A Nuclear Material Transfer Form
 - c. Form 10202-043 Rev. 4 MC&A Check list