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C-A OPERATIONS PROCEDURES MANUAL

1.20 C-A Policy for Accountability and Security of Valuable Materials

Text Pages 2 through 6

Attachments

Hand Processed Changes

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Approved: _____ Signature on File _____
Collider-Accelerator Department Chairman Date

D. Passarello

1.20 C-A Policy for Accountability and Security of Valuable Materials

1. Purpose

To protect valuable materials against theft or diversion, that could result in significant programmatic or financial impact.

1.1 Definitions:

Valuable material is defined as copper, tungsten, platinum, aluminum or other metals that are targeted by thieves, to be sold for their scrap or intrinsic value of more than \$1,000, and is stored in one location.

Note 1

Scrap Metal Prices per pound:

Aluminum \$0.50 to \$0.75

Copper including alloys of bronze, brass, monel and copper-nickel \$ 0.45 to \$4.00

As of 8/06

Note 2

Ferrous metals including stainless steel are not considered to be targeted by thieves for scrap since scrap yards are only interested in many ton quantities.

2. Responsibilities

- 2.1 Division Heads, Group Leaders and Supervisors are accountable and responsible to comply with this procedure.
- 2.2 C-A Department QA Manager shall maintain a listing of valuable materials, including owner and location.
- 2.3 C-A Department Chair's Office or designee shall maintain Building key control.
- 2.4 Supervisors shall report any loss of valuable materials immediately by notifying the Department Chair and BNL Police. The Department Chair shall report such events to the Associate Laboratory Director for Nuclear and Particle Physics.
- 2.5 In accordance with [OPM 2.31](#), Building Managers of buildings containing valuable materials shall walk down their building once per week to determine if any such materials are missing.

- 2.6 The ESSHQ Division Head shall send this OPM out for read and acknowledge on an annual basis in order to maintain awareness of these requirements. Personnel receiving the read and acknowledge shall include, all managers, group leaders, supervisors and all individuals who are assigned responsibility for any valuable materials.
- 2.7 The Group Leader for the group owning the equipment is responsible to assign owners. Each valuable item shall be assigned to an individual who is an active employee of C-AD.
- 2.8 The Chairs/Facilitators of the WOSH Committee, Accelerator Division Supervisor's Meeting, and the Facilities & Experimental Support Supervisor's Meeting shall forward any security issues to the C-A Security Committee Chair.
- 2.9 The Safeguards & Security Divisions (SSD) Senior Physical Security Engineer, or designee, is responsible for the maintenance of security system software. Hardware maintenance will be coordinated between SSD Senior Physical Security Engineer and the Chair of the C-AD Security Committee.

3. Prerequisites

None

4. Precautions

None

5. Procedure

- 5.1 Group Leaders, Supervisors or Work Planners shall determine the value of the stored or in-process material.
 - 5.1.1 When the scrap or intrinsic value of the material exceeds \$1,000, and is stored in one location, at least **three** items in the following section of requirements shall be followed, and at least one of the three shall be chosen from items d through k. The following does not apply to materials that are in use in an accelerator or experiment, but do apply to materials that are placed in long-term storage areas, or in a staging area awaiting installation.
 - 5.1.2 Group Leaders, Supervisors or Work Planers shall implement these requirements:
 - a. Etch, mark or label the materials with "Property of U.S. Government". Contact the QA Manager for labeling materials.

- b. Register the materials and their location in the listing of valuable materials.
- c. Use stickers to warn potential thieves of a theft protection system.
- d. Enclose the materials in a storage area with locked fencing or a locked building. These yards and buildings must be locked at the end of use each day.
- e. Use electronic security systems (e.g., temporary fence, cameras, card readers, motion sensors, etc.).
- f. Keep heavy valuable materials and heavy-lifting equipment separated. Lifting equipment keys shall be controlled as per Attachment 1. Do not leave fork trucks near heavy valuable materials.
- g. If available, secure heavy-lifting equipment with tire locks. Do not chain the units to a pole or a grommet in the ground.
- h. Secure materials with chain and lock.
- i. Contact BNL Police to ask them to periodically monitor the area during off-hours. Make sure they understand the location and quantity of materials to be monitored.
- j. Request BNL Police to check each vehicle leaving the site after hours while the material is in process.
- k. Use of other method that is approved by the Division Head authority. Consider input from BNL Security for these cases.

5.2 Key Control of keys used to access Valuable Material Areas, requires restriction and documentation of those who use the back-up keys and master keys.

5.2.1 Requirements for key control are as follows:

- Eliminate or limit the use of the master key.
- Keep the back-up keys in a locked key box controlled by a responsible individual.
- Code the keys not to reflect the heavy-lifting equipment's or storage area's identity.
- Secure the code sheet and key box key separately.
- Keep a log of who checks out a back-up key.
- Keep the key cutting machine and blanks secure.
- After working hours, always lock the room that houses the key box.

5.2.2 Keys to security areas shall be issued to appropriate Group Leaders, Supervisors, and Operations Coordinators by the C-A Department Chair's office.

5.2.2.1 Security area keys are maintained by the MCR for temporary off-hour use.

- Warehouse keys in the MCR are maintained in a dedicated key locker.
- Only OC's are authorized to remove keys from key locker.
- Signature of OC required in log each time a warehouse key is removed from key locker.

5.2.3 Key controls for F&ES storage yards and rigging equipment shall be controlled as per Attachment 1.

5.3 Valuable Materials Listing Control System requirements

5.3.1 Identify and document the location of valuable materials.

5.3.2 Valuable material item shall be assigned to a current, active C-AD employee by the Division owning the material. When personnel changes take place, new materials are moved into C-AD or are used, update the ownership of the materials as soon as possible.

5.3.3 Perform semi-annual review of listing.

6. Documentation

6.1 Documentation of the security keys issued to personnel shall be maintained in the Office of the C-A Department Chair.

6.2 A checkout log shall be maintained by MCR for security keys issued to personnel.

6.3 A checkout log shall be maintained by the responsible person, or designee, for the sign-out of yard and building keys.

6.4 Valuable Materials List.

7. **References**

None

8. **Attachments**

8.1 Yard, Building and Rigging Equipment Key Controls

8.2 Approximate Weights of Copper Wire/Cable Without Insulation

Attachment 8.1
Yard, Building and Rigging Equipment Key Controls

PURPOSE:

- A. The key control program has been established to prevent the theft of BNL material using a graded approach for yards, buildings and rigging equipment.
- B. All keys to rigging equipment shall be secured (e.g., B912 for F&ES, B918 for warehouses, etc.) during non-working hours.
- C. Two levels of risk have been established in order to setup key control for C-AD areas:
 - a. A Low risk area has material with a salvage value of less than \$1000.00 and has material with little programmatic impact, or due to large size or complex assembly, the material is not targeted for theft.
 - b. High risk areas contain material with a salvage value over \$1000.00 and are easy to remove. Presently, five areas are designated as high risk.
 - B912 Cable Yard
 - B924 Cable Yard
 - Storage Yard East of B922
 - B926
 - B918

RESPONSIBILITIES:

- A. The Group Leader or designee (e.g. F&ES Technical Groups Supervisor, or designee), is responsible for controlling the sign-out of yard and building keys.
- B. The C-AD Rigging Supervisor or the Group Leader (or designee) who owns non-rigger rigging equipment is responsible for securing the keys to all assigned rigging equipment at the end of the workday.
- C. The person issued or signing out a key is responsible for ensuring that the area is locked when the work is completed.

PRECAUTIONS:

- A. The person signing out a key to a yard or building shall not leave the yard or building unattended, unlocked or transfer the responsibility to another person.
- B. The person issued a key to rigging equipment shall not transfer the responsibility to another person.

PROCEDURE FOR YARD or BUILDING ACCESS:

- A. Contact the appropriate supervisor for access into the compound, yard or building.
- B. The supervisor has the requesting party sign out the key on the key sign-out sheet.
 - a. The key holder completes their work and relocks the compound, yard or building and signs the key back in.
 - b. The supervisor secures the key back into the lockbox.

PROCEDURE FOR RIGGING EQUIPMENT KEYS:

- A. The CAD Rigging Supervisor or the Group Leader (or designee) who owns the rigging equipment issues the required equipment keys when assigning the work.
- B. Upon the completion of work the equipment operator returns the key to the Supervisor.
- C. At the end of the work day, the Supervisor or designee inventories the equipment keys and secures them back into lockbox.

DOCUMENTATION:

- A. Key Sign Out Logs

Attachment 8.2

Weight of Copper with No Insulation

AWG	lbs per 1000 ft	lbs per foot
18	5.015	0.005
16	7.974	0.008
14	12.68	0.013
12	20.16	0.020
10	32.06	0.032
8	51	0.051
6	80.9	0.081
4	129	0.129
2	205	0.205
1/0	326	0.326
2/0	411	0.411
3/0	518	0.518
4/0	653	0.653
 MCM		
250	772	0.772
262	809	0.809
350	1080	1.08
500	1542	1.54
535	1650	1.65
750	2316	2.32
1000	3086	3.09
 AWG/ No.wires		
18/6	30.1	0.03
16/2	15.95	0.016
16/3	23.92	0.024
12/3	60.48	0.06
12/4	80.64	0.08
10/3	96.18	0.096
6/2	161.8	0.162