



COLLIDER-ACCELERATOR DEPARTMENT

Title: EMS Training For Plating Operations

Prepared by: M. Van Essendelft

Group: ESH&Q

Approvals

Signature on File _____ Date: _____

ESH&Q Division Head

Signature on File _____ Date: _____

Collider-Accelerator Department Chairman

(Indicate additional signatures)

Y N
 x FS Representative: _____ Date: _____

x Radiological Control Coordinator: _____ Date: _____

x Chief ME: _____ Date: _____

x Chief EE: _____ Date: _____

x Environmental/P2 Coordinator: _____ Date: _____

x QA Manager: _____ Date: _____

x Other: Signature on File _____ Date: _____

Environmental Training Package for Plating Operations

This package has been designed to aid in the delivery of required job-specific training for the following plating activities in buildings 922 and 919B identified in the environmental process evaluation

- Cleaning and silver plating of copper bus-bars in Building 922 (see note below)
- Cleaning and silver plating of other metal parts in Building 919B (see note below).
- Rinsing metal parts following acid cleaning
- Radioactive, regulated industrial, and hazardous waste generation
- Atmospheric discharge
- Liquid Discharge
- Storage/Use of chemicals

Note: Environmental training for metal cleaning operations is covered separately

Your position has been determined to have significant potential to impact the environment. Thus, C-A Department Management has prepared the questions & answers on the following pages for your specific work/processes.

This environmental material is incorporated into your current job and procedure training. If you have specific questions about this information after you have read the material, contact the C-A Department ESH&Q Division Head, Ray Karol (<mailto:rck@bnl.gov>).

You may keep this material as a handout and use it as a reference aid.

This specific training course is linked to your job-training assessment (JTA). You must read and acknowledge this material as part of the qualification to perform plating operations. Please fill out the Read and Acknowledgement form and return it promptly.

[Read & Acknowledgement Form](#)

Environmental Process Evaluation Title: Plating Operations

Environmental Aspects: Hazardous Waste, Atmospheric Discharge, Regulated Industrial Waste, Storage/Use of Chemicals, Liquid Discharge, Radioactive Waste

Contacts for Further ESHQ Information:

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Course Objective: Because your work activities have been identified as having significant potential to impact the environment, this course has been designed to provide you with the job-specific information that you must know to protect the environment.

1) What potential impacts to the environment are associated with your activities?

- Plating operations can release radioactive materials or hazardous chemicals. The following materials in your work may have adverse impacts if improperly handled:
 - Chemicals such as AC-500 (a phosphoric acid solution), sodium bicarbonate (used to neutralize the used acid), activator solution and Silver Coatolyte 316 (containing cyanide) are hazardous
 - Excess silver plating solution is hazardous
 - Metal cleaning and post-silver plating rinse water is hazardous and may be radioactive
 - Rinse water filters (Building 922) and blotting paper (Building 919B) are hazardous and may radioactive

2) What consequences may result if your operations were to impact the environment?

- Hazardous, industrial or radioactive waste mismanagement could contaminate the environment and incur RCRA or local agency penalties
- Improper discharges to the sanitary sewer system could contaminate surface water and/or result in a violation of the BNL State Pollutant Discharge Elimination System (SPDES) permit
- Improper release of radioactive materials to uncontrolled areas may result in enforcement actions under Federal Rule 10CFR835
- Improper handling of waste can create loss of regulator and public trust

3) What benefits or positive effects would you notice with improved environmental performance?

- Safer, cleaner workplace
- Clear roles and responsibilities
- Improved relationship with regulators and the public
- Control of disposal costs
- Prevention of remediation costs
- Reduced emissions

4) What role and responsibility do you have for these potential impacts and environmental performance?

- To ensure hazardous, radioactive and industrial wastes are handled according to C-A procedures
- To ensure controls are in place
- To ensure controls keep working
- To take action when controls fail
- To create and keep appropriate records relative to operational controls
- To contact supervision if you are unsure of how to perform the work or if the procedures are unclear or incorrect

5) What controls or procedures are implemented to reduce the potential for emergency?

- [C-A OPM 8.20](#), Handling and Disposing of Hazardous Waste
- [C-A OPM 8.22](#), Handling and Disposal of Non-Hazardous and Recyclable Waste
- [C-A OPM 8.20.1](#), C-A Hazardous Waste Trailer (HWT) (90 Day Accumulation Area)
- [C-A OPM 1.15](#), Liquid, Airborne Effluents
- [C-A OPM 1.14](#), General Requirements for Liquid Storage
- [C-A OPM 2.28](#), Enhanced Work Planning
- Satellite Accumulation Area
- Chemical Management System
- Tier I program and self-assessments

6) How would you respond in an emergency to reduce the potential for environmental impact and what actions could be taken to mitigate the event?

- See [C-A OPM 3.0](#), Local Emergency Plan for the C-A Department
- Call Spill Response Hotline – X2222 or 911 (If calling from a cell phone, dial (631) 344-2222)

7) What pollution prevention and waste minimization techniques have been or could be considered to reduce or eliminate the potential to impact the environment?

- See the Environmental Training Package for Metal Cleaning Operations for pollution prevention and waste minimization techniques related to the AC-500 acid-cleaning and rinsing operations in Buildings 922 and 919B
- Consider using a silver plating powder (Cool-Amp) that is brushed onto the copper surfaces in place of the electroplating process using Silver Coatolyte 316. This would eliminate electroplating wastes and rinse water waste.
- Eliminate the rinse step following application of the activator when silver-plating in Building 919B. The manufacturer states that rinsing is not required.
- Replace the metal pre-cleaning step (using AC-500 acid solution) by using an activator solution recommended by the manufacturer of Silver Coatolyte prior to silver-plating. The manufacturer notes that mixing the silver solution with acid could produce hydrogen cyanide gas.

Suggestions or comments about pollution prevention or waste minimization are always welcome by C-A management.

8) Are there any key Environmental-specific Competency Requirements for this position?

- None

Additional Environmental Information:

Click on the items below to learn more about C-A Plating Operations.

- [Process Assessment](#) for C-A Plating Operations
- [Environmental Management Program](#) for C-A Plating Operations
- [Operational Control Form](#) for C-A Plating Operations