SUBJECT AREA CONTENT

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Management System: Environmental Management System

Subject Area: Industrial Waste

VIEW/PRINT ALL (No Exhibits and Forms)

Effective Date: **Nov 6, 2013** (Rev 3.0) Periodic Review Due: **Nov 6, 2018**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien	Management System Steward: Gail Mattson

Introduction

This subject area applies to all BNL staff and non-BNL staff conducting work at facilities owned, leased, or operated by BNL. It also applies to BNL staff conducting work off-site, when the waste generated by the off-site work will be managed at BNL.

This subject area applies to all industrial wastes (see the Industrial Waste Flowchart) and it does not apply to Radioactive Waste, Hazardous Waste, Mixed Waste, Regulated Medical Wastes, or Municipal Solid Waste (regular trash). **Note:** BNL recyclables are covered in the section Managing Recyclables.

BNL is committed to integrating environmental stewardship into all facets of our missions. This stewardship includes proper management of all waste streams created during performance of Laboratory research and operations. This subject area describes how "industrial and other special wastes" are managed. Failure to follow the requirements in this subject area can result in impact to the environment (e.g., contamination of landfills, soil, air, surface or groundwater); impact to human health and safety; disciplinary action; enforcement actions by regulatory agencies (including penalties, fines and shutdown of operations); and significant characterization or clean-up expenses for your project or the Laboratory.

Contents

Section	Overview of Content (see section for full process)
1. Generating and Characterizing Industrial Waste	• Review pollution prevention and waste minimization techniques to minimize waste generation. • Determine if waste to be generated is industrial.
2. Accumulating Industrial Waste	• Determine packaging for the waste. • Segregate waste streams.

- Label container.
- Provide secondary containment when necessary.
- Store waste in designated accumulation area.
- Maintain analytical records.
- Maintain ownership and responsibility for waste until it is transferred for disposal.
- Secure container lid tightly and ensure no further waste is added.

3. Submitting Industrial Waste to Waste Management for Disposal

- Complete and submit forms.
- Obtain approvals before placing waste in designated area.

4. Used Oil for On-site Energy Recovery

- Ensure Used Oil meets criteria.
- Submit analytical report.
- Store Used Oil within appropriate containers/tanks.

5. Managing Recyclables

- See this section for managing the following recyclables:
    - Aerosol Cans ("Empty"/Atmospheric Pressure/No Residual Liquids);
    - Alkaline and Lead-acid Vehicle Batteries for Reclamation or Recycling;
    - Beverage Bottles/Cans/Containers;
    - Cardboard (corrugated/ribbed and low-grade cardboard);
    - Excess Equipment;
    - Lead Solder Being Collected for Recycling;
    - Mixed Paper (magazines, newspaper, office paper, phonebooks, junk mail, color inserts, textbooks, catalogs, manila-file folders, post-its, blueprints, greeting cards, non-metallic photographic paper);
    - Printer and Toner Cartridges;
    - Scrap Metal;
    - Used Oil Filters.

6. Industrial Waste for Off-site Energy Recovery

- Thoroughly review/characterize waste stream.
- Review characterizations.
- Designate final approval.
- Place approved waste in appropriate container.
- Clearly label contents of all waste.
- Prepare waste for shipping.

[7. Non-Medical Sharp Object Wastes]

- Minimize waste generation.
- Ensure non-medical sharps are rendered safe.

Definitions

Exhibits
Disposal of Sharps
Industrial Waste Flowchart
List of Industrial and Other Special Wastes
Waste Oil Analysis Requirements

Forms
None

Training Requirements and Reporting Obligations

This subject area contains the followin training requirements (see the BNL Training and Qualifications website):

- HP-RCRIGEN3 is required only if a waste generator is shipping their waste through the Waste Management (WM) Division. There are distinct and separate industrial wastes that are routed through F&O and not WM that do not require training (e.g., used oil going off-site for recycling).

This subject area does not contain reporting obligations.

External/Internal Requirements

Requirement Number	Requirement Title
10 CFR 830, Subpart A	Energy, Nuclear Safety Management, Quality Assurance Requirements
40 CFR 260	Hazardous Waste Management System: General
40 CFR 279	Standards for the Management of Used Oil
6 NYCRR 374-2	Standards for the Management of Used Oil, New York State Department of Environmental Conservation
BSA Contract No. DE-SC0012704 - Clause C.4	Statement Of Work
BSA Contract No. DE-SC0012704 - Clause H.24	Allocation Of Responsibilities For Contractor Environmental Compliance Activities
BSA Contract No. DE-SC0012704 - Clause I.55	Waste Reduction Program (may 2011)
BSA Contract No. DE-SC0012704 - Clause I.62	Compliance With Environmental Management Systems (may 2011)
ECL - Article 27 - Title 21 - Section 2	NYS Environmental Conservation Law, Mercury-Added Consumer Products
	Strengthening Federal Environmental, Energy, and Transportation

EO 13423	Management
O 151.1C	Comprehensive Emergency Management System
O 231.1B Admin Change 1 (Nov 28 2012)	Environment, Safety and Health Reporting
O 414.1D Admin Chg 1 (May 8, 2013)	Quality Assurance
P 450.4A (Apr 25, 2011)	Integrated Safety Management Policy
Suffolk County Sanitary Code - Article 12	Toxic and Hazardous Materials Storage and Handling Controls

References

6 NYCRR Part 374-2 and 225-2, Used Oil Specifications

40 CFR 262.11, Hazardous Waste Determination (EPA 1987)

BNL Recycling Guidelines Flyer, Site Resources Division Web site

Chemical Management System Web site

Chemical Safety Subject Area

Hazardous Waste Management Subject Area

How Do I Manage this Waste Stream? Web site

Lead Subject Area

Liquid Effluents Subject Area

Management of Moratorium and Suspension Encumbered Metals Subject Area

Mixed Waste Management Subject Area

Movement by Vehicle of Hazardous and Radiological Materials On-Site Subject Area

NYSDEC - Petroleum Bulk Storage, SCDHS Article 12

PCB Management Subject Area

Pollution Prevention and Waste Minimization Subject Area

Pollution Prevention Web site

Radioactive Waste Management Subject Area

Regulated Medical Waste Management Subject Area

Scrap Yard Process Knowledge Certification Form (PKCF), Procurement and Property Management Web site

Spill Response Subject Area

Storage and Transfer of Hazardous and Nonhazardous Materials Subject Area

Training and Qualifications Web Site

Transportation of Hazardous and Radiological Materials Off-site Subject Area

Work Planning and Control for Experiments and Operations Work Planning Subject Area

Standards of Performance

All staff and guests shall comply with applicable Laboratory policies, standards, and procedures, unless a formal variance is obtained.

All staff and guests shall promptly report accidents, injuries, ES&H deficiencies, emergencies, and off-normal events in accordance with procedures.

Managers shall analyze work for hazards, authorize work to proceed, and ensure that work is performed within established controls.

Managers shall ensure that work is planned to prevent pollution, minimize waste, and conserve resources, and that work is conducted in a cost-effective manner that eliminates or minimizes environmental impact.

Before waste is generated, managers shall ensure that it has a funded and available disposition pathway. Managers shall ensure that all hazardous materials and waste have an identified owner who is accountable for its proper disposition.

All staff and users shall identify, evaluate, and control hazards in order to ensure that work is conducted safely and in a manner that protects the environment and the public.

All staff and users shall ensure that they are trained and qualified to carry out their assigned responsibilities, and shall inform their supervisor if they are assigned to perform work for which they are not properly trained or qualified.

All staff and users shall ensure that environmental effluents, emissions, and wastes associated with their work are as low as reasonably achievable (also referred to as "E-ALARA").

https://sbms.bnl.gov/sbmsearch/subjarea/24/24_SA.cfm

PROCEDURE: GENERATING AND CHARACTERIZING INDUSTRIAL WASTE

Management System: Environmental Management System

Subject Area: Industrial Waste

1. Generating and Characterizing Industrial Waste

Effective Date: **Nov 6, 2013**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien

Applicability

This subject area applies to BNL staff and non-BNL staff working at facilities owned, leased, or operated by BNL, who generate and characterize industrial waste. It also applies to BNL staff conducting work off-site, when the waste generated by the off-site work will be managed at BNL. This procedure applies to all industrial wastes. It does not apply to Radioactive Waste, Hazardous Waste, Mixed Waste, Regulated Medical Wastes, or Municipal Solid Wastes (regular trash).

Required Procedure

Step 1	Before waste is generated, the responsible individual (waste generator) reviews pollution prevention and waste minimization techniques to minimize waste generation, and ensure proper management of waste that cannot be avoided. • During project-planning phases, identify any project wastes, emissions or effluents, and obtain any required permits. See the Work Planning and Control for Experiments and Operations Subject Area. • Apply technically feasible and economically practical pollution prevention or waste minimization techniques. See the Pollution Prevention and Waste Minimization Subject Area. • Ensure that a disposal pathway exists for all project-related waste streams. Contact your Environmental Compliance Representative (ECR) or a Waste Management Representative (WMR) for assistance.
Step 2	Wastes that will be generated must be characterized to ensure they are properly managed and disposed. The waste generator must determine if the waste to be generated is industrial waste. • Generally, if the waste is listed in the exhibit List of Industrial and Other Special Wastes, and has not been contaminated by other hazardous materials, then it is industrial waste and must be managed in accordance with this subject area. If the waste is **not** on this list, then contact your Waste Management Representative (WMR) or an Environmental Compliance Representative (ECR). • All wastes must be properly characterized and the characterization must be documented

	via analytical chemical testing and/or process knowledge. Acceptable forms of documentation include work planning documents, experimental safety reviews, Process Assessment Forms (PAFs), or a Nonradioactive Waste Control Form in the Hazardous Waste Management Subject Area. (**Note:** Only select industrial wastes require this form. See the section Submitting Industrial Waste for Disposal for details). **Note:** A Waste Management Representative (WMR) or an Environmental Compliance Representative (ECR) can assist in the characterization and management of industrial wastes. Refer to the List of Industrial and Other Special Wastes for additional guidance.

Guidelines

If sufficient documentation is unavailable, then generators should manage the waste conservatively and in accordance with the Hazardous Waste Management Subject Area's requirements, and allow the Environmental Protection Division representative to make the ultimate determination of whether or not the waste is Industrial or Hazardous. This determination will be based on the information provided by the generator including analytical data process information, process knowledge, or any combination.

Refer to the How Do I Manage this Waste Stream? Web site for additional guidance on managing a variety of waste streams.

Refer to the Hazardous Waste Generator Characterization Guidance exhibit in the Hazardous Waste Management Subject Area to aid in determining whether waste should be managed as hazardous waste.

References

Hazardous Waste Management Subject Area

How Do I Manage this Waste Stream? Web site

Pollution Prevention and Waste Minimization Subject Area

Work Planning and Control for Experiments and Operations Work Planning Subject Area

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PROCEDURE: ACCUMULATING INDUSTRIAL WASTE

Management System: Environmental Management System

Subject Area: Industrial Waste

2. Accumulating Industrial Waste

Effective Date: **Nov 6, 2013**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien

Applicability

This information applies to BNL staff and non-BNL staff working at facilities owned, leased, or operated by BNL, who accumulate Industrial Waste. It also applies to BNL staff conducting work off-site, when the waste generated by the off-site work will be managed at BNL. This section applies to industrial waste. It does not apply to Radioactive Waste, Hazardous Waste, Mixed Waste, Regulated Medical Wastes, or Municipal Solid Waste (regular garbage).

Required Procedure

Step 1

Before generating Industrial Waste, the waste generator must ensure that proper packaging is utilized. Assistance can be provided by an Environmental Protection Division (EPD) representative (e.g., Waste Management Representative [WMR]/Environmental Compliance Representative [ECR] or SME) to determine the appropriate packaging for the waste.

Select appropriate containers that are in good condition (structurally sound), and made of materials that are compatible with the waste. (Refer to the Chemical Safety Subject Area for additional information).

All staff who handle chemicals or have responsibility for managing waste must be familiar with appropriate handling and emergency procedures. Before handling chemicals or managing waste that will be routed to Waste Management (see the section Submitting Industrial Waste for Disposal for details), complete any required training. See the Training and Qualifications Web Site (**Note:** All Industrial and Hazardous Wastes transferred to Waste Management requires the waste generator to complete HPRCRIGEN-3).

- **Do not** use containers that are dented, severely rusted, are leaking, have apparent structural defects and/or deteriorated, or otherwise damaged. Avoid using embrittled or deteriorated plastic carboys or any other container that appears to be structurally damaged/compromised and could cause a release/leak from the container.
- **Do not** use containers that previously contained materials that are incompatible with the waste being added (e.g., refer to the Incompatibility Exhibits and/or refer to the Chemical Safety Subject Area). Use containers that have previously contained the same type of waste (e.g. non-halogenated oils separate from halogenated/refrigeration oils, adsorbents soaked with fuel oil separate from adsorbents mixed with gasoline),
- **DO NOT reuse/refill gas cylinders unless you have the following documentation:**
  - **A Work Planning Document/equivalent; and,**
  - **If the gas is one of the Freon types, you must have a required EPA Certification.**

	• **Do not** fill containers of wastes to levels that will cause personnel injury and/or damage to the container due to **volumetric** changes caused by heat/cold extremes. • Use DOT-approved or equivalent containers that will not cause leaks/releases (e.g., 55-gallon DOT-approved drums or containers available from the Procurement and Property Management Division. See the Guidelines section below for additional information.
Step 2	Segregate waste streams and **NEVER** mix incompatible chemicals/materials inside the same container as this may: cause personal injuries, make recycling impossible, cause a chemical reaction that generates heat/toxic fumes, and/or result in a mixture that needs to be managed as a hazardous waste.
Step 3	In coordination with your WMR or ECR, label the Industrial Waste container with the GREEN Nonhazardous Waste Label, and additionally, if the waste is any type of oil, add the following description to the label, "USED OIL". Otherwise, clearly identify the contents (e.g., scrap metal, solder). Labels must be legible and visible for inspection. • Labels are stock items that can be obtained from the Procurement and Property Management Division. • In the event that the primary container is leaking, a secondary overpack drum must be utilized and generators must ensure that the GREEN label is placed on the outermost container. (**Note:** Salvage/Overpack drums must NOT be used as a primary container.) Alternatively, transfer the contents of a leaking container into another DOT-approved container using appropriate Work Planning Documents.
Step 4	Provide secondary containment for **Industrial Waste container(s) under the following circumstances:** • If there is a potential for a spill or leak of an Industrial Waste liquid to reach any of the following - storm drain, the environment, a sanitary drain, the Sewer Treatment Plant (for liquids not on the pre-approved posting) or could reach an area that will impair the safety of personnel; or • If >250 gallons of liquid Industrial Wastes, or over 2,000 lbs. of solid Industrial Wastes are being stored. See the Storage and Transfer of Hazardous and Nonhazardous Materials Subject Area for additional requirements. Maintain secondary containment free from accumulated liquids (e.g., spills, rainwater). Maintain separate areas for the storage of incompatible waste streams/chemicals (e.g., storage cabinets, berms, etc.).
Step 5	Store the waste in an appropriate accumulation area in a way that prevents any release(s) to the environment. See the Guidelines section below. • Keep the container closed at all times, except when waste is being added to or removed from the container; • Provide adequate control of containers to ensure that unauthorized persons do not add incompatible waste types into the container; • Do not open, handle, or store containers in a manner that may rupture the container, or cause it to leak; • Protect wastes from weather extremes (cold and hot temperatures); • In the event of a spill, breakage, or leakage, follow the requirements in the Spill Response Subject Area.

	Note: Generators should identify routine accumulation areas and notify the Hazardous Waste Program Manager of their locations to facilitate pickups by Waste Management (WM).
Step 6	Maintain analytical records or documented process knowledge regarding the constituents of waste being generated and accumulated. Failure to do this can result in expensive analytical costs. Keep all records in accordance with the Records Management Subject Area.
Step 7	Maintain ownership and responsibility for the waste until it is transferred to WM and/or a third party EPD-approved vendor. • The responsible department for the waste at all times is the generating department including legacy wastes. • If the waste generator or the waste-generating process moves to a different location, the generator must ensure that the waste is also moved to the new location, or dispositioned to WM/EPD in accordance with this subject area. • If a waste-generating project is interrupted for an extended period (e.g., six months), or discontinued (e.g., the experiment ends), the waste must be dispositioned to WM/EPD for proper off-site disposal.
Step 8	When the waste is ready for pick-up by WM, secure the container lid tightly and ensure that no further waste is added to the container. **Note:** The labeling of accumulation start dates on non-hazardous waste containers is optional.

Guidelines

1. For Industrial Wastes going to WM, 90-day accumulation areas or satellite accumulation areas for hazardous waste management may be used to temporarily accumulate industrial or other special Wastes (until pickup). See the Hazardous Waste Management Subject Area. However, this is **not** a requirement and there are no required accumulation time limits for Industrial Wastes. Separating hazardous waste from industrial or other special wastes by a rope, or cordoning the area off, is recommended to avoid confusion when evaluating regulatory compliance, as the hazardous waste requirements are stricter than the Industrial Waste requirements. In any case, generators must list the location of the Industrial Waste on the Nonradioactive Waste Control Forms.
2. The accumulation area should be dry or containers should somehow be protected from moisture. Indoor storage is preferred to protect containers from the elements. If waste must be stored outdoors, contact the Environmental Protection Division for approvals, as secondary containment may be required for certain materials. Minimally, place containers on an impervious surface (e.g., asphalt), not directly on the grass or soil. Containers should be protected from the elements appropriate means (e.g., with a tarp cover) to prevent container damage/rusting and water infiltration. Containers with liquids should be elevated from ground level (e.g., placed on pallets) and steps must be taken as required to prevent container damage and spills during weather extremes (cold/heat).
3. For waste containers that are being added to during equipment operation (e.g., lab equipment with discharge lines), tubes should run through a stopper with a hole in it, or a self-closing funnel with a lid should be used to prevent spillage and evaporation or equivalent means should be used to prevent spills/releases/leaks.
4. Aqueous waste approved for discharged to the sanitary sewer system (in accordance with the Liquid Effluents Subject Area) should not be stored in unlined steel drums, as this may result in metals-contamination of the waste and could cause the material to be non-dischargeable.

5. Additional Guidelines for containers:
    - For single wastes streams with volumes less than five gallons, it is acceptable to use the original container the raw material was shipped in, as long the container is in good condition and/or has the proper U.S. Department of Transportation approvals for reuse (see the Transportation of Hazardous and Radiological Materials Off-site Subject Area if the material is hazardous).
    - For single waste streams with volumes greater than five gallons, accumulation must be in DOT-approved shipping containers
    - **Do not** use glass containers larger than four liters for chemical accumulation.
6. Ensure that the container is protected and that unauthorized (incompatible wastes) additions cannot be made. Identify one entity to be in charge of the container. That person must secure the container under his/her control. If more than one person is contributing waste to a specific waste container, then the person responsible for the waste must maintain an inventory record that tracks additions to the container. The inventory record should list the type of material added, volume added, date added, and name of generator.

Refer to the How Do I Manage this Waste Stream? Web site for additional guidance on managing a variety of waste streams.

References

Chemical Safety Subject Area

Hazardous Waste Management Subject Area

How Do I Manage this Waste Stream? Web site

Liquid Effluents Subject Area

Spill Response Subject Area

Storage and Transfer of Hazardous and Nonhazardous Materials Subject Area

Training and Qualifications Web Site

Transportation of Hazardous and Radiological Materials Off-site Subject Area

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PROCEDURE: SUBMITTING INDUSTRIAL WASTE TO WASTE MANAGEMENT FOR DISPOSAL

Management System: Environmental Management System		
Subject Area: Industrial Waste		
3. Submitting Industrial Waste to Waste Management for Disposal		
Effective Date: **Nov 6, 2013**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien

Applicability

This information applies to BNL staff and non-BNL staff working at facilities owned, leased, or operated by BNL, who submit industrial or special wastes for disposal. It also applies to BNL staff conducting work off-site, when the waste generated by the off-site work will be managed at BNL. Furthermore, this section only applies to industrial waste being transferred to Waste Management. It does NOT apply to Used Oils being sent off-site for energy recovery, recyclables, Radioactive Waste, Hazardous Waste, Mixed Waste, Regulated Medical Wastes, or Municipal Solid Waste.

Required Procedure

This section applies to industrial waste being routed to Waste Management. It does NOTnot apply to Used Oils being sent off-site for energy recovery, recyclables, Radioactive Waste, Hhazardous Waste, Mixed Waste, Regulated Medical Wastes, or Municipal Solid Waste (regular trash such as food, food-stained paper/cardboard, other office debris).

Industrial and special waste being submitted for disposal must be accompanied by a completed Nonradioactive Waste Control Form. It must also be accompanied by a Process Knowledge Certification Form, if it was stored in a Radiological Area listed in the form. Refer to the Hazardous Waste Management Subject Area. (**Note:** All Industrial and Hazardous Wastes transferred to Waste Management requires the waste generator to complete HPRCRIGEN-3.)

3.1 For Industrial or Special Waste
3.2 For Moratorium Metals or Suspension Encumbered Metals

3.1 For Industrial or Special Waste

The waste generator follows this procedure to submit Industrial or Special Waste for disposal (it does NOT include Moratorium or Suspension Encumbered Metals disposal).

Step 1	Complete a Nonradioactive Waste Control Form. See the Hazardous Waste Management Subject Area. Follow the instructions on the form and provide all required information, ensure the information is accurate and complete, and then date and sign the certification statement.
Step 2	If the waste has **not** been in a Radiological Area listed in the Process Knowledge Certification Form, then proceed to step 5. If the waste has been in a Radiological Area, then proceed to step

	3.
Step 3	If the waste has been in a Radiological Area listed in the Process Knowledge Certification Form, initial the space provided on the lower section of the Nonradioactive Waste Control Form located beneath the "precautions" section. Transfer the Nonradioactive Waste Control Form number onto the upper right-hand corner of the Hazardous Waste Process Knowledge Certification Form (PKCF) in the Hazardous Waste Management Subject Area. Answer each question on the above form.
Step 4	Submit the Nonradioactive Waste Control Form (and the Process Knowledge Certification Form, if required) to the Waste Management Representative (if applicable) or the Hazardous Waste Program Manager.
Step 5	Notify and obtain approval from the designated waste accumulation area manager before placing waste into the area. Move the waste to the designated area. **Note:** If you do not have access to a designated storage area, or it is not practical to move the waste, then notify Waste Management (WM) of the location of the waste and make arrangements for special pick-up.

3.2 For Moratorium Metals or Suspension Encumbered Metal

Step 1	Follow the Management of Moratorium and Suspension Encumbered Metals Subject Area.
Step 2	For Moratorium Metal Wastes that meet Authorized Limit Release values and/or for Encumbered Metals that meet pre-approved authorized release levels as defined by DOE Order 458.1, complete a Process Knowledge Form for Clean and Suspension Encumbered Metals in the Management of Moratorium and Suspension Encumbered Metals Subject Area and follow the instructions–contact the Radiological Control Division (RCD), provide all required information, ensure the information is accurate and complete the form and then date-sign.
Step 3	Contact WM's Hazardous Waste Program Manager and arrange for transfer of the above material to the designated area at WM.
Step 4	WM will verify the information on the above form and direct the loading into a waste container. Then, WM will arrange for off-site shipment to a disposal facility (non-recycling facility).

Guidelines

Generators should retain a copy of the Nonradioactive Waste Control Form, the Hazardous Waste Process Knowledge Certification Form, and the Process Knowledge Form for Clean and Suspension Encumbered Metals for their records.

References

Hazardous Waste Management Subject Area

Management of Moratorium and Suspension Encumbered Metals Subject Area

PROCEDURE: USED OIL FOR ON-SITE ENERGY RECOVERY

Management System: Environmental Management System		
Subject Area: Industrial Waste		
4. Used Oil for On-site Energy Recovery		
Effective Date: **Nov 6, 2013**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien

Applicability

This information applies to BNL staff and non-BNL staff in Departments/Divisions that accumulate Used Oil in quantities that economically justify burning at the Central Steam Plant for energy recovery.

Required Procedure

Used Oil intended for burning for energy recovery at the Central Steam Facility must be analyzed, or there must be sufficient process knowledge to ensure it meets New York State regulations 6 NYCRR Part 374-2 and 225-2, Used Oil Specifications and the Laboratory's Title V Air Permit. See the exhibit Waste Oil Analysis Requirements.

The responsible individual (waste generator) is responsible for ensuring that Used Oil to be burned for energy recovery meets the BNL Central Steam Plant's Used Oil acceptance criteria.

For off-site energy recovery, see the section Industrial Waste for Off-Site Energy Recovery.

Step 1	Do not mix hazardous wastes with Used Oil, and do not handle mixtures of hazardous waste and Used Oil as Used Oil.
Step 2	The responsible individual must ensure the Used Oil meets the Central Steam Facility's waste acceptance criteria. The Central Steam Facility requires analysis of waste oils each time they are submitted for energy recovery. Generators must arrange for a representative sample of the Used Oil to be analyzed for the constituents listed in the exhibit Waste Oil Analysis Requirements, using the designated test methods. **Note:** The laboratory conducting the analysis must be accredited by the NYS Health Department's Environmental Laboratory Accreditation Program.
Step 3	The generator must submit the analytical results to the Environmental Compliance Representative (ECR) or a designated alternative for review and approval.
Step 4	If the analytical results for Used Oil that is planned to be burned at the Central Steam Facility show that the Used Oil meets the definition of "on-specification" Used Oil, the ECR prepares written notification to the Used Oil generator, the Steam Plant Supervisor, and appropriate Environmental Protection Division (EPD) personnel, petitioning the Used Oil as "on-specification" Used Oil suitable for burning at the Central Steam Facility for energy recovery."

	If Used Oil does not meet the definition of "on-specification" Used Oil, the ECR will assist the generator with proper classification and will instruct the generator to route the Used Oil through EPD for proper disposal. Under special circumstances, on-specification Used Oil may be disposed of through an off-site, Used Oil burner. However, the ECR/designated Waste Management Representative must approve of the transfer.
Step 5	For “on-specification” Used Oil that has been approved by the Central Steam Plant Facility and EPD, the generator arranges for transfer to the the Central Steam Facility.
Step 6	Keep Used Oil within containers that are in good condition (no severe rusting, apparent structural defects, or deterioration) and/or inside tanks registered by appropriate regulatory entities (e.g., NYSDEC - Petroleum Bulk Storage, SCDHS Article 12) that will prevent any spills/releases. Additionally, the containers and/or tanks must comply with all elements of the site's Spill Prevention Control and Countermeasure (SPCC) Plan and "USED OIL" markings must also be affixed to all containers and/or tanks, including tank fill lines.

Guidelines

To be cost-effective in terms of analytical costs, rigging costs, and other miscellaneous costs vs. handling as an industrial waste through the Environmental Protection Division (EPD), the quantity of Used Oil should exceed a set amount. If less than the set amount of Used Oil requires handling, generators may handle Used Oil through the EPD, or through a BNL-approved, off-site Used-Oil recycler (see ECR/SME for additional information). (**Note:** Transferring Used Oil to EPD has benefits in terms of reduced potential for spills, allowing for economies of scale [bulk shipments are cheaper vs. individual container shipments]. Contact the Hazardous Waste Program Manager for more information.)

Generators should maintain a copy of any analytical results of oils tested for their records as per the Records Management Subject Area.

References

6 NYCRR Part 374-2 and 225-2, Used Oil Specifications

NYSDEC - Petroleum Bulk Storage, SCDHS Article 12

40 CFR 279 - Standards for the Management of Used Oil

Records Management Subject Area

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PROCEDURE: MANAGING RECYCLABLES

Management System: Environmental Management System		
Subject Area: Industrial Waste		
5. Managing Recyclables		
Effective Date: **Nov 6, 2013**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien

Applicability

This information applies to BNL staff and non-BNL staff who prepare and submit industrial or special waste for recycling.

Required Procedure

Industrial or special waste to be recycled consisting of beverage cans (aluminum cans), #1/#2 plastic bottles, glass, tin cans; cardboard (corrugated and non-corrugated), mixed paper; "EMPTY" (no residual pressure/no residual liquids) aerosol cans, excess equipment that has been properly excessed as per PPM requirements, metal chips and turnings from machine shop-related operations, , used Tyvek® personal protective equipment (PPE), Styrofoam™ peanuts and packing materials, lead solder/bricks, printer and toner cartridges, and and scrap metal (includes oil filters). Recycling conserves valuable natural resources, reduces pollution, reduces waste disposal costs, and conserves limited solid waste landfill capacity.

Recyclables are segregated and collected in designated containers/areas.

Managing Recyclables contains ten subsections:

The waste generator follows this procedure to submit industrial or special waste for recycling when the waste container is full, or the generating process ends (e.g., the project is terminated).

5.1 Aerosol Cans ("Empty"/Atmospheric Pressure/No Residual Liquids)

Step 1	Ensure the aerosol can is "EMPTY" (must be punctured using P2-approved can puncture and be at atmospheric pressure) and has **no** residual gas and **no** residual liquids.

	• Acutely hazardous wastes (e.g., cyanides, endrin); • Pesticide/herbicide/insecticides; • Foam-containing material (e.g., insulation); • Oven cleaner (corrosive); • Any other item that is incompatible with the contents of the waste container. The above cans that cannot be punctured must be disposed of according to the Hazardous Waste Management Subject Area through the Environmental Protection Division (EPD). Only trained individuals may use the P2-approved aerosol can puncturers, and logbooks must be kept for documenting the # of cans punctured for the purpose of determining when the gas filters must be changed.
Step 2	Place punctured cans in a designated scrap metal container or dumpster (see the Recycling Coordinator).
Step 3	If punctured cans are placed into a bag then label the bag "Empty Aerosol Cans".
Step 4	Transfer the bag/container into a scrap metal dumpster.

5.2 Alkaline and Lead-Acid Vehicle Batteries for Reclamation or Recycling

For batteries meeting the definition of "universal wastes" (e.g., lithium, NiCd, mercury, nickel metal halide) see the section on Batteries on the How Do I Manage this Waste Stream? Web site. This procedure applies exclusively to batteries not containing hazardous constituents (e.g., alkaline/flashlight batteries), and includes recyclable automotive-type lead-acid batteries.

Also, lead-acid batteries NOT being recycled/regenerated off-site or reclaimed off-site must be managed in accordance with the Hazardous Waste Management Subject Area. Generators should take advantage of the existing recycling program for leasd-acid vehicle batteries through the F&O Motor Pool (Staff Services).

Step 1	The responsible individual must • Ensure that batteries are separated by type (alkaline vs. all others); • Place a nonconductive material over the battery electrodes to prevent shorts (Does NOT apply to small alkaline batteries less than 9 volts); • Safely store rechargeable batteries that are not fully discharged to prevent contact with other electrodes, or a metal object, such as the inside of a metal drum.
Step 2	Arrange for pickup and recycling. • Comply with the Movement by Vehicle of Hazardous and Radiological Materials On-Site Subject Area; • For alkaline batteries - complete a Shipping Memo Form available in PeopleSoft and include an MSDS. Do NOT fill battery boxes beyond their weight limit (see ECR/WMR) for more information. • For vehicle batteries (lead acid), generators must call the F&O Motor Pool (Building 423) to make arrangements for accepting the transfer. (**Note:** The Motor Pool does NOT accept sealed gel cell batteries). ◦ Do not drain the liquid contents of any lead-acid batteries unless a Work Permit has been completed and reviewed.

	◦ Before transferring liquid lead-acid batteries to the Motor Pool, keep them upright and, in appropriate secondary containment (e.g., containment trays or five-gallon plastic bucket).

5.3 Beverage Bottles/Cans/Containers

Step 1	Rinse out aluminum cans, #1/#2 plastic bottles and non-sharp glassand place into dedicated recycling containers that are designated for combined storage. Contact the F&O Custodial Supervisor if extra recycling container are needed (usually one in every lunch/break area).
Step 2	To protect custodial and waste-handling staff from injury, broken glass or glass with sharp shards cannot be placed into the beverage recycling container. Follow the section Non-Medical Sharp Object Wastes in this subject area.

5.4 Cardboard (corrugated/ribbed and low-grade cardboard)

Step 1	Flatten cardboard boxes as much as practical to minimize volumes.
Step 2	If generators have large quantities of corrugated cardboard, then they should be placed directly into the cardboard dumpster labeled "Cardboard Only" usually lcoated at the Loading Docks or rear of individual buildings.For small quantities of cardboard, place flattened cardboard next to your blue recycling container for pick-up or contact the local Custodian. In any case, do not leave cardboard items where they could be tripping or fire hazards.

5.5 Excess Equipment

Step 1	Contact the Distribution Group Supervisor in Procurement and Property Management (PPM) to recycle/excess/dispose of excess equipment. Generators must meet the requirements listed in the Procurement & Property Management Group S.O.P. Manual. Any metallic excess equipment requires a Process Knowledge Certification Form (PKCF) for Clean and Suspension Encumbered Metals, available in the Management of Moratorium and Suspension Encumbered Metals Subject Area, in order for PPM to transfer the equipment to their storage area.
Step 2	Contact the Distribution Group Supervisor in PPM for pickup for recycling.

5.6 Lead Solder Waste Being Collected for Recycling

Step 1	See the exhibit Disposal of Lead Solder Waste in the Lead Subject Area. **Note:** Lead solder waste not being recycled is a hazardous waste, and must be managed in accordance with the Hazardous Waste Management Subject Area.

5.7 Mixed Paper (magazines, newspaper, office paper, phonebooks, junk mail, color inserts, textbooks, catalogs, manila/file folders, post-its,

blueprints, greeting cards, non-metallic photographic paper)

Note: For the disposal of old records and associated carbonless and carbon paper manufactured prior to1979, refer to the PCB Management Subject Area.

Step 1	Remove mixed paper from binders, plastic spirals, plastic covers, and any other covering (book binders do NOT have to be removed).
Step 2	Place mixed papers materials into dedicated recycling containers. If larger container is needed for special clean-out, contact the F&O Custodial Supervisor. Reuse or dispose of the coverings. **Note:** Do not recycle food-stained paper–normal trash.
Step 3	F&O Custodial staff empty the paper recycling containers in general office areas.

5.8 Printer and Toner Cartridges

Step 1	Place the used cartridge in the packaging that the replacement (new/rebuilt) cartridge came in, seal it, and write “RECYCLE” in large print on the outer package.
Step 2	Leave the item in the PPM Warehouse Delivery and Pickup Point in your building or contact PPM to request a pickup.

5.9 Scrap Metal

This section applies to Clean Scrap Metal as per the Management of Moratorium and Suspension Encumbered Metals Subject Area.

Note: Beryllium chips and turnings must be managed in accordance with the Hazardous Waste Management Subject Area.

Step 1	If there is a significant amount of a specialty metal (e.g., brass, copper, stainless steel, lead), then segregate the metal by type in order to facilitate recycling. Segregation yields a greater return from the metals recycling vendor.
Step 2	Utilizing a Work permit or other planning document, remove any free liquids (e.g., oil, cutting fluid) and/or remove any solid hazardous contamination from the scrap metal, if any. Collect the wastes liquid/solid, characterize it, and manage as Industrial Waste or Hazardous Wastes.
Step 3	Complete the Process Knowledge Certification Form (PKCF) for Clean and Suspension Encumbered Metals in the Management of Moratorium and Suspension Encumbered Metals Subject Area. The above PKCF must be submitted to and approved by Procurement and Property Management before acceptance of the scrap. **Note:** PPM will only accept Clean Scrap Metal.
Step 4	Collect the scrap metal in an appropriate container and prevent precipitation from entering the container. Also, accumulation containers must not leak liquids.

	• **For Empty Drums:** Ensure that the top of closed headed drums are removed and that any oil residue that may cause an oil release/spill has been removed from the drum. Label empty drums with the word "EMPTY." (**Note:** Do not use the white EMPTY labels typically used for empty radioactive containers). Store empty drums with the bungs or covers tightly closed to prevent water infiltration. If empty drums are being returned to the manufacturer (e.g., for a refund or for reuse), the container is DOT-certified for reuse, and PPM has approved the arrangement, then transfer them as per PPM's requirements. • **For Lead that is not radiologically contaminated, after completing the above form in step #3:** ◦ Use the proper Personal Protective Equipment (PPE) for handling lead and use proper Work Planning; ◦ Accumulate lead indoors and make arrangements for transfer to the PPM Storage Building/Area so as to prevent the lead from entering the environment. If large lead items cannot be accumulated inside, then contact PPM and make arrangements for pick-up or take preventative measures to prevent lead contamination from entering the environment; ◦ Do not accumulate lead near floor drains; ◦ Consider painting, or otherwise covering brick/sheet surfaces to prevent oxidation. ◦ Contact the Distribution Group Supervisor in PPM to arrange for pickup and/or off-site recycling.

5.10 Used Oil Filters

Generators may collect Used Oil filters as Industrial Waste and be disposed of through the Waste Management Division, or the drained filters may be recycled as scrap metal. If the filters are handled as scrap metal, then follow the following steps:

Step 1	Hot-drain the filter (remove the filter from the engine while warm) and immediately drain free flowing oil into the "Used Oil" container, drum, or tank.
Step 2	Puncture the filter dome, then place the filter on a rack/draining device to drain into a Used Oil container/drum or a Used Oil tank for a sufficient time so that free-flowing residual oil is not present. The filter may also be crushed or dismantled in addition to being hot drained.
Step 3	Collect oil filters in a metal drum labeled with an Industrial Waste label and marked with the words "Used Oil". Complete a Process Knowledge Certification Form (PKCF) for Clean and Suspension Encumbered Metals in the Management of Moratorium and Suspension Encumbered Metals Subject Area and contact the Distribution Group Supervisor in PPM to arrange for pickup and off-site recycling/disposal.

Guidelines

Batteries

Used Tyvek® suits may be recycled – contact the Lab's Pollution Prevention Coordinator for details.

References

Hazardous Waste Management Subject Area

How Do I Manage this Waste Stream? Web site

Lead Subject Area

Management of Moratorium and Suspension Encumbered Metals Subject Area

Movement by Vehicle of Hazardous and Radiological Materials On-Site Subject Area

PCB Management Subject Area

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Questions/Comments Disclaimer

https://sbms.bnl.gov/sbmsearch/subjarea/24/24_pro5.cfm

PROCEDURE: INDUSTRIAL WASTE FOR OFF-SITE ENERGY RECOVERY

Management System: Environmental Management System

Subject Area: Industrial Waste

6. Industrial Waste for Off-site Energy Recovery

Effective Date: **Nov 6, 2013**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien

Applicability

This information applies to BNL staff and non-BNL staff who prepare and ship Industrial Waste for off-site energy recovery.

Required Procedure

Used Oil Industrial Waste that has adequate BTU (heat content) value for energy recovery may be shipped to a NYSDEC-permitted, off-site, Waste-To-Energy (WTE) Facility. Examples of the waste types that may fit into this category include non-halogenated oils, oily rags and rags contaminated with spent cutting fluid, oil spill debris (e.g., speedi-dri, pads, pigs), oily debris (e.g., personnel protective equipment soaked with oil) and/or other debris saturated with fuels/other flammables. Any wastes contaminated with or containing hazardous constituents, such as hazardous solvents, lead or mercury cannot be burned for energy recovery, and must be managed in accordance with the Hazardous Waste Management Subject Area. Hazardous wastes must NEVER be mixed with Used Oil or oil-contaminated debris.

Waste-To-Energy (W-T-E) facilities may accept BNL non-hazardous Used Oil for energy recovery if it meets their permitted acceptance criteria. Additionally, approval from the applicable state regulatory agency may be required in some cases. The shipment of Used Oils **not** routed through Waste Management requires the approval from the Industrial Waste Program Manager.

Step 1	Industrial waste generators must conduct a proper waste characterization and must ensure that no hazardous wastes are mixed with their non-hazardous waste(s). As part of the waste characterization process, all actual and potential components of the non-hazardous waste stream (i.e., oils, lubricants, clean-up materials) must be submitted to the Environmental Compliance Representative (ECR)/Waste Management Representative (WMR).
Step 2	An Environmental Compliance Rep.(ECR)/Waste Management Representative (WMR) must review waste characterization data to ensure proper handling and proper disposal pathways.
Step 3	Through the ECR/WMR and the W-T-E Facility, Used Oil generators must receive Used Oil approval for all off-site transfers prior to any off-site shipment. In general, W-T-E vendor approvals last for several years unless the waste stream changes appreciably. However, generators must ensure that all non-hazardous wastes meet acceptance criteria prescribed by the receiving facility.

Step 4	The waste generator must place approved non-hazardous waste(s) in an appropriate container(s) that is not leaking and is compatible with the material being handled.. This is necessary in order to prevent any spills/releases into the environment. In some cases, drum liners (compatible with the wastes) or lined metal drums may be necessary. Contact the WMR or ECR for guidance before placing bulk wastes into a waste container.
Step 5	Clearly label the contents of wastes on the shipping container–list chemical names and do NOT use tradenames. • Labels for off-site transfers must comply with applicable Department of Transportation and NYS Department of Environmental Conservation regulations, if applicable. • Labels must also conform with any third party vendor's approval process that may include the following: approval number/designation, generator's name, generator's address, type of waste, and any other vendor required information. **Note:** Waste that is not properly labeled or does not match the vendor's requirements may not be shipped.
Step 6	All waste **containers** must meet applicable U.S. Department of Transportation requirements and must, minimally and if in non-bulk containers, be secured against movement.
Step 7	Ensure the following when shipping Used Oil off-site: • A nonhazardous manifest or bill of lading must accompany each shipment. (**Note:** Some states, such as Connecticut, require a nonhazardous state manifest for nonhazardous shipments and only properly trained personnel may sign the shipping document.) • An inventory that lists the source of the Used Oil and the type of Used Oil must be attached to the manifest or bill of lading. • A properly permitted (e.g., 6NYCRR Part 364 and any other state and/or local permits) nonhazardous waste hauler must transport the waste from BNL to the off-site facility. • Each special waste delivery must be scheduled appropriately with the third-party receiving Waste-To-Energy facility and must meet the acceptance criteria of the vendor.

Guidelines

Refer to the How Do I Manage this Waste Stream? Web site for additional guidance on managing a variety of waste streams.

References

Hazardous Waste Management Subject Area

How Do I Manage this Waste Stream? Web site

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Questions/Comments Disclaimer

PROCEDURE: NON-MEDICAL SHARP OBJECT WASTES

Management System: Environmental Management System		
Subject Area: Industrial Waste		
7. Non-Medical Sharp Object Wastes		
Effective Date: **Nov 6, 2013**	Subject Matter Expert: Steve Ferrone	Management System Executive: Jason Remien

Applicability

This information applies to all BNL staff who generate and dispose of non-medical sharp objects (e.g., glass/broken glass/glass with sharp edges*; Exacto blades; razor blades; equipment probes/prongs; automotive brake tools with sharp points; empty epoxy applicators with sharp points; and other objects not resembling medical/medically-associated devices). This procedure applies to all non-hazardous, sharp object wastes. See the exhibit Disposal of Sharps. This does not apply to Radioactive Waste/Hazardous Waste/Mixed Waste/Regulated Medical Wastes. See the applicable Radioactive Waste Management, Hazardous Waste Management, Mixed Waste Management, and Regulated Medical Waste Management Subject Areas for details.

*If glass contains a chemical, then it must be properly cleaned according to How Do I Manage this Waste Stream?

Required Procedure

Step 1	Before waste is generated, the Responsible Individual/Waste Generator reviews pollution prevention and waste minimization techniques to minimize waste generation, and ensures proper management of waste that cannot be avoided. • During project-planning phases, identify any project wastes, emissions or effluents, and obtain any required permits. See the Work Planning and Control for Experiments and Operations Subject Area. • Apply technically feasible and economically practical pollution prevention or waste minimization techniques. See the Pollution Prevention and Waste Minimization Subject Area.
Step 2	The Responsible Individual/Waste Generator must ensure that the above non-medical sharps are rendered safe and if the objects are rendered safe for handling to prevent injuries to employees (e.g., use of: a yellow industrial sharps box, a sturdy container, an Ice Cream Container-ICC, an 'Ecolo-bag' or equivalent), then the waste may be handled as municipal trash. Sharp objects contaminated with non-empty epoxy applicators or other sharp objects still containing hazardous materials/toxic materials, cannot be handled as non-medical sharps (see the Waste Management Representative or Environmental Compliance Representative for guidance and the exhibit Disposal of Sharps in this subject area).

Guidelines

When in doubt, manage the waste conservatively, in accordance with the Hazardous Waste Management Subject Area's requirements, and allow the Environmental Protection Division to make the ultimate determination on whether the waste is hazardous, based on the information provided by the generator and any analytical data.

Refer to the How Do I Manage this Waste Stream? Web site for additional guidance on managing a variety of waste streams. (**Note:** Your Waste Management Representative or Environmental Compliance Representative can assist in the management of this waste stream.)

Refer to the exhibit Hazardous Waste Generator Characterization Guidance in the Hazardous Waste Management Subject Area to aid in determining whether waste should be managed as hazardous waste.

References

Hazardous Waste Management Subject Area

How Do I Manage this Waste Stream? Web site

Mixed Waste Management Subject Area

Pollution Prevention and Waste Minimization Subject Area

Radioactive Waste Management Subject Area

Regulated Medical Waste Management Subject Area

Work Planning and Control for Experiments and Operations Subject Area

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Questions/Comments Disclaimer

https://sbms.bnl.gov/sbmsearch/subjarea/24/24_Pro7.cfm

DEFINITIONS

Definition: Industrial Waste

Term	Definition
airborne emission	Any treated or untreated discharge to the atmosphere from an experiment, laboratory, process, or building.
Chemical Management System (CMS)	A database that tracks surplus chemicals stored across the BNL site that are available for use by others instead of purchasing new materials. For more information, see the Chemical Management System (CMS) Web site.
Clean Scrap Metal	Refer to the Management of Moratorium and Suspension Encumbered Metals Subject Area. Also, referred to as unencumbered metal waste.
hazardous waste	A by-product of certain processes and activities that can pose a substantial or potential hazard to human health or the environment when improperly managed. Hazardous waste possess(es) at least one or more of four characteristics (ignitability, corrosivity, reactivity, and toxicity), or it appears on special EPA lists relating to their usage. Refer to the Hazardous Waste Management Subject Area.
industrial waste	Non-hazardous wastes generated by research/ industrial/maintenance processes including: Construction and Demolition (C&D) debris; Asbestos Containing Materials; Recyclables (can be reused/recycled); non-hazardous chemicals, wastewaters not dischargeable to the Sanitary System, Used Oil; scrap metal (Clean and Suspect Encumbered Metals); and, Electronics equipment.
liquid effluent	Any treated or untreated aqueous waste that is discharged to the environment (e.g., process wastewater, cooling tower blowdown, parts/equipment cleaning wastewater, air compressor condensate). Refer to the Liquid Effluents Subject Area for more details.
mixed paper	Mixed paper consists of office paper; junk mail catalogs; color inserts; magazines; envelopes; copy paper; books; index cards; yellow/white legal pads; wrapping paper; greeting cards; telephone and textbooks; catalogs (do not have to be unbound); fax paper; computer paper; white ledger; manila folders; construction paper; post-its; newspapers; file folders; shredded paper; blueprints; junk mail; photographic paper (non-metallic). Food-contaminated Mixed Paper must be handled as Municipal Solid Waste (MSW).
Moratorium/Suspect Metal	Refer to the Management of Moratorium and Suspension Encumbered Metals Subject Area. This material may NOT enter the Clean Scrap Metal Recycling process.
municipal solid waste (MSW)	Regular (putrescible) garbage normally found in an office or a lunch/breakroom, or a bathroom. MSW receptacles are emptied frequently from containers inside individual buildings into exterior receptacles in order to prevent insect/rodent/bug infestations.
Naturally Occurring Radioactive Material (NORM)	Naturally Occurring Radioactive Material (NORM) which includes all radioactive elements naturally found in the environment. Long-lived radioactive elements such as Uranium, Thorium and Potassium and any of their decay products, such as Radium and Radon are examples of NORM. These elements have always been present in the Earths crust and within

	tissues of all living beings.
pollution prevention	Source reduction and other practices that reduce or eliminate the creation of pollutants through Increased efficiency in the use of raw materials, energy, water, or other resources; Protection of natural resources by conservation. Pollution prevention techniques include measures such as material substitution, process changes, inventory control, preventative maintenance, and improved housekeeping.
Pollution Prevention Program	A program that includes preventing or reducing the generation of pollutants, contaminants, hazardous substances, or wastes at the source, as well as reducing the amount of waste for treatment, storage, and disposal through reuse or recycling. For more information, see the Pollution Prevention Web site.
Responsible Individual/Waste Generator	The individual within a Department/Division responsible for generating the waste. This individual or their designee must sign all documentation concerning the Waste Control Forms or Process Knowledge Forms. The generator must perform a proper waste characterization for purposes of disposal.
source reduction	The reduction or prevention of a hazardous substance, pollutant, or contaminant from entering a waste stream or otherwise from being released to the environment before recycling or treatment.
Suspension Encumbered Metals	Refer to the Management of Moratorium and Suspension Encumbered Metals Subject Area. This material may NOT enter the Clean Scrap Metal Recycling process.
Used Oil	Any unusable oil manufactured from crude oil or any synthetic oil that has been contaminated by physical and chemical impurities. On-spec Used Oil is oil that does not exceed contamination levels listed in 6 NYCRR Part 360-14.2 (d) (x) (1.) whereas off-spec Used Oil is oil in excess of the above levels.
waste minimization	An approach that focuses on preventing or reducing the generation of pollutants, contaminants, hazardous substances, or wastes. Techniques of waste minimization focus on reuse, volume reduction, and recycling.

Management System: ***Environmental Management System***

Subject Area: ***Industrial Waste***

Disposal of Sharps

Effective Date:**Nov 06, 2013**

Examples of Medical Waste Sharps:

- Scalpel blades (used and unused)
- Suture needles
- Syringes (used and unused, with or without attached needle)
- Blood vials
- Hypodermic needles (used and unused)
- Microscope slides (infectious agents/biologicals only)
- Glass Pasteur Pipettes (infectious agents/biologicals only)
- Needles with attached tubing and/or calibrated plungers
- Glass or plastic tissue culture vessels (infectious agents/biologicals only)
- Tools containing sharps edges that resemble medically-associated equipment (e.g., hemostats, suture scissors, etc.).

Manage all non-radioactive sharps as medical waste (see the section **Regulated Medical Waste Management** in the **Regulated Medical Waste Management** Subject Area).

Manage all radioactive sharps as radioactive medical waste (see the section **Handling and Disposal of Long-Lived Radioactive, Regulated Medical Waste** in the **Regulated Medical Waste Management** Subject Area

All sharps	**Collect in rigid containers**	
Biologically contaminated (infectious agent) or medical sharp (blood contaminated)	• Biohazard label • Red container • Orange tag and Regulated Medical Waste form when full.	Arrange disposal through Medical Department using a Lab vehicle and following the requirements for transferring in the **Movement by Vehicle of Hazardous and Radiological Materials On-site** Subject Area. .
Non-biological or non-medical sharp	• No biohazard label • The container may or may not be red • Orange tag and Regulated Medical Waste form when full.	
Radiological sharp	• "Rad" label • Manage within a radiological area • Radioactive Waste Control Form and Regulated Medical Waste Control with associated orange tag when full • HP-Survey required prior to transfer.	
Nano-contaminated sharp	• "Contains Nanomaterials" label • If potential for dispersible nanomaterials exists, manage in an area where emissions are controlled.	
Chemically contaminated sharp	• May need disposal through the Waste Management Group – see ECR or WMR for guidance.	
Multiple hazards	Follow above for all hazards, e.g., • Nano-contaminated radioactive sharps–follow requirements for rad sharps, but also label with a "contains nanomaterials" label. • Nano-contaminated medical waste–collect in a rigid, red container with a biohazard label and a "contains nanomaterials" sticker.	

Other Sharp Objects (Exacto blades, razor blades, equipment probes/prongs, automotive brake tools with sharp points, epoxy applicators, etc.):

- Package so as to not pose a safety hazard (e.g., cuts/lacerations) to custodians, such as in a rigid container that is taped closed and disposed of into trash.
- Sharp objects contaminated with chemicals, radioactivity, and/or nanomaterials–package safely and dispose of following the requirements in the relevant waste management subject areas.

Management System: ***Environmental Management System***

Subject Area: ***Industrial Waste***

Industrial Waste Flowchart

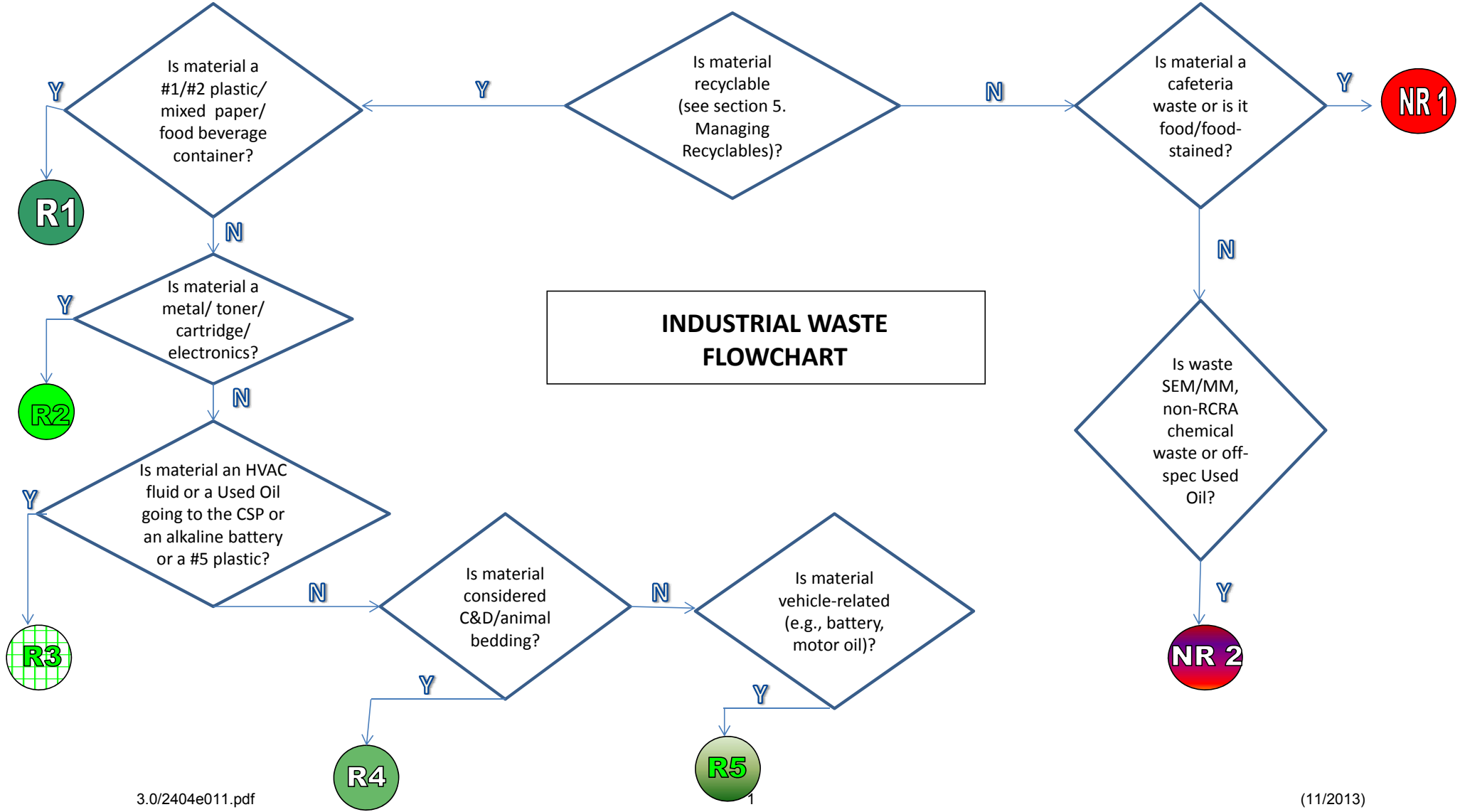
Effective Date:**Nov 06, 2013**

Industrial Waste Flowchart is provided as a **PDF** file.

The only official copy of this file is the one on-line in SBMS.

Before using a printed copy, verify that it is the most current version by checking the *effective date*.

Questions/Comments Disclaimer


INDUSTRIAL WASTE FLOWCHART
Is material recyclable (see section 5. Managing Recyclables)?
Y
Is material a #1/#2 plastic/ mixed paper/ food beverage container?
Y
R1
N
Is material a metal/ toner/ cartridge/ electronics?
Y
R2
N
Is material an HVAC fluid or a Used Oil going to the CSP or an alkaline battery or a #5 plastic?
Y
R3
N
Is material considered C&D/animal bedding?
Y
R4
N
Is material vehicle-related (e.g., battery, motor oil)?
Y
R5
N
Is material a cafeteria waste or is it food/food-stained?
Y
NR 1
N
Is waste SEM/MM, non-RCRA chemical waste or off-spec Used Oil?
Y
NR 2

DETAILS

R1 F&O

Mixed paper

1. Computer paper,
2. Blueprints
3. FAX copies
4. Colored and construction paper
5. Newspapers and magazines
6. Books (bound or unbound – remove plastic protectors)
7. Notebooks
8. Unsoiled food paper packaging
9. Junk mail
10. Catalogs
11. Index cards
12. Post-its
13. Legal pads
14. Wrapping paper
15. Shredded paper
16. Photographic paper (non-metallic)

Food Containers

1. #1 PETE food containers – rinsed out
2. #2 High density Polyethylene food containers – rinsed out
*(**Note:** Additional types of plastics may soon be recycled.)*
3. Unbroken glass bottles
4. Aluminum cans

Cardboard

1.Corrugated/ribbed
2. Low-grade/non-corrugated
(writing pad backings, non-food contaminated boxes)
3. Shipping boxes (FEDEX/UPS)

R2 PPM

Materials

1. Clean scrap metal (copper, steel lead, brass) as per Management of Moratorium and Suspension Encumbered Metals Subject Area.
2. Electronic equipment for resale
3.Machine shop equipment for resale
4. Misc. equipment for resale
5. Styrofoam packing
6. Shrink wrap
7. Printer and toner cartridges

DETAILS (cont'd.)

R3 BNL-Wide

1. HVAC fluids – propylene and ethylene glycols (Bldg. 810) and On-Spec and Off-Spec "Used Oils" (Bldg. 452).
2. Alkaline (non-mercury) batteries – THE BIG GREEN BOX (available from stock) – EPD.
3. Tyvek® suits – EPD
4. Machine cutting oil/Blasocut processing at Bldg. 495 (F&O-Central Fab.)
5. #5 Polypropylene plastic – recycled off-site (EPD).

R4 MPO-Contractor and F&O

1. Contractor generated Construction and Demolition Debris – off-site transfer station for waste sorting and recycling (metals/concrete/other).
2. Contractor (BNL-supervised) or BNL uncontaminated: concrete/masonry/asphalt/dirt/stone/rebar – on-site Borrow Pit as per DEC requirements (6 NYCRR Part 360-8.6).
3. Trees/vegetation/bushes and animal bedding – BNL Compost Areas

R5 F&O Staff Services

1. Used motor oil (on-spec. 'Used Oil" as per 6 NYCRR Part 374)- off-site recycling;
2. Automotive batteries – reused/recycled by battery manufacturer;
3. Automotive tires – recycled (Casings Inc.) .

DETAILS (cont'd.)

NR 1 F&O Municipal Solid Waste

1. Non-recyclables
2. Food waste
3. Food-contaminated papers/debris
4. Putrescibles - waste that contains organic matter capable of being decomposed by microorganisms and of such a character and proportion as to cause obnoxious odors and to be capable of attracting or providing food for birds or animals.
5. Garbage

NR 2 WM Industrial Waste Program

1. Non-RCRA Chemical Wastes - ethidium bromide, waste vacuum pump oils (no solvents), 'Drierite', non-hazardous salts;
2. Non-RCRA, non-releasable (to Sanitary) waste-water containing hazardous components (refer to the Liquid Effluents and Hazardous Waste Subject Areas);
3. Moratorium and Suspension Encumbered Metals (refer to Management of Moratorium and Suspension Encumbered Metals Subject Area);
4. Oily debris (oily pads/rags/debris);
5. Off-spec 'Used Oil' , and On-Spec 'Used Oil' (as per 6 NYCRR Part 374) not routed through F&O Program (Central Steam Plant and off-site Used Oil Recyclers).

[NOTE: Universal Waste fluorescent batteries are recycled through WM].

Management System: ***Environmental Management System***

Subject Area: ***Industrial Waste***

List of Industrial and Other Special Wastes

Effective Date:**Nov 06, 2013**

List of Industrial and Other Special Wastes is provided as a **Word** file.

The only official copy of this file is the one on-line in SBMS.

Before using a printed copy, verify that it is the most current version by checking the *effective date*.

Questions/Comments Disclaimer

List of Industrial Wastes

The scope of this subject area includes the following types of waste:

Chemical waste that is not RCRA hazardous waste:

- Industrial waste includes chemical waste that is not a RCRA hazardous waste, but is still banned from disposal in the regular trash through other regulations. This waste is disposed of through the Waste Management Facility (WMF). Ethidium bromide solutions (managed as per "How do I manage this waste?" guidelines) and gels.

- Used oil, oily rags, crankcase oil, pump oil, oil spill debris, oily PPE, and other oily debris.

    - **Note:** Oils, oily rags and other debris contaminated with hazardous materials such as solvents, lead, mercury or other hazardous materials should never be mixed together as the mixture may be a RCRA hazardous waste (contact WMR/ECR for additional information).

- Paint waste (latex or other non-ignitable, non-oil based types) (managed as per "How do I manage this waste?" guidelines)

- Photographic developer (containing less than 5 mg/l of silver [TCLP] and with a pH above 2 and below 12.5). (**Note:** Must be segregated from silver fixer.)

- Wastewater containing trace metals below the regulatory thresholds for qualification as a hazardous waste, but above the thresholds for discharge to the sanitary sewer (see the Liquid Effluents Subject Area)

- Non-hazardous/inert gas cylinders (e.g. nitrogen, helium, air) that have residual pressure, i.e., above atmospheric pressure. {**Note:** Vendor- returnable cylinders should be returned to the supplying vendor for reuse. For a gas cylinder to be considered "Empty" and handled as clean scrap metal, it must have no residual pressure above atmospheric and must be safely de-valved. Non-returnable gas cylinders, including lecture bottles, containing HAZARDOUS gases must be disposed of through WM and must **NOT** be intentionally vented. Cylinders containing Freon® and other ozone-depleting gases must be brought to the F&O Freon Storage Area for collection. (**Note:** Freon® cylinder gaseous transfers may only be performed by EPA-certified personnel.)

Special Wastes:

- Asbestos Containing Materials (ACM), which is material that contains greater than 1% friable asbestos. ACM waste can only be handled by trained personnel and ACM disposal must be coordinated through the Facility & Operations Directorate (F&O) Asbestos Abatement Engineer (FOAAE) and Waste Management (WM) (see Asbestos Subject Area for additional details).

- Construction and Demolition (C&D) - uncontaminated debris from rearrangements, remodeling, demolitions including non-recyclable drywall, masonry, wood, non-asbestos insulation/shingles/tiles. This waste stream is managed by Facilities and Operations and the waste stream is transferred to the Town of Brookhaven. For Contractor-run construction projects, the contractor manages the waste and sends the material to an off-site transfer

station for sorting and recycling. Note that clean concrete and asphalt may be recycled on-site through the Site Services Division.

Clean Scrap Metal to be Recycled:

Metal waste NOT meeting the definition of Moratorium or Suspension Encumbered Metal Waste as per the Management of Moratorium and Suspension Encumbered Metals Subject Area and for which a recycling stream exists. This includes some hazardous metals that would normally meet the RCRA definition of a hazardous waste, but are specifically exempt from the definition because they are being sent for off-site recycling. Examples of clean scrap metal include:

- Metal chips from machining operations
- Empty metal drums (**Note:** Empty 55-gallon drums and other containers formerly containing oil/petroleum products to be recycled must have their top removed and then wiped clean of oils so as to prevent spills to the environment prior to transfer to exterior scrap metal collection areas.)
- Lead that is not radiologically activated or radiologically contaminated (e.g., lead bricks/shield block) including lead and non-lead solder not contaminated with non-radiological hazardous materials (collected at Bldg. 479 and Bldg. 494).
- Empty aerosol cans (managed as per "How do I manage this waste?" guidelines).

Other Recyclables:

Materials that have a monetary value if recycled or may contribute to a building's LEED certification status or contribute towards Pollution Prevention goals. The Site's Environmental Management System and the Site Sustainability Program (SSP) require personnel to recycle. BNL also promotes the recycling of these materials as part of BNL's effort to be a good environmental steward:

- Corrugated and low-grade cardboard,
- Mixed paper,
- Food and beverage containers (#1 (PETE), #2 (HDPE), glass and aluminum),
- Styrofoam™ packing peanuts, 'bubble-wrap'
- Toner/printer cartridges,
- 'Hot-drained' oil filters ,
- Tyvek® suits,
- Alkaline batteries,
- Propylene and ethylene glycol from Heating Cooling and Ventilation/HVAC Systems and,
- Excess equipment including computers and related equipment, office furniture, unused lab glassware, uncontaminated lead, etc. (**Note:** CRTs contain glass impregnated with lead and must be handled as hazardous waste unless they are recycled.)

Contact PPM for more information on the Lab's clean scrap metal recycling program and the electronics reuse and recycling program.

Also, for more information see the following posting:

BNL Recycling Guidelines Flyer, Site Resources Division Web site

Management System: ***Environmental Management System***

Subject Area: ***Industrial Waste***

Waste Oil Analysis Requirements

Effective Date:**Nov 06, 2013**

Waste Oil Analysis Requirements is provided as a **Word** file.

The only official copy of this file is the one on-line in SBMS.

Before using a printed copy, verify that it is the most current version by checking the *effective date*.

Questions/Comments Disclaimer

Waste Oil Analysis Requirements

Constituent/Property	Acceptance Criteria	Typical Acceptable Test Methods*
Arsenic	≤ 5 ppm (mg/l)	EPA 7060A, 7061A, or 7062
Cadmium	≤ 2 ppm (mg/l)	EPA 6010, 7130, or 7131A
Chromium	≤ 10 ppm (mg/l)	EPA 6010, 7190, or 7191
Lead	≤ 100 ppm (mg/l)	EPA 6010 or 7421
PCBs	≤ 2 ppm (mg/l)	EPA 600/4-81-045
Sulfur**	≤ 0.5 % by weight	ASTM D 4294 or D 2622
Total Halogens	≤ 1000 ppm (mg/l)***	ASTM D808
Flash Point	100 °F Minimum	EPA 1010
Gross Heat Content**	125,000 Btu/gal Minimum	ASTM D 240 or D 4809

NOTE: Most criteria are derived from 6 NYCRR Subpart 374-2 - Table 1 – Specifications for oil used for energy recovery

* Other test methods may be acceptable, if they are approved by the U.S. Environmental Protection Agency. Check with your Environmental Compliance Representative for approval of other methods.

** Criteria derived from BNL's NYSDEC Title V Air Permit – specific to oil burned at the Steam Facility.

*** Waste oil containing greater than 1000 ppm but less than 4000 ppm total halogens may be burned provided that the generator can submit documentation that demonstrates the waste oil does not contain hazardous wastes.