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## Contents: Hazardous Waste Management

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

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## [6. Operating a 90-Day Accumulation Area](#)

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## [8. Universal Waste Management](#)

- Locate area in appropriate shelter.
- Ensure that appropriate safety equipment is accessible.
- Post area with appropriate signs.
- Submit NRWCF and associated paperwork to WM.
- Schedule pickup and transfer waste to the WM facility.
- Inspect area weekly.
- Ensure PCB waste is picked up by WM within 30 days of it being declared out of service.
- Segregate, package, and label PCB waste as required.
- Take adequate spill control measures.
- Post the entrance to the accumulation area.
- Segregate, package, and label containers for different types of batteries, certain pesticides, and mercury-containing thermostats and fluorescent light tubes.
- Complete NRWCF.
- Submit NRWCF to WM within 9 months of the date the universal waste is first placed in the container.

## [Definitions](#)

### **Exhibits**

[90-Day Accumulation Area Rules Sign](#)

[90-Day Accumulation Area Warning Sign](#)

[Examples of Incompatible Chemicals](#)

[Examples of Unacceptable Waste Containers](#)

[Examples of Waste Descriptions](#)

[Hazard Class](#)

[Hazardous Waste Generator Characterization Guidance](#)

[Hazardous Waste Label](#)

[PCB Label](#)

[Photo of Hazardous Waste Storage Module and Rubber Webbing Mats](#)

[Satellite Accumulation Area Basic Rules Sign](#)

[Universal Waste Label](#)

### **Forms**

[Hazardous Waste 90-Day Area Registration Form](#)

[Nonradioactive Waste Control Form](#)

[Process Knowledge Certification Form](#)

## **Training Requirements and Reporting Obligations**

This subject area contains training requirements. See the [Training and Qualifications](#) Web Site.

This subject area may or may not contain reporting obligations. See the subject area until obligations are listed here.

## References

6 NYCRR Part 371, *Identification and Listing of Hazardous Wastes*

40 CFR 262.11, *Hazardous Waste Determination* (EPA 1987)

40 CFR 273, *Standard for Universal Waste Management*

[Chemical Management System](#) web site

[EM-SOP-105, Request for Sampling and Supplemental Health and Safety Plan](#)

[EM-SOP-109, Chain of Custody Procedure](#)

[EPA EnviroSense](#) web page

[EPA's Technology Innovation Office Clu-In](#) web page

EPA SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*

[ESD Environmental Monitoring SOPs Webpage](#)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

[Material Safety Data Sheet \(MSDS\) Search](#), [Chemical Management System](#) web site (\*Limited Access)

[Mixed Waste Management](#) Subject Area

[Pollution Prevention and Waste Minimization](#) Subject Area

[Radioactive Waste Management Basis](#) Program Description

[Spill Response](#) Subject Area

[Training and Qualifications](#) Web Site

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## Standards of Performance

All staff and guests shall comply with applicable Laboratory policies, standards, and

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")

## Management System

This subject area belongs to the **Environmental Management System** management system.

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## Introduction: Hazardous Waste Management

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

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This subject area describes how waste generators identify, package, label, and manage hazardous and regulated industrial wastes managed by the Waste Management Program to eliminate or minimize the impact on the environment. The following topics are discussed in this subject area:

- Identifying waste;
- Segregating waste;
- Packaging waste;
- Completing the [Nonradioactive Waste Control Form](#) and the [Process Knowledge Certification Form](#);
- Labeling waste;
- Establishing, operating, and maintaining a Satellite Accumulation Area;
- Establishing, operating, and maintaining a 90-Day Accumulation Area;
- Managing PCB waste;
- Managing universal waste.

Brookhaven National Laboratory (BNL) is committed to integrating environmental stewardship into all facets of our missions. This stewardship includes the proper management of all hazardous waste streams created during the performance of the Laboratory's research programs.

On May 11, 1995, the U. S. Environmental Protection Agency (USEPA) published the final Universal Waste Rule, which established new regulations in 40 CFR Part 273 to address the management of certain widely-generated wastes identified as universal wastes. The rule is designed to facilitate the environmentally sound collection and increase the proper recycling or treatment of the following hazardous wastes; (1) batteries, (2) certain pesticides, (3) mercury-containing thermostats and (4) mercury-containing fluorescent light tubes.

The regulatory relief provided in this rule primarily benefits generators in that when managing universal waste, the waste is not assigned a Resource Conservation and Recovery Act (RCRA) waste code and therefore is not subject to stringent hazardous waste accumulation and storage requirements.

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# 1. Generating Waste

Effective Date: **August 2003**Point of Contact: [Hazardous Waste Program Manager](#)

## Applicability

This information applies to all waste generators.

## Required Procedure

<b>Step 1</b>	<p>Ensure your training status as a generator of hazardous waste is up-to-date.</p> <ul style="list-style-type: none"> <li>To ensure you are within the one-year qualification period for the HP-RCRIGEN3 (Hazardous Waste Generator) course, consult the <a href="#">Training and Qualifications</a> Web Site, or contact your Department/Division's <a href="#">Training Coordinator</a>.</li> <li>If your training is not current, then attend training in the proper methods for handling, documenting, and disposing of hazardous waste. For further information on training, contact the <a href="#">Hazardous Waste Program Manager</a>.</li> </ul>
<b>Step 2</b>	<p>Place waste in a container that is compatible with the waste's characteristics.</p> <ul style="list-style-type: none"> <li>For advice on container/waste compatibility, see the <a href="#">Examples of Incompatible Chemicals</a> exhibit.</li> <li>Collect hazardous wastes only in containers that are in good condition, without any holes, dents, rust, or other faults that might impair proper containment, and that are made of, or lined with, a material that is compatible with the hazardous waste to be stored. Wine bottles, juice bottles, flasks, beakers, and similar containers are not appropriate waste containers. For examples of unacceptable container conditions, see the <a href="#">Examples of Unacceptable Waste Containers</a> exhibit.</li> <li>Store waste only in a clean container that has not previously contained an incompatible substance.</li> </ul>
<b>Step 3</b>	<p>Label the container with the words "Hazardous Waste" as well as with a description of the contents, including major chemical constituents (see the</p>

	<p><a href="#">Hazardous Waste Label</a> exhibit) that will identify the hazardous component of the waste. For examples of acceptable and unacceptable descriptions, see the <a href="#">Examples of Waste Descriptions</a> exhibit.</p> <p><b>Note:</b> To prevent the inadvertent labeling of hazardous wastes as nonhazardous, the use of "nonhazardous" labels is restricted unless prior approval has been obtained from the Waste Management Program.</p>
<b>Step 4</b>	<p>Put the waste into either a satellite accumulation area or a 90-day accumulation area, and go to the appropriate section for information:</p> <ul style="list-style-type: none"> <li>• <a href="#">Operating a Satellite Accumulation Area</a></li> <li>• <a href="#">Operating a 90-Day Accumulation Area</a></li> </ul>

## Guidelines

If a hazardous material has any intrinsic value before declaring it as waste, the following groups should be notified of the material's availability:

- Staff within your Department/Division;
- Staff outside your Department/Division (for examples, see the Laboratory's [Chemical Management System](#) web site);
- Outside the Laboratory (for examples, see the [EPA EnviroSense](#) web page).

## References

[Chemical Management System](#) web site

[EPA EnviroSense](#) web page

[Training and Qualifications](#) Web Site

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## 2. Establishing a Satellite Accumulation Area

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

### Applicability

This information applies to all waste generators.

### Required Procedure

<b>Step 1</b>	<p>Position the satellite area at or near the point of waste generation (i.e., within the same room or lab).</p> <ul style="list-style-type: none"> <li>• Each satellite area must be under the control of the waste generator.</li> </ul> <p>The temperature of the stored waste must always remain above the waste's freezing point and below its auto-ignition point, which can be obtained from the material's MSDS (see the <a href="#">Material Safety Data Sheet (MSDS) Search</a>).</p>
<b>Step 2</b>	Provide secondary containment for all liquid hazardous wastes.
<b>Step 3</b>	Post the satellite area with a <a href="#">Satellite Accumulation Area Basic Rules Sign</a> .
<b>Step 4</b>	Notify your Building Manager or designee when a Satellite Accumulation Area is either established or closed.
<b>Step 5</b>	If the waste contains PCBs, go to the section <a href="#">PCB Waste Management</a> .

### Guidelines

Dedicate a separate area for the collection of mixed waste, to ensure its segregation from nonradioactive hazardous waste by taping off the area, or better still, erecting a physical barrier.

Managers should maintain a current list of Satellite Accumulation Areas.

Establish permanent Satellite Accumulation Areas and include each in the 90-Day Accumulation Area weekly inspection.

The base of the secondary containment should be sloped or otherwise designed to drain and remove liquids resulting from leaks and spills, unless the containers are elevated or are otherwise protected from contact with spilled liquids.

All sinks and floor drains in the vicinity should be plugged when they are not in use to prevent possible spillage from entering the building's sanitary sewage system.

## References

[Material Safety Data Sheet \(MSDS\) Search](#), [Chemical Management System](#) web site (\*Limited Access)

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## 3. Operating a Satellite Accumulation Area

 Effective Date: **August 2003**

 Point of Contact: [Hazardous Waste Program Manager](#)

### Applicability

This information applies to all waste generators.

### Required Procedure

<b>Step 1</b>	Keep all waste containers closed at all times, except when waste is being added or removed.
<b>Step 2</b>	Locate the satellite accumulation area at or near the point of generation.
<b>Step 3</b>	Segregate wastes according to their hazard class (see the <a href="#">Hazard Class</a> exhibit). <ul style="list-style-type: none"> <li>Place containers of waste in the waste accumulation area in a way that minimizes the risk of possible interaction of incompatible wastes.</li> </ul>
<b>Step 4</b>	Place all containers holding liquid wastes in secondary containment. <ul style="list-style-type: none"> <li>Use secondary containment that is capable of holding 100% of the largest container's volume.</li> </ul>
<b>Step 5</b>	Store only compatible wastes in the same container. <ul style="list-style-type: none"> <li>Consult the <a href="#">Examples of Incompatible Chemicals</a> exhibit for advice on container/waste compatibility.</li> </ul>
<b>Step 6</b>	Plan disposal so that the quantity of waste stored in the Satellite Accumulation Area does not exceed the mandatory limits. <ul style="list-style-type: none"> <li>Do <b>not</b> store more than 55 gallons (7.5 cubic feet or 210 liters) of a hazardous waste or one quart (950 milliliters) of an acutely hazardous waste within a satellite area</li> </ul>

<b>Step 7</b>	<p>Handle and store waste containers in a way that prevents leakage or spillage of the contents.</p> <ul style="list-style-type: none"> <li>• Store containers in an environment that will prevent the freezing of the contents or exposure to excessive heat.</li> <li>• Containers are not to be left either partially or fully blocking aisles or other access ways.</li> <li>• Do not store containers where the potential exists for leakage to enter sinks or drains.</li> </ul>
<b>Step 8</b>	<p>Transfer the hazardous waste to the Department/Division's 90-Day Accumulation Area within three days after reaching 55 gallons (7.5 cubic feet or 210 liters) <b>or</b> one quart (950 milliliters) of acutely hazardous waste.</p>
<b>Step 9</b>	<p>If more than one waste generator is contributing to the satellite area, then obey the following requirements:</p> <ul style="list-style-type: none"> <li>• Only add compatible wastes to any given container.</li> <li>• Record waste type and quantity on a container inventory.</li> <li>• Close all containers of waste at all times except when waste is being added or removed.</li> </ul>
<b>Step 10</b>	<p>If the waste contains PCBs, see the section <a href="#">PCB Waste Management</a> for further instruction.</p>

## Guidelines

Once a waste container is full, regardless of its capacity, it should be moved to the 90-Day Accumulation Area.

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## 4. Completion of Nonradioactive Waste Control Forms and Process Knowledge Certification Forms

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

### Applicability

This information applies to all waste generators.

### Required Procedure

<b>Step 1</b>	<p>On the <a href="#">Nonradioactive Waste Control Form (NRWCF)</a>, clearly print the following information:</p> <ul style="list-style-type: none"> <li>• Generator;</li> <li>• Life Number;</li> <li>• BNL extension;</li> <li>• Department/Division responsible for generating the waste;</li> <li>• Account number for waste disposal;</li> <li>• The accumulation area's building and room number, and</li> <li>• The date that the waste was placed into the 90-Day Accumulation Area.</li> </ul>
<b>Step 2</b>	<p>Identify the quantity of waste, and include the following items:</p> <ul style="list-style-type: none"> <li>• The number and type of packages                             <ul style="list-style-type: none"> <li>○ Only identical waste types in similar packages can be recorded on a single NRWCF.</li> </ul> </li> <li>• The volume and weight of waste                             <ul style="list-style-type: none"> <li>○ Specify volume in gallons for liquid waste, or cubic feet, for solid waste.</li> <li>○ Specify weight in pounds.</li> </ul> </li> </ul>
<b>Step 3</b>	<p>Characterize the waste based on your knowledge of the process that created it</p>

<b>Step 3</b>	<p>Characterize the waste based on your knowledge of the process that created it.</p> <ul style="list-style-type: none"> <li>• Print the chemical name or description of the waste to adequately identify the contents. Do not use formulas or general descriptions. For guidance, see the <a href="#">Examples of Waste Descriptions</a> exhibit.</li> <li>• Describe the process that generated the waste.</li> <li>• List the volumetric percentages of waste constituents if it is a mixture.</li> <li>• Check off the waste's physical state.</li> <li>• Answer the questions regarding the existence of PCBs in the waste, and the waste's ignitability, corrosivity, reactivity, and toxicity.</li> <li>• Check off any constituents known to be present in the waste that are listed on the Nonradioactive Waste Control Form's table.</li> <li>• List any special hazards and precautions for handling the waste (see the <a href="#">Material Safety Data Sheet [MSDS] Search</a>).</li> </ul> <p>See the <a href="#">Hazardous Waste Generator Characterization Guidance</a> exhibit, or contact your <a href="#">Waste Management Representative</a> for assistance.</p>
<b>Step 4</b>	<p>If the waste has not been in a radiological area, sign and date the certification statement at the bottom of the form. Proceed to step 7.</p> <p>If the waste has been in a radiological area, initial the space provided on the lower section of the form located beneath the "precautions" section.</p>
<b>Step 5</b>	<p>Transfer the NRWCF number onto the <a href="#">Process Knowledge Certification Form (PKCF)</a> in the upper right-hand corner.</p>
<b>Step 6</b>	<p>Respond to each question on the PKCF regarding the possible radioactivity of the waste.</p> <ul style="list-style-type: none"> <li>• If the waste has been in a radiological area, but is believed to be <b>neither</b> radioactively contaminated nor activated, check off the appropriate box(es), and sign the certification statement.</li> <li>• If the waste has been in a radiological area, or may be either radioactively contaminated or activated, analyze the waste for suspected radionuclides to verify that the waste is not radioactively contaminated or activated.</li> </ul> <p>Forward both forms to your <a href="#">Facility Support (FS) Representative</a> for review. Proceed to step 7 when the FS Representative returns both forms.</p>
<b>Step 7</b>	<p>Submit the NRWCF and PKCF (if required) to the 90-Day Accumulation Area Manager.</p>
<b>Step 8</b>	<p>Notify and obtain approval from the 90-Day Accumulation Area Manager before placing waste into the area.</p>

## Guidelines

Staff should use only permanent blue or black ink when completing Nonradioactive Waste Control Forms and Process Knowledge Certification Forms.

## References

[Material Safety Data Sheet \(MSDS\) Search](#), [Chemical Management System](#) web site  
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## 5. Establishing a 90-Day Accumulation Area

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

### Applicability

This information applies to all managers of 90-Day Accumulation Areas.

### Required Procedure

<b>Step 1</b>	<p>Ensure your training status as both a waste generator and 90-Day Accumulation Area Manager are up-to-date.</p> <ul style="list-style-type: none"> <li>To ensure you are within the qualification periods for the HP-RCRIGEN3 course (one year) and the 90-Day course (one year), consult the <a href="#">Training and Qualifications</a> Web Site or contact your Department/Division's <a href="#">Training Coordinator</a>.</li> </ul> <p>If your training is not current, then attend training in the proper methods for handling, documenting, and disposing of radioactive waste. For further information on training, contact the <a href="#">Hazardous Waste Program Manager</a>.</p>
<b>Step 2</b>	<p>Register the area with the Waste Management (WM) Program by completing the <a href="#">Hazardous Waste 90-Day Area Registration Form</a>.</p>
<b>Step 3</b>	<p>Locate the area in a fully enclosed shelter (e.g., within a building or in a Hazardous Waste Storage Module) that is completely isolated from the outside.</p> <ul style="list-style-type: none"> <li>Containers are to be stored in an environment that will prevent the freezing of the contents or exposure to excessive heat.</li> <li>Areas must accommodate material handling equipment and must have unrestricted access for WM vehicles.</li> </ul>
<b>Step 4</b>	<p>Provide secondary containment for all liquid hazardous wastes.</p> <ul style="list-style-type: none"> <li>For hazardous and acute hazardous liquid wastes, secondary</li> </ul>

	<p>containment must be sufficient to hold 10% of the total volume [30% if total volume is greater than 250 gallons (33.5 cubic feet or 950 liters)] or 100% of the volume of the largest container to be stored, whichever is greater.</p> <ul style="list-style-type: none"> <li>• All sinks and floor drains in the vicinity must be plugged to prevent possible spillage from entering the building's sanitary sewage system.</li> <li>• The base of the secondary containment must be sloped or otherwise designed to drain and remove liquids resulting from leaks and spills unless the containers are elevated or are otherwise protected from contact with spilled liquids (e.g., see the <a href="#">Photo of Hazardous Waste Storage Module and Rubber Webbing Mats</a> exhibit).</li> </ul>
<b>Step 5</b>	<p>Ensure the area is large enough to meet the following criteria:</p> <ul style="list-style-type: none"> <li>• Proper segregation of incompatible wastes according to hazard class (see the <a href="#">Examples of Incompatible Wastes</a> exhibit).</li> <li>• Unobstructed access within the area by means of one or more aisles, each a minimum of thirty (30) inches (77 centimeters) wide.</li> </ul>
<b>Step 6</b>	<p>Ensure the following equipment is accessible to the 90-Day Accumulation Area.</p> <ul style="list-style-type: none"> <li>• A communication device that is immediately available (i.e., not behind a locked door or obstructed), and within sight of the area, or that can be easily found by following a sign(s). In order of preference, this device should be a telephone, fire-alarm pull-box, or hand-held, two-way radio.</li> <li>• A Type ABC fire extinguisher mounted within thirty feet (nine meters) of the accumulation area. A Type D fire extinguisher is also required, similarly mounted, if flammable metals are to be accumulated in the area.</li> <li>• Spill-control equipment appropriate to the type of waste stored in the area.</li> </ul>
<b>Step 7</b>	<p>Post the 90-Day Accumulation Area with the following signs.</p> <ul style="list-style-type: none"> <li>• <a href="#">90-Day Accumulation Area Warning Sign</a></li> <li>• <a href="#">90-Day Accumulation Area Rules Sign</a></li> <li>• "No Smoking"</li> <li>• Emergency Contacts - listed in the area's contingency plan.</li> </ul>
<b>Step 8</b>	<p>If the waste contains PCBs, go to the section <a href="#">PCB Waste Management</a> for instructions.</p>

## Guidelines

Dedicate a separate area for the collection of mixed waste, to ensure its segregation from nonradioactive hazardous waste by taping off the area, or better still, erecting/using a physical barrier.

A sufficient number of people should receive 90-Day Accumulation Area Manager training to ensure coverage in the event of the Accumulation Area Manager's absence.

If a telephone is used to fulfill the requirements in step 6 the area's location (building and

If a telephone is used to fulfill the requirements in step 5, the area's location (building and room number) should be posted adjacent to the telephone.

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## 6. Operating a 90-Day Accumulation Area

Effective Date: **August 2003**Point of Contact: [Hazardous Waste Program Manager](#)

### Applicability

This information applies to all 90-Day Accumulation Area Managers.

### Required Procedure

<b>Step 1</b>	Ensure all paperwork has been properly completed before moving waste to the 90-Day Accumulation Area.
<b>Step 2</b>	<p>Submit the <a href="#">Nonradioactive Waste Control Form (NRWCF)</a> and associated waste characterization paperwork (e.g., MSDS, Process Knowledge Form [PKCF]) to Waste Management (WM).</p> <ul style="list-style-type: none"> <li>If the NRWCF is not filled out correctly, or if the waste generator has not received proper training, WM will return copies of the NRWCF along with an Incomplete Waste Control Form Notice, which prescribes the action to be taken, to the generator and the 90-Day Area Manager.</li> </ul>
<b>Step 3</b>	WM schedules a waste pick-up.
<b>Step 4</b>	<p>WM transfers the waste to the Waste Management facility.</p> <ul style="list-style-type: none"> <li>If Waste Management Technicians are unable to locate the waste scheduled to be transferred, WM personnel notify the 90-Day Area Manager and reschedule the pick-up.</li> </ul>
<b>Step 5</b>	<p>Handle and store waste containers in a way that prevents leakage or spillage of the contents.</p> <ul style="list-style-type: none"> <li>Store containers in an environment that will prevent the freezing of the contents or exposure to excessive heat.</li> <li>Do not store containers where the potential exists for leakage to enter sinks or drains.</li> <li>Ensure containers remain in good condition, without holes, dents, or other faults.</li> </ul>
<b>Step 6</b>	<p>Ensure the date that the waste arrived in the 90-Day Accumulation Area matches the "90-Day Date" shown on the <a href="#">Hazardous Waste Label</a>.</p> <ul style="list-style-type: none"> <li>Hazardous waste must not be stored for more than 90 days in a 90-Day Accumulation Area. The Area Manager is responsible for ensuring that the waste is removed within 90 days. Notify Waste Management (WM) to remove waste at least one month before the 90-day accumulation expiration</li> </ul>

	date.
<b>Step 7</b>	Inspect the area weekly by completing the <a href="#">90-Day Hazardous/Mixed Waste Accumulation Area Weekly Inspection Checklist</a> in the <a href="#">Mixed Waste Management</a> Subject Area.
<b>Step 8</b>	Keep a current copy of the Contingency Plan in the 90-Day Accumulation Area and a second copy outside of, but directly adjacent to the area.
<b>Step 9</b>	If the waste contains PCBs, see the section <a href="#">PCB Waste Management</a> for further instruction.

## Guidelines

Maintain copies of all Nonradioactive Waste Control Forms of the wastes that are stored in the 90-Day Accumulation Area.

Ensure containers are tightly sealed.

Post the previous week's inspection immediately outside the area.

Lock the 90-Day Accumulation Area to limit access.

Notify WM at least one month before the 90 days expires.

## References

[Mixed Waste Management](#) Subject Area

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## 7. PCB Waste Management

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

### Applicability

This information applies to all waste generators of PCB waste.

### Required Procedure

<b>Step 1</b>	<p>Ensure PCB waste is picked up by Waste Management within 30 days of it being declared out of service.</p> <ul style="list-style-type: none"> <li>The 30-day clock begins immediately after the first PCB waste is placed in a container or when a PCB article is declared waste.</li> </ul>
<b>Step 2</b>	Completely de-energize PCB electrical devices prior to placing them in the waste accumulation area.
<b>Step 3</b>	<p>Place PCB waste that is not in its original package into one of the following DOT shipping containers:</p> <ul style="list-style-type: none"> <li>For debris, use a 55-gallon, open-top, steel drum (BNL Stock # K-60643)</li> <li>For liquids, use a 55-gallon, bung steel drum (BNL Stock # K-60646)</li> <li>For smaller articles, use a 5-gallon poly bucket (BNL Stock #K-60632)</li> </ul>
<b>Step 4</b>	Ensure adequate spill control when transferring liquids containing PCBs from equipment of other containers.
<b>Step 5</b>	Affix the largest <a href="#">PCB Label</a> on the item that will fit (the maximum label size is 6"x6").
<b>Step 6</b>	Mark the out-of-service date of the PCB article or waste on the PCB Label.
<b>Step 7</b>	Segregate nonleaking small capacitors (defined as capacitors that contain less than 1.36 kilograms (3 pounds) of dielectric fluid or whose total volume is less than 100 cubic inches) and light ballasts from other PCB waste.
<b>Step 8</b>	Post a 6-inch PCB Label at the entrance to the waste accumulation area whenever PCB waste is stored within the area.
<b>Step 9</b>	Return to the section <a href="#">Operating a Satellite Accumulation Area</a> or the section <a href="#">Operating a 90-Day Accumulation Area</a> for more information.

### Guidelines

Segregate leaking PCB articles from nonleaking articles.

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## 8. Universal Waste Management

 Effective Date: **August 2003**

 Point of Contact: [Hazardous Waste Program Manager](#)

### Applicability

This information applies to all generators of universal waste.

### Required Procedure

Although there are four universal waste types, this section in the subject area will primarily be concerned with the accumulation of batteries due to the large quantities generated throughout the Laboratory. Fluorescent bulbs are managed as universal waste through Plant Engineering. Pesticides covered by this ruling are restricted to those being recalled either under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulation or voluntarily by the manufacturer and are not used at the Laboratory. Thermostats are occasionally generated, but are not a major waste stream.

When accumulating universal waste, all BNL waste generators take the following actions in addition to those cited earlier in this subject area.

<b>Step 1</b>	Place a <a href="#">Universal Waste Label</a> on containers used to store universal waste.
<b>Step 2</b>	Use separate containers for different types of waste (i.e., pesticides, mercury thermostats, fluorescent light tubes, or batteries [i.e., nickel-cadmium, lead acid, lithium]).
<b>Step 3</b>	Ensure storage containers of universal waste are closed at all times except when waste is being added.
<b>Step 4</b>	Record the date on the label that the universal waste was first placed in the container.
<b>Step 5</b>	When pickup of universal waste is required by WM, complete a <a href="#">Nonradioactive Waste Control Form (NRWCF)</a> and transfer the NRWCF number onto the <a href="#">Universal Waste Label</a> . Indicate that the mercury thermostat, fluorescent light tubes, pesticides, or batteries have been managed as universal waste and note the start date on the NRWCF.

<b>Step 6</b>	Submit a <a href="#">Nonradioactive Waste Control Form (NRWCF)</a> to WM within 9 months of the date the universal waste is first placed in the container to allow time for pickup and shipment within one year.
<b>Step 7</b>	If universal waste collection container(s) are to remain in the area, repackage and label universal waste for pickup (resealable bags work well for small-quantity items).

## References

### Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

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**HAZARDOUS WASTE  
90-DAY  
ACCUMULATION AREA  
BASIC RULES**

- 1. ALL WASTE CONTAINERIZED**
  - NO LOOSE WASTE SITTING AROUND
  - LIQUIDS MUST HAVE SECONDARY CONTAINMENT
- 2. ALL CONTAINERS CLOSED**
  - EXCEPT WHEN ADDING OR REMOVING WASTE
- 3. ALL CONTAINERS LABELED**
  - "HAZARDOUS WASTE"
  - CONTENTS OF CONTAINER
  - DATE WASTE ARRIVED AT 90-DAY AREA
- 4. STORAGE OF WASTE LIMITED BY TIME**
  - 90 DAYS FOR HAZARDOUS WASTE
  - 30 DAYS FOR PCB WASTE
- 5. SEGREGATE INCOMPATIBLE WASTES**
  - TO PREVENT POSSIBLE INTERACTION
- 6. INSPECT AREA WEEKLY**
  - USING 90-DAY WEEKLY INSPECTION CHECKLIST

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## 90-Day Accumulation Area Warning Sign

Effective Date: **February 2002**

Point of Contact: [Hazardous Waste Program Manager](#)

This sign is available from the [Waste Management Administrative Assistant](#).



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## Examples of Incompatible Chemicals

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(Chemicals listed in Column A should not be stored with or used near items in Column B.)

Column A	Column B
Acetic acid	Chromic acid, nitric acid, hydroxyl compounds, glycol, perchloric acid, peroxides, permanganates
Acetone	Concentrated nitric and sulfuric acid mixtures
Acetylene and monosubstituted acetylene (R-C≡CH)	Chlorine, bromine, copper, fluorine, silver, mercury
Alkali and alkaline earth metals such as powdered magnesium, sodium, potassium	Water, carbon tetrachloride or other chlorinated hydrocarbons, carbon dioxide, the halogens
Ammonia (anhydrous)	Mercury, halogens, calcium hypochlorite, hydrofluoric acid (anhydrous).
Ammonium nitrate	Acids, metal powders, flammable liquids, chlorates, nitrites, sulfur, finely divided organic combustible material
Aniline	Nitric acid, hydrogen peroxide
Arsenical materials	Any reducing agent
Azides	Acids
Calcium oxide	Water
Carbon, activated	All oxidizing agents, calcium hypochlorite
Chlorates	Ammonium salts, acids, metals powders, sulfur, finely divided organic or combustible material
Chromic acid and chromium trioxide	Acetic acid, alcohol, camphor, glycerol, naphthalene, flammable liquids in general
Chlorine dioxide	Ammonia, methane, phosphine, hydrogen sulfide
Copper	Acetylene, hydrogen peroxide
Cumene hydroperoxide	Acids (organic or inorganic)
Cyanides	Acids
Flammable liquids	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, the halogens
Fluorine	All other chemicals
Hydrocarbons (e.g., butane, propane, benzene)	Fluorine, chlorine, bromine, chromic acid, sodium peroxide
Hydrocyanic acid	Nitric acid
Hydrofluoric acid (anhydrous)	Ammonia (aqueous or anhydrous)

Hydrogen sulfide	Fuming nitric acid, oxidizing gases
Hypochlorites	Acids, activated carbon
Iodine	Acetylene, ammonia (aqueous or anhydrous), hydrogen
Mercury	Acetylene, fulminic acid, ammonia
Metal Hydrides	Acids, water
Nitrates	Acids
Nitric acid (concentrated)	Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids, flammable gases, copper, brass, any heavy metals
Nitrites	Acids
Nitroparaffins	Inorganic bases, amines
Oxalic acid	Mercury, silver
Oxygen	Oils, grease, hydrogen; flammable liquids, solids, or gases
Perchloric acid	Acetic anhydride, alcohol, bismuth, paper, wood, grease, oils
Permanganates	Concentrated sulfuric acid
Peroxides, organic	Acids (organic or mineral), avoid friction, store cold
Phosphorus (white)	Air, oxygen, alkalies, reducing agents
Potassium	Carbon tetrachloride, carbon dioxide, water
Potassium chlorate	Sulfuric and other acids
Potassium perchlorate (see also chlorates)	Sulfuric and other acids
Potassium permanganate	Glycerol, ethylene glycol, benzaldehyde, sulfuric acid
Silver	Acetylene, oxalic acid, tartaric acid, ammonium compounds, fulminic acid
Sodium	Carbon tetrachloride, carbon dioxide, water
Sodium nitrate	Ammonium nitrate and other ammonium salts
Sodium peroxide	Ethyl or methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethyl acetate, methyl acetate, furfural
Sulfuric acid	Chlorates, perchlorates, permanganates

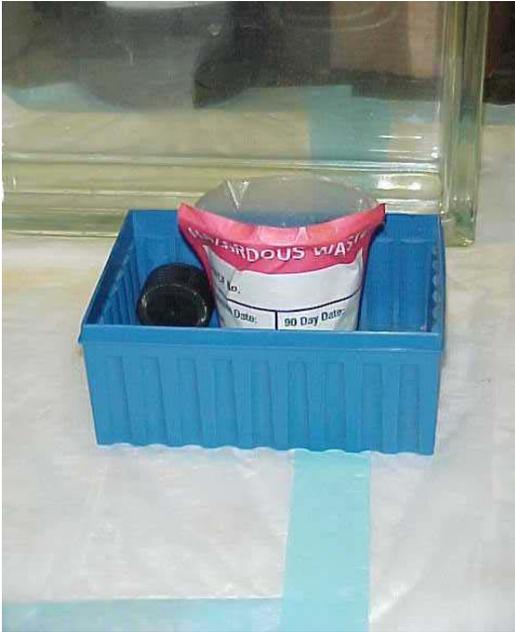
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## Unacceptable Waste Containers



Open/Unsealed Container



Heavy Rust on Drum Chimes



Rust and Flaking Metal on  
Bottom Rim of Drum



Rust/Flaking Paint on Lid

## Examples of Waste Descriptions

### Acceptable

Waste Methanol & Acetonitrile

Acetone/Chloroform/water

Water contaminated with lead

Flux /phosphoric acid

Paper/glass/mercury

### Unacceptable\*

Wastewater

Legacy Waste

Mold Release

Smith's Solvent

waste reagent

\* General descriptions such as these do not provide any information with respect to the associated hazard/properties or constituents of the waste and must not be used.



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## Hazard Class

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Class No.	Division No. (if any)	Name of class or division	49 CFR reference for definitions
None		Forbidden materials	173.21
None		Forbidden explosives	173.54
1	1.1	Explosives (with a mass explosion hazard)	173.50
1	1.2	Explosives (with a projection hazard)	173.50
1	1.3	Explosives (with predominately a fire hazard)	173.50
1	1.4	Explosives (with no significant blast hazard)	173.50
1	1.5	Very insensitive explosives; blasting agents	173.50
1	1.6	Extremely insensitive detonating substances	173.50
2	2.1	Flammable gas	173.115
2	2.2	Non-flammable compressed gas	173.115
2	2.3	Poisonous gas	173.115
3		Flammable and combustible liquid	173.120
4	4.1	Flammable solid	173.124
4	4.2	Spontaneously combustible material	173.124
4	4.3	Dangerous when wet material	173.124
5	5.1	Oxidizer	173.127
5	5.2	Organic peroxide	173.128
6	6.1	Poisonous materials	173.132
6	6.2	Infectious substance (Etiologic agent)	173.134
7		Radioactive material	173.403
8		Corrosive material	173.136
9		Miscellaneous hazardous material	173.140
None		Other regulated material: ORM-D	173.144

[Amdt. 173-224, 55 FR 52606, Dec. 21, 1990, as amended at 57 FR 45460, Oct. 1, 1992; Amdt. 173-234, 58 FR 51531, Oct. 1, 1993]

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# Hazardous Waste Generator Characterization Guidance

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- 1.0 Hazardous Waste Defined
  - 2.0 Process Knowledge
    - Random Verification
    - Tools for Characterizing Hazardous Waste
      - Ignitable Characteristics
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      - Reactive Characteristics
      - Toxic Characteristics
  - 3.0 Sampling and Analysis
    - Chain of Custody and Analytical Instructions (COC)
    - Sampling Methods
  - 4.0 Documentation
    - Characterization Documentation
    - Material Safety Data Sheet (MSDS)
- 

### 1.0 Hazardous Waste Defined

Waste contaminated with RCRA-regulated constituents is hazardous waste.

All hazardous waste must be characterized and accepted for transfer to a Waste Management (WM) facility and/or approved by WM for shipment to an offsite treatment, storage, and disposal facility. Your characterization will allow WM to safely handle, segregate, store, treat, and ship your waste off-site for disposition. Waste that is not properly characterized may be subject to rejection by WM.

To determine if your waste needs to be sampled and analyzed, contact your [Waste Management Representative \(WMR\)](#), [Environmental Compliance Representative \(ECR\)](#), or the [WM Hazardous Waste Program Manager](#) for assistance.

A generator must know in advance that the process being used will create hazardous waste, in accordance with BNL's [Work Planning and Control](#) Management System Description, and as required by the [Work Planning and Control for Experiments and Operations](#) Subject Area. Contact your [Environmental Compliance Representative \(ECR\)](#) for assistance with planning work activities that may generate hazardous wastes.

## 2.0 Process Knowledge

Hazardous wastes that are generated at BNL can be primarily characterized by the waste generators through their knowledge of the process that generated the waste. To help determine if you have generated a hazardous waste, see [Tools for Characterizing Hazardous Waste](#). If process knowledge is not adequate for characterizing your waste, you must arrange to have your waste sampled and analyzed by an approved offsite testing laboratory. An ECR or Waste Management Representative (WMR) should be contacted for assistance.

Waste must be fully characterized before it can be transported to a WM facility. Your characterization will allow WM to safely handle, segregate, store, treat, and dispose of the waste according to its operating permit requirements. See [Sampling and Analysis](#) for use of the CES Chain of Custody and Analytical Instructions (COC).

Hazardous waste that is generated at BNL may be characterized by waste generators through their knowledge of the process that generated the waste. There are circumstances where the U.S. Environmental Protection Agency (EPA)/Ecology protocol sampling and analysis are not feasible or necessary for characterization of hazardous constituents (40 CFR 262.11, "Hazardous Waste Determination" [EPA 1987]). Under these circumstances, techniques that rely primarily on documented knowledge of raw materials, processes and material balances can be employed to characterize wastes. Such techniques may be employed when one or more of the following conditions are met.

- The waste stream is difficult to sample because of physical form. This primarily applies to pieces of metal (e.g., shielding) that contain hazardous constituents in their composition rather than as a residue that could be removed for testing or in a decontamination process.
- Waste is too variable to be characterized by one set of samples (e.g., drums containing contaminated protective clothing, rags, and absorbent).
- Process knowledge is available and sufficiently documented to provide a complete characterization of the waste stream (e.g., MSDS, mass balances, etc.).

Process knowledge will not be accepted by WM unless it can be shown that the process producing the waste is rigidly controlled, such as through procedures governing waste segregation of input materials procurement. Through an understanding of the material input to a process and manner in which the material is manipulated or handled, the waste may be characterized by use of a model that accounts for the quantities which will be included in the waste from that process. Appropriate documentation must accompany the request to show that the use of process knowledge is appropriate. Examples of appropriate documentation include:

- Interview information
- Logbooks
- Procurement records
- Qualified analytical data
- Process flow charts
- Inventory sheets
- Vendor information
- Mass balance from an uncontrolled process (e.g., spill cleanup)

- Procedures and/or methods of accomplishment
- Mass balance from a process with variable inputs and outputs (e.g. washing/cleaning methods).
- Material Safety Data Sheets

This information is documented on a [Nonradioactive Waste Control Form \(NRWCF\)](#) and/or [Process Knowledge Certification Form \(PKCF\)](#), including supporting documentation, in accordance with the requirements of the [Hazardous Waste Management](#) Subject Area.

If you are performing a new process that will generate hazardous waste, contact your area WMR, who can help you determine the appropriate documentation to complete.

### **Random Verification**

A minimum of ten percent of all incoming waste is randomly selected for verification, by sampling and analysis in accordance with WM's Waste Analysis Plan (WAP). Hazardous waste must be characterized in accordance with [Title 40 of the Code of Federal Regulations \(CFR\), Part 264.13, General Waste Analysis](#); and New York State Environmental Rules and Regulations, [6 NYCRR Part 371, Identification and Listing of Hazardous Wastes](#). BNL has a Waste Analysis Plan as required by 40 CFR 264.13, which determines the hazard class of wastes received by WM from BNL generators to ensure the wastes are stored safely prior to offsite disposal.

The Waste Management Program maintains verification databases to track:

- rate, frequency, location, type, and trends of verification failures;
- Nonconformance Reports (NCRs).

A reportable failure requires an NCR if:

1. There is a characterization change outside that provided on the NRWCF.
2. There are additions or deletions of a waste characteristic effecting: toxicity; ignitability; corrosivity; or reactivity, or
3. A condition adversely affecting Safety, the Waste Management Facilities authorization basis, or the Waste Management Program's Standard Operating Procedures.

Note: Conservative characterization by the waste generator will be considered and in general will be exempt from the NCR process.

### **Tools for Characterizing Hazardous Waste**

EPA and New York State Department of Environmental Conservation (NYSDEC) lists of hazardous waste, as well as knowledge of the hazardous properties of your waste can be used as tools for characterizing your waste.

The EPA (40 CFR 261) has divided hazardous wastes into a number of lists. In addition, NYSDEC has its own list of hazardous wastes (see [6 NYCRR Part 371, Identification and Listing of Hazardous Wastes](#)).

If the hazardous components of your waste are not on these lists, then determine if it exhibits any of the four hazardous properties as defined by EPA or NYSDEC and summarized below:

- Ignitable
- Corrosive
- Reactive
- Toxic

### **Ignitable Characteristics**

Ignitable wastes may be:

- Liquids (other than a water solution containing less than 24% alcohol by volume) with a flash point of less than 60° C (140° F).
- Nonliquids that can spontaneously burn or can be ignited by friction or absorption of moisture at ambient conditions.
- Compressed gases that burn.
- Anything solid that burns in the presence of oxygen in the atmosphere and that releases large quantities of energy. Strong oxidizers almost always contain multiple oxygen atoms.

Examples of ignitable wastes include:

- Alcohol (>24% by volume as defined by law)
- Finely powdered iron, nickel, and aluminum
- Benzoyl peroxide
- Potassium nitrate

### **Corrosive Characteristics**

Corrosive wastes may be liquids, gases, or solids that exhibit any of the following properties:

- Aqueous with pH  $\leq 2$  or  $\geq 12.5$
- A liquid that corrodes steel at rates exceeding 0.25 inches per year at a test temperature of 130° F using a specified test method

- Solid wastes meeting either of these criteria when mixed in equal parts with water

Examples of corrosive wastes include:

- Acid solutions (pH  $\leq$  2)
- Alkaline solutions (pH  $\geq$  12.5)
- Ferric chloride solution
- Caustic alkaline solids

### **Reactive Characteristics**

Reactive wastes may be liquids, gases, or solids that exhibit any of the following properties:

- Reacts violently with water
- Forms potentially explosive mixtures with water
- Normally unstable and readily undergoes violent change without detonating
- Generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment when mixed with water or another chemical, such as acid

Examples of reactive wastes include:

- Hetero-nitro (containing multiple nitro groups)
- Lithium hydride
- Sodium metal
- Cyanide- or sulfide-bearing wastes which evolve toxic cyanide or sulfide gases when exposed to a change in pH between 2 and 12.5
- Waste with a cyanide concentration of  $>250$  parts per million or a sulfide concentration of  $>500$  parts per million which evolve toxic cyanide or sulfide gases when exposed to acidic conditions of pH  $<2$

### **Toxic Characteristics**

Toxic wastes may be gases, liquids, or solids that exhibit any of the following properties:

- Carcinogenicity, mutagenicity, or teratogenicity
- Acute or chronic health effects

Waste is deemed toxic if it exhibits any of the following criteria:

- Contains specific hazardous constituents above specified regulatory limits
- Is toxic to test animals by a oral, dermal, or inhalation route
- Is toxic to aquatic life
- Contains specific carcinogenic materials above the regulatory limits

This toxicity characteristic can be determined by analytical measurements of concentrations of the toxic material that are:

- Dissolved in a liquid waste
- Leachable by acidic water (pH 5) from a solid waste
- A combination of the above

Examples of toxic wastes include:

- Water-soluble compounds of listed heavy metals such as nickel or silver
- Listed chlorinated and nonchlorinated solvents such as trichloroethylene and toluene
- Listed pesticides such as Chlordane
- Coolants with or without listed metals or oil

### **3.0 Sampling and Analysis**

Sampling and analysis may be required if:

- Process knowledge is not available or adequate to completely characterize the waste, and/or
- You are uncertain as to whether regulated hazardous materials may be present.

An approved offsite laboratory will do the analyses in accordance with the generator defined sampling plan. Your WMR will provide assistance to determine the type of analysis required to characterize your waste and provide guidance on characterization procedures for unknown wastes.

You should provide the sampling personnel as much information about the composition of your waste as possible. Before collecting the sample, the sampling technician or WMR reviews the sampling method and strategy to determine if they are safe and appropriate for the waste.

If radioactive constituents above are contained in your hazardous waste, then the waste must be characterized as mixed waste (see the [Mixed Waste Generator Characterization Guidance](#) exhibit in the [Mixed Waste Management](#) Subject Area).

There are several sampling methods for the various kinds of waste. The sampling method and devices used to sample a container of waste depend on the generator-supplied information. Requests for sampling are in accordance with Environmental Services Division procedure [EM-SOP-105, Request for Sampling and Supplemental Health and Safety Plan](#), or an equivalent approved facility- or activity-specific procedure.

Sampling and analysis of waste is done according to a pre-approved sampling and analysis plan.

### **Chain of Custody and Analytical Instructions (COC)**

If your waste requires analysis, you are responsible for requesting that it be sampled and analyzed. Your WMR or ECR will assist you in filling out a COC, taking samples, and arranging for the appropriate analysis.

Waste samples used for the analytical characterization of the waste streams will be submitted to the onsite Analytical Services Laboratory (ASL) for screening for radioactivity (if required), or will be shipped to an approved contract laboratory for analysis. [EM-SOP-109, Chain of Custody Procedure](#) defines requirements for documenting the possession (custody) of samples from the point of collection to receipt of the sample by the analytical laboratory. This procedure also allows for providing waste analysis instructions. The NRWCF number and/or the container serial number for each waste package sampled will be recorded so that the sample is traceable to a specific waste parcel or container.

### **Sampling Methods**

Provide the sampling personnel as much information about the composition of your waste as possible. This exchange is important because, before collecting the sample, the sampling technicians or WMR will select a sampling method and strategy that is safe and appropriate for the waste.

There are several sampling methods for the various kinds of waste. The sampling method and device used to sample a waste depend on the generator-supplied information based on knowledge of the waste. Sampling must meet EPA SW-846 industry standards, or equivalent standards. EPA publication SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, is a compilation of analytical and sampling methods that have been evaluated and approved for use in complying with the RCRA regulations. SW-846 functions primarily as a guidance document setting forth acceptable sampling methods. Information about other methods and analytical technologies may be accessed through the [EPA's Technology Innovation Office Clu-In](#) web page.

The ability to characterize waste adequately is based on obtaining enough samples to ensure that a representative population of samples is collected. The EPA has guidance documents and methods are based on media being sampled. If a small amount of waste must be sampled such as a drum one sample may be all that is necessary as long as the waste is known to be

homogeneous. Larger waste streams, such as soil piles, will require numerous samples. The Environmental and Waste Management Services (EWMS) Division maintains the [Environmental Monitoring SOPs](#) web page providing sampling guidance for environmental media, which should be followed if applicable to your waste.

To ensure that each waste stream is characterized properly and that the analytical data is truly representative in nature the following table should be used for characterizing the different waste streams. The number of samples per waste stream is based on statistical methods and an acceptable deviation between the samples. A statistical analysis tool has been developed by WM (see Appendix A - Request for Use of Non-DOE Facility for Disposal of Radioactive Waste in the BNL [Waste Certification Program Plan \(WCPP\)](#) in the [Radioactive Waste Management Basis](#) Program Description, and must be used to determine the number of samples needed for bulk waste streams such as soil. Preliminary data used for cleanup-level purposes may be used for screening, however, unless all required hazardous constituents have been accounted for, further characterization samples will be mandatory.

#### **4.0 Documentation**

##### **Characterization Documentation**

Before hazardous waste can be transferred from the generator's facility to WM, a documentation package must be completed.

A documentation package contains information about the waste that enables WM to properly manage and track the waste and is required before transport to a WM facility.

The documentation package consists of:

- [Nonradioactive Waste Control Form \(NRWCF\)](#)
- [Process Knowledge Certification Form \(PKCF\)](#)
- Sampling and analysis plan (if applicable)
- Analytical data (if applicable)

Instructions for preparing the required waste characterization documentation are provided in the [Hazardous Waste Management](#) Subject Area.

Contact your area WMR, who can provide assistance in preparation of the appropriate documentation.

##### **Material Safety Data Sheet (MSDS)**

An MSDS is a basic source of information about hazardous chemicals. Each MSDS must list several characteristics of the chemical including:

- Chemical identity as used on the container label;

- Chemical and common names of all hazardous ingredients;
- Physical and chemical characteristics of the hazardous ingredients;
- Physical and health hazards of the hazardous ingredients, including exposure symptoms;
- OSHA permissible exposure limit (PEL) and other exposure limits.

An MSDS is a useful tool in helping to characterize surplus manufacturers' products because they should contain detail regarding hazardous components, physical data, ignitability, reactivity, health hazards, etc. However, if the product has been mixed or contaminated with other materials, the MSDS information may not apply.

Contact your ECR or WMR if you cannot locate an MSDS. Keep all MSDSs for product material you replace for use in disposal of your waste. Refer to the BNL [Material Safety Data Sheet \(MSDS\) Search](#) in the [Chemical Management System \(CMS\)](#) web site for additional information.



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Subject Area: **Hazardous Waste Management**

## Hazardous Waste Label

Effective Date: **February 2002**

Point of Contact: [Hazardous Waste Program Manager](#)

This label is available from Central Stock in the following three sizes:

- Large (6"x6"): S 33835
- Medium (4"x4"): S 33833
- Small (2"x2"): S 33831

HAZARDOUS WASTE

HWCF No. <u>64301</u>	
Generator <u>JOHN DOE</u>	Life No. <u>XXXX</u>
Bldg. <u>815</u> Dept. <u>DAS</u>	Phone <u>XXX</u>
Contents <u>MIXED SOLVENTS</u>	
<b>Hazardous Properties</b> (Check All That Apply) <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Ignitable</li> <li><input type="checkbox"/> Reactive</li> <li><input type="checkbox"/> Toxic</li> <li><input type="checkbox"/> Corrosive</li> <li><input type="checkbox"/> Other _____</li> </ul>	<b>Waste Accumulation Dates</b> Satellite Start Date: _____ Satellite End Date: _____ 90 Day Storage Area Placement Date: <u>8.14.98</u> HWM Received Date: _____
<b>Waste Form</b> <input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas	

RML E 3025

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## PCB Labels - Types/Sizes

Effective Date: **December 2002**Point of Contact: [PCB Management Subject Matter Expert](#) or [Environmental Compliance Representative](#)

Figure 1: EPA Label ML  
 Size: 6"x6" – Stock #S-33862  
 4"x4" – Stock #S-33888  
 2"x2" – Stock #S-33886



Figure 2: EPA Label Ms  
 Size: 1"x2" – Stock #S-33860



Figure 3:



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# Photo of Hazardous Waste Storage Module and Rubber Webbing Mats

Effective Date: **February 2002**

Point of Contact: [Hazardous Waste Program Manager](#)

## Rubber Webbing Mats



## Hazardous Waste Storage Module





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*Subject Area: Hazardous Waste Management*

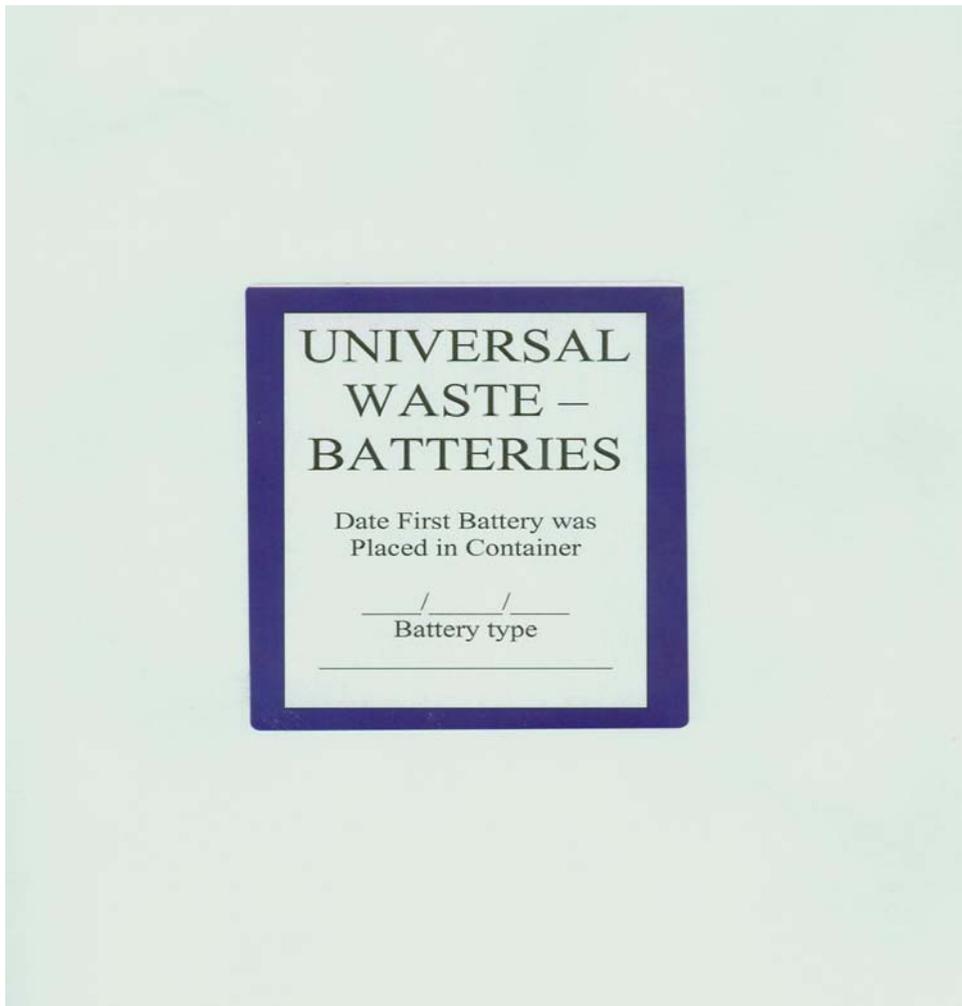
## Universal Waste Label

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

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The Universal Waste Label is available through the Waste Management Program.



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# Hazardous Waste 90-Day Area Registration Form

Fill in the required information and send the form to Waste Management.

Department:

Building:

Location within building:

Area manager:

Phone extension:

Type(s) of waste to be stored in area\*:

Location of entrance to area and accessibility restrictions:

**\*Note: Examples of types of waste include Liquids, Drums, Compactible and Non-Compactible.**

# Nonradioactive Waste Control Form

WCF# \_\_\_\_\_

WM Use Only

Reviewed by: \_\_\_\_\_

Form Rec'd \_\_\_\_\_ EPA Codes \_\_\_\_\_

Waste Code \_\_\_\_\_ Storage Location \_\_\_\_\_

DOT Hazard Class \_\_\_\_\_

## GENERAL INFORMATION

PLEASE PRINT USING BLUE OR BLACK INK

Generator Name \_\_\_\_\_ Life/Guest # \_\_\_\_\_ Ext. \_\_\_\_\_

Dept./Div. \_\_\_\_\_ Bldg. Of Waste Origin \_\_\_\_\_ Rm. # \_\_\_\_\_ Accumulation Area Bldg.# \_\_\_\_\_

Date waste was placed in 90-Day Area \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Account # for waste disposal \_\_\_\_\_

**WASTE QUANTITY** Number of **Identical** Packages \_\_\_\_\_ **Type** of pkg. \_\_\_\_\_ (jar, drum, carboy, etc.)

Please use decimals **Total volume of waste** \_\_\_\_\_ ft<sup>3</sup> **Solid OR** \_\_\_\_\_ gal. **Liquid** **Total weight of waste** \_\_\_\_\_ lbs.

**WASTE CHARACTERIZATION** **Chemical Name** \_\_\_\_\_ **CMS#** \_\_\_\_\_

**Describe process** that generated waste: \_\_\_\_\_ **Check to return pkg.** \_\_\_\_\_

Provide percent by volume of constituents for mixtures: (no. & size for PCB items) Check if **unused, unopened chemical** \_\_\_\_\_

	%		%		%
	%		%		%

List additional constituents on back.

Physical State *Check only one:* Solid  Liquid  Gas  YES NO

**PCBs** Does the waste contain **PCBs?** If yes, \_\_\_\_\_ ppm    
For articles/equipment containing PCBs, provide date item was **removed from service** \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
For drummed ballasts, capacitors, and transformers, provide number of pieces and individual weights in boxes above, or attach separate inventory sheet.

**IGNITABILITY** Is the flashpoint **less than 140° F (60° C)?**    
Is the waste an **Oxidizer?**

**CORROSIVITY** For **aqueous wastes:**  
Is the pH **less than or equal to 2.0 OR greater than or equal to 12.5?** \_\_\_\_\_ pH

**REACTIVITY** Is the waste **unstable, air or water reactive, or explosive?** If so, list in PRECAUTIONS    
Will the waste **liberate cyanide or sulfide?** If so, list in PRECAUTIONS

**GENERAL** Is the waste from a spill clean-up? Provide spill # if applicable. \_\_\_\_\_    
**Was the waste used as a solvent or degreaser?** If so, which? \_\_\_\_\_

**TOXICITY** Based on your knowledge of the process and the information available to you (MSDS, manufacturer's specs, etc.) does the waste contain any of the following materials?

Arsenic	Chlorobenzene	Cresol	Endrin	Lindane	Pyridine	2,4,5-Trichlorophenol
Barium	Chloroform	2,4 D	Heptachlor & epoxide	Mercury	Selenium	2,4,6-Trichlorophenol
Benzene	Chromium	1,4 Dichlorobenzene	Hexachlorobenzene	Methoxychlor	Silver	2,4,5 TP (Silvex)
Cadmium	o-Cresol	1,2 Dichloroethane	Hexachlorobutadiene	Methyl Ethyl Ketone	Tetrachloroethylene	Vinyl Chloride
Carbon Tetrachloride	m-Cresol	1,1 Dichloroethylene	Hexachloroethane	Nitrobenzene	Toxaphene	
Chlordane	p-Cresol	2,4 Dinitrotoluene	Lead	Pentachlorophenol	Trichloroethylene	

**PRECAUTIONS** Note any special hazards: \_\_\_\_\_ (e.g., shock sensitive, water/air reactive)

**Initial here if waste has been in a Radiological Area.** If waste has been in a Radiological Area, a Process Knowledge Certification Form (PKCF) shall be attached to this WCF to define waste specific parameters.

**Wastes Decayed in Storage (DIS) at the Point of Generation must be managed in accordance with BNL's Radioactive Waste Management Subject Area. DO NOT document DIS Wastes on this form.**

**CERTIFICATION** I certify that, to the best of my knowledge, the information provided on this form is true and complete and that I am minimizing all the waste generated to the best of my ability. I also certify that no radioactivity has been added to this waste.

Generator's Signature \_\_\_\_\_

Date \_\_\_\_\_

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Additional Constituents


**INSTRUCTIONS:**

General Information

Generator Information                      Name of person knowledgeable of and responsible for generation of waste. Generator's training in RCRIGEN3 must be current at the time of generation for waste to be picked up. Must also provide BNL Life/Guest number; Dept./Div. responsible for waste; building and room where originated; and date waste was placed in 90-Day Storage Area.

Waste Quantity                                Indicate separately the **number of identical packages** and the **type of package**. Provide the **quantity of the waste** by listing gallons for liquids and cubic feet for solids. The weight must be provided for all wastes in pounds.

Waste Characterization                      Provide the name of the waste and the process that generated it. If the waste is a mixture or listed as a trade name, list all constituents in the spaces provided. A Material Safety Data Sheet (MSDS) may also be attached to provide information on the waste's constituents. Check off all of the appropriate boxes pertaining to the waste's physical state and characteristics.

Precautions                                      List any special hazards that should be considered when picking up and transporting waste (i.e., shock sensitive, unstable).

Process Knowledge Statement              This form is only intended for use on wastes that have not had radioactivity added to them at any time. If the form is initialed to indicate the waste has been in a Radiological Area, a Process Knowledge Certification Form (PKCF) must be completed and attached to this form indicating that no radioactivity has been added to this waste.

**For wastes that have never been in a radiological area, a PKCF does not have to be attached to this form.**

Certification                                    The certification at the bottom of the Waste Control Form must be signed by the waste generator. It certifies that all information provided is true and complete; that waste is being minimized to the extent possible; and that no radioactivity has been added to this waste.

The following web sites are also available to help simplify Waste Management and provide information on Pollution Prevention.

[www.bnl.gov/wmd](http://www.bnl.gov/wmd)

The Waste Management Program home page provides a link to "How Do I Manage This Waste Stream," the BNL hazardous and radioactive waste pick-up schedule, contacts, and services available to BNL to assist with waste management needs.

[www.bnl.gov/esd/pollutionpreve/](http://www.bnl.gov/esd/pollutionpreve/)

Environmental Services/Pollution Prevention home page provides information on BNL Pollution Prevention projects, funding opportunities, recycling information, as well as links to "How Do I Manage This Waste Stream" and other P2 resources.

## PROCESS KNOWLEDGE CERTIFICATION FORM

**NOTE:** If the waste is known to have added radioactivity, then quantify that activity using a Radioactive Waste Control Form (RWCF) in lieu of a Process Knowledge Certification Form (PKCF) and a Non-Radioactive Waste Control Form (WCF).

Check the appropriate box for the type of Radiological Area that the waste has been in, as defined in the BNL Radiation Control (RadCon) Manual.

List potential nuclides

- Contamination Area \_\_\_\_\_
- Radiation Area \_\_\_\_\_
- Airborne Radioactivity Area \_\_\_\_\_
- Radioactive Material Area \_\_\_\_\_

54 of 60

Yes     No    **Was this waste ever exposed to a beam or other source of particles (e.g., neutrons, protons, etc.) capable of causing activation?**  
If YES, please give details of the exposure process.

\_\_\_\_\_

\_\_\_\_\_

Yes     No    **Was this waste ever in an area where the potential existed for contamination due to the presence of unencapsulated or unconfined radioactive material?**  
If YES, please give details of the exposure process.

\_\_\_\_\_

\_\_\_\_\_

### CERTIFICATION

Based on my knowledge of the origin, storage, use, potential exposure of the waste, and /or analysis, I certify that radioactivity has **NOT** been added to the waste, I also certify that, to the best of my knowledge, the information provided on the accompanying WCF is true and complete and that I am minimizing all waste to the best of my ability.

\_\_\_\_\_  
Signature of Waste Generator

\_\_\_\_\_  
Life #

\_\_\_\_\_  
Date

Attach this form to the WCF, transfer the WCF number to this form, and send both to your Facilities Support Services (FSS) Representative

### Material Survey Log

**FSS Representative**

If waste is from an Radiological Area, survey the container for surface contamination utilizing BSS-SOP-1090, and check the appropriate box (Releasable or Unreleasable per DOE Order 5400.5).

**Releasable**                       **Unreleasable**

Document survey on reverse side

Location of material: \_\_\_\_\_ (Building / Room No.)

Use the table below to record removable contamination survey (either disk smears or masselin wipes) results. Enter scaler serial number for instrument serial number and counter room number if using counter equipment.

Detector type	Survey Instrument Serial No.	Counter Room No. or Inst. Model No.	Net Counts (cpm)	Reportable Result (dpm/100cm <sup>2</sup> )	Comments (Radioanalytical Group Sample ID)

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Use the table below to record fixed plus removable (direct) contamination survey results.

Detector type	Survey Instrument Serial No.	Counter Room No. or Inst. Model No.	Net Counts (cpm)	Reportable Result (dpm/100cm <sup>2</sup> )	Comments (Radioanalytical Group Sample ID)

\_\_\_\_\_  
 Surveyor's Signature                      Life Number                      Date                      Time

\_\_\_\_\_  
 Reviewer's Signature                      Life Number                      Date

**Note:** Mark "N/A" in unused spaces

FC: HP3120

BNL F 3065

May 24, 1999



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## Definitions: Hazardous Waste Management

Effective Date: **August 2003**

Point of Contact: [Hazardous Waste Program Manager](#)

Term	Definition
90-day accumulation area	A RCRA-regulated area designated by a Department/Division as the central accumulation point for any hazardous wastes generated. Each 90-Day Accumulation Area must be established where it is convenient for the Department/Division and consistent with the requirements in this subject area. Although there is no limit as to the quantity of hazardous waste that can be accumulated in a 90-Day Accumulation Area, a waste container must not remain in the area for longer than ninety (90) days.
90-day Accumulation Area Manager	A person appointed by the Department/Division to control and oversee the day-to-day operations of one or more of the Department/Division's 90-Day Accumulation Area(s).
acutely hazardous waste	Any waste regulated under Section 371.4(d)(5) of Title 6 of the New York Codes, Rules, and Regulations (6NYCRR) or any waste regulated under Section 371.4(b) and 371.4(c) with "H" Hazard Code in 6NYCRR.
certification	A statement signed by the waste generator on the Hazardous Waste Control Form that says (or certifies) that the waste has been minimized and the contents of the hazardous waste package are described correctly on the form.
<a href="#">Chemical Management System (CMS)</a>	A database that tracks surplus chemicals stored across the BNL site that are available for use by others in lieu of purchasing new materials.
contingency plan	A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.
empty containers of hazardous waste	<p>A container is empty when all wastes have been removed from the container (using practices commonly employed to remove materials from that type of container [e.g., pouring, pumping, and aspirating]), so that no more than 3% (0.3% for containers greater than 110 gallons) by weight of the total capacity remains in the container. A good rule of thumb is that less than one inch of residue can remain in a 55-gallon drum.</p> <p>A cylinder holding a compressed gas is empty when the internal presser approaches atmospheric pressure.</p> <p><b>Note:</b> This definition does not apply to acutely hazardous wastes. Empty containers of acutely hazardous wastes must be treated as hazardous.</p>
hazard class	Classification of a hazardous material or waste based on its primary hazardous

hazard class	Classification of a hazardous material or waste based on its primary hazardous characteristic. Hazard Classes include acids, bases, flammables, oxidizers, air reactives, water reactives, poisons/toxics (pesticides, inhalation hazards, cyanides), and organic peroxides. A material may meet the defining criteria for more than one hazard class, but is assigned to only one hazard class (see also the <a href="#">Hazard Class</a> exhibit).
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 possesses at least one of four characteristics (ignitability, corrosivity, reactivity, and toxicity), or appears on special EPA lists.
Nonradioactive Waste Control Form (NRWCF)	A Waste Management (WM) Program on-site waste shipping, tracking, and characterization document completed by waste generators for each container/package of hazardous waste (or for multiple containers/packages of the same waste) and used by WM to track hazardous waste from pickup to final disposition. NRWCFs are identified with unique, sequential serial numbers.
industrial waste	Any liquid, gas, or solid waste resulting from an industrial process that may cause pollution. Industrial waste is not regulated as hazardous waste, but requires local or State approval for disposal to a landfill or resource recovery facility. Examples include non-hazardous waste oil, oil spill debris, ion exchange resin columns, and non-friable asbestos.
mixed waste	Low-Level Radioactive Waste (LLRW) that also contains hazardous waste.
PCBs	Polychlorinated biphenyls. Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees, or any combination of substances that contains such substance.
point of generation	A discernible, discrete location within a process or facility where one or more hazardous wastes are generated.
pollution prevention	The reduction or prevention of a hazardous or radioactive substance, pollutant, or contaminant from entering a waste stream or otherwise from being released to the environment before recycling or treatment.
Process Knowledge Certification Form (PKCF)	A form that is completed by waste generators for each package/container of hazardous waste to certify that the hazardous waste is not radioactive. The PKCF is attached to the accompanying Hazardous Waste Control Form (HWCF).
Radioactive Material Control Area	An area in which the potential exists for contamination due to the presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams or other sources of particles (neutrons, protons, etc.) capable of causing activation.
Resource Conservation and Recovery Act (RCRA)	The Federal law originally passed in 1976 and amended in 1984 that, in part, addressed the generation, treatment, storage, and disposal of hazardous wastes in order to protect human health and the environment.
satellite accumulation area	A RCRA-regulated area designated as the initial point of accumulation for any hazardous wastes generated. Each Satellite Accumulation Area must be located at or near the point in a process or facility where hazardous waste is generated. No more than a total of 55 gallons (7.5 cubic feet or 210 liters) of hazardous waste or one quart (950 milliliters) of acutely hazardous waste shall be stored within each satellite area. Each waste stream resulting from a specific process may have its own Satellite Accumulation Area.
segregation of waste	The process of separating, or keeping separate, individual waste types and forms in order to facilitate their cost-effective treatment, storage, or disposal.
universal waste	Waste items such as batteries, certain pesticides, and mercury-containing thermostats and fluorescent light tubes.
waste generator	Any person whose activity at BNL produces a hazardous, acutely hazardous waste, or other waste managed by the Waste Management Program.
waste minimization	A waste management approach that focuses on preventing or reducing the generation of pollutants, contaminants, or wastes at the source.
weekly	Once within every seven-day cycle, starting Sunday to Saturday.

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## Revision History: Hazardous Waste Management

 Point of Contact: [Hazardous Waste Program Manager](#)

### Revision History of this Subject Area

Date	Description	Management System
August 2003	The section Universal Waste Management was added to the subject area to include requirements for the management of universal waste (40 CFR Part 273). The Universal Waste Label exhibit was added. The 90-Day Accumulation Area Weekly Inspection Checklist exhibit was deleted and replaced by the 90-Day Hazardous/Mixed Waste Accumulation Area Weekly Inspection Checklist exhibit in the Mixed Waste Subject Area.	Environmental Management System
February 2002	The section Completion of Nonradioactive Waste Control Forms and Process Knowledge Certification Forms was revised to add a reference to the new Hazardous Waste Generator Characterization Guidance exhibit.  The Definitions section was revised to make the definition of the "Nonradioactive Waste Control Form" consistent with the WMD-SOP-410 definition.	Environmental Management System
December 2000	This subject area was revised to help insure compliant waste management and address concerns identified by our regulators. Exhibits were added to provide further guidance on acceptable waste descriptions for use on waste labels and waste control forms and to illustrate examples of unacceptable waste containers. The subject area also contains the current "Nonradioactive Waste Control Form" (WCF) and "Process Knowledge Certification Form" (PKCF), which much be used by all waste generators. The WCF is a revision of the Hazardous Waste Control Form and permits the collection of additional data regarding PCB wastes, account numbers for waste disposal, and in many cases, eliminates the need for attaching a PKCF. The PKCF was revised to reflect current procedures and terminology and no longer permits the certification of wastes as "Potentially Mixed."	Environmental Management System

March 1999	This subject replaces ES&H Standards 6.2.0 and 6.2.1.	Environmental Management System
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