



Forms
Contact List
SBMS Instructions
Help Desk

Find Subject Areas:

Show Side Menu **Search Subject Areas & Legacy Documents:**

Subject Area: **Environmental Monitoring**

Contents: Environmental Monitoring

Effective Date: **March 1999**

Point of Contact: [Environmental Compliance Representative](#)

Section	Overview of Content (see section for full process)
<p>Introduction</p> <p>1. Establishing Environmental Monitoring Programs</p>	<ul style="list-style-type: none"> • Evaluate plans for new facilities and modifications. • Identify potential environmental release pathway. • Determine if monitoring is required. • Evaluate engineering/operating controls. • Determine environmental monitoring options. • Prepare environmental sampling and analysis plan for facility. • Send plan to DOE for review and approval. • Install new monitoring devices as required. • Report results of monitoring programs. • Abandon, remove, or reposition an environmental sampling device when needed. • Ensure removal or abandonment activity is properly conducted and documented.

[Definitions](#)

Exhibits

None

Forms

None

Training Requirements and Reporting Obligations

This subject area does not contain training requirements.

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

References

BNL Environmental Monitoring Program Standard Operating Procedure, Installation of Groundwater Monitoring Wells (EM-SOP-102).

BNL Environmental Monitoring Program Standard Operating Procedure, Placement and Collection of TLDs (EM-SOP-502).

BNL Groundwater Protection Management Program Description (December 23, 1998).

BNL Standard Operating Procedure EM-SOP-104, Abandonment of Groundwater Monitoring Wells, Injection Wells, and Supply Wells.

[Drinking Water](#) subject area

[Liquid Effluents](#) subject area

[Non-Radioactive Airborne Emissions](#) subject area

[Radioactive Airborne Emissions](#) subject area

[Storage and Transfer of Hazardous Materials](#) subject area

[Underground Injection Control](#) subject area

Standards of Performance

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

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

Management System

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

[Back to Top](#)

The only official copy of this file is the one online in SBMS. Before using a printed copy, verify that it is the most current version by checking the document effective date on the BNL SBMS website.

1.1-071999-/standard/0a/0a00t011.htm

Send a question or comment to the [SBMS Help Desk](#)
[Disclaimer](#)



Forms Contact List SBMS Instructions Help Desk

Find Subject Areas: Index Categories Alpha

Show Side Menu Search Subject Areas & Legacy Documents:

Subject Area: **Environmental Monitoring**

Introduction: Environmental Monitoring

Effective Date: **March 1999**

Point of Contact: [Environmental Subject Matter Expert](#)

BNL has a comprehensive environmental monitoring program that includes monitoring the air, drinking water, surface water, groundwater, soil, sediment, flora, and fauna. This program is designed to provide early warning of potential environmental releases, monitor potential pathways for exposure to the public and the environment, monitor the effectiveness of environmental remediation systems, measure the potential impact BNL operations may have on the environment, and provide data to demonstrate compliance with applicable laws, regulations, and permit limits. It includes planning, implementation and reporting activities associated with the collection and analysis of samples, or the direct measurement of environmental media, including liquid effluent monitoring, air emissions monitoring, and environmental surveillance.

Environmental monitoring is conducted primarily by two organizations, the Environmental Services Division (ESD) and the Environmental Restoration Division (ERD). The ESD conducts monitoring required by regulatory agency permits, and DOE Order 5400.1, General Environmental Protection Program. The Environmental Restoration Division conducts monitoring related to cleanup activities, as required by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Individual facilities also conduct monitoring for air emissions and/or liquid effluents.

This document provides for the general requirements for all environmental monitoring conducted at BNL. Additional media-specific requirements are addressed in the following Environmental Compliance SBMS subject areas.

- Drinking Water
- Liquid Effluents
- Non-Radioactive Airborne Emissions
- Radioactive Airborne Emissions
- Storage and Transfer of Hazardous Materials
- Underground Injection Control

The only official copy of this file is the one online in SBMS. Before using a printed copy, verify that it is the most current version by checking the document effective date on the BNL SBMS website.

1.0-061999/standard/0c/0c00i011.htm

Send a question or comment to the [SBMS Help Desk](#)
[Disclaimer](#)

Subject Area: **Environmental Monitoring**

1. Establishing Environmental Monitoring Programs

Effective Date: **March 1999**

Point of Contact: [Environmental Subject Matter Experts](#)

Applicability

This information applies to Line Organizations who operate facilities that have the potential to impact environmental quality, or those with the responsibility to characterize, remediate, monitor, and report on the status of environmental quality and impacts.

Required Procedure

For assistance with complying with this procedure or for further information, contact the [Environmental Subject Matter Expert \(SME\)](#) who is the lead for the media involved (i.e., air, surface water, groundwater, or radiation). Additional assistance may be obtained from the [Environmental Compliance Representative](#). For information on specific environmental monitoring requirements, refer to the subject areas for [Liquid Effluents](#), [Non-Radioactive Air Emissions](#), [Storage and Transfer of Hazardous Materials](#), and [Underground Injection Control](#).

Note: For the Environmental Restoration (CERCLA) Program, the Environmental Restoration Division (ERD) Manager may use ERD Subject Matter Experts (SMEs) or contractor support to determine monitoring requirements, assess potential impacts, develop plans, install monitoring equipment, and to implement associated monitoring programs.

<p>Step 1</p>	<p>Line Managers, or their designee, evaluate plans for all new facilities, and any modifications to existing facilities or operations to identify potential impacts to the environment and need for environmental monitoring.</p> <p>Note: the necessity for new monitoring programs may be identified through: historical data review, Facility Reviews, Process Evaluation Project (PEP), CERCLA, Environmental Management System implementation, new facilities or operations, or modifications to facilities or operations.</p>
<p>Step 2</p>	<p>When a potential environmental release pathway has been identified, the Line Manager (or designee) notifies the appropriate SME(s) to determine whether environmental monitoring is required in order to demonstrate compliance with applicable environmental laws and regulation (including Federal, State and local environmental regulations, DOE Orders, and other requirements).</p>
<p>Step 3</p>	<p>The Line Manager (or designee) provides the following information to the SME in order to evaluate engineering and/or operating controls and determine environmental monitoring options:</p> <ul style="list-style-type: none"> • Process description, and duration of the project; • Assessment of potential environmental impacts and release pathways (i.e., soil activation, leakage, etc.); and, • Assessment of potential contaminant concentration in soils, the ability of contaminant to leach out of soils and into groundwater. and the estimated concentration in groundwater.

	<p>Process knowledge or computer simulations (models) may be used when describing the types and amounts of chemical and radionuclide contaminant concentrations.</p> <p>Note: This information must be provided as early as possible in the process/project design to ensure that appropriate time is available to carefully assess the potential impact, and make necessary notifications to the DOE and possibly to regulatory agencies. Early planning is also required to ensure that funding is identified for the timely construction/installation of necessary engineering controls, the installation of monitoring devices, conduct of pre-operational monitoring, and long-term monitoring. Contact the SME for assistance.</p>
Step 4	<p>If monitoring is required, the SME(s) and the Line Organization prepare an environmental sampling and analysis plan for the facility.</p> <p>The sampling and analysis plan will include required pre-operational and operational monitoring procedures to satisfy DOE and/or regulatory requirements. The plan will also provide an overview of the monitoring program's Data Quality Objectives (DQOs). The DQOs include an assessment of the sampling and analysis objectives, monitoring frequency, required analyses, quality assurance requirements, and data management and reporting requirements. The plan must also include an estimate of costs associated with the sampling and analysis program and identification of funding sources.</p> <p>Note: Refer to the environmental compliance subject areas (e.g., Liquid Effluents, Air Emissions, etc.) for more detail.</p>
Step 5	<p>The SME will send the sampling and analysis plan to the DOE for review. If required, the SME will request approval from DOE. Upon approval, the SME will forward written authorizations and documentation to the Line Organization.</p>
Step 6	<p>As required, the Line Manager assisted by the SME arranges for the installation of the new monitoring devices (e.g., monitoring well, thermoluminescent dosimeters, liquid effluent sampling devices). The ESD SME incorporates the new monitoring requirements into the ongoing BNL Environmental Monitoring Program (EMP). The SME notifies the Line Manager when required sampling equipment has been installed, and of the sampling schedule for the monitoring program.</p> <p>The ERD SME incorporates new CERCLA monitoring requirements into the BNL Environmental Monitoring Program, and coordinates sample collection within the ERD organization.</p>
Step 7	<p>The Line Manager incorporates/describes potential environmental impacts, engineering controls, and sampling and analysis requirements in the facility's Safety Analysis Reports, Safety Assessment Documents, and Facility Use Agreement, as appropriate.</p>
Step 8	<p>The SME reports the results of the facility-specific (non-CERCLA) monitoring program:</p> <ul style="list-style-type: none"> • To Line Organization on a semiannual or annual basis (depending upon the sampling schedule); • To DOE and regulatory agencies (as required); and, • In the Annual Site Environmental Report. <p>The ERD SME reports the results of the CERCLA monitoring program:</p> <ul style="list-style-type: none"> • To DOE and regulatory agencies; • In the Annual Site Environmental Report.
Step 9	<p>If the need arises to abandon, remove or reposition an environmental sampling device, contact the SME.</p> <p>For example, a Line Manager may request the removal, abandonment (i.e., abandoning a well in place) or repositioning of a sampling device if the position of the device interferes with a current or</p>

	<p>planned work activity (i.e., construction or a new building). Removal or abandonment or sampling devices may also be required when the monitoring program is no longer required.</p> <p>If the monitoring devices are related to a facility-specific monitoring program (non-CERCLA), the Line Manager (or designee) contacts the ESD. If the monitoring devices are related to the Environmental Restoration Program (CERCLA), the SME will notify ERD.</p>
Step 10	If the device is part of a monitoring program required by an active regulatory permit or commitment under the Laboratory's Environmental Restoration Program, the SME must first obtain written authorization from the DOE and applicable regulatory agencies.
Step 11	Upon DOE and regulatory agency approval, the SME or ERD SME, as applicable, will provide the Line Organization with written authorization for removal, abandonment or repositioning of the sampling device.
Step 12	The SME or ERD SME, as applicable, works with the appropriate Line Organization to determine costs, develop required implementation plans and specifications, and ensure that the removal or abandonment activity is properly conducted and documented.

Guidelines

The data quality objectives and effectiveness of environmental monitoring programs should be periodically re-evaluated by the Line Organizations and the SMEs to ensure that the programs are appropriate, cost-effective, and remain in compliance with regulations (i.e., operating permits) or DOE monitoring requirements.

Managers should adopt cost-effective practices that eliminate or reduce environmental impacts resulting from their operations. This includes implementing operational controls and waste minimization practices, and installing and maintaining pollution prevention devices.

While implementing the Environmental Management System, each facility should compile their monitoring requirements into a comprehensive, multi-media monitoring plan.

References

[Liquid Effluents](#) subject area

[Non-Radioactive Air Emissions](#) subject area

[Radioactive Airborne Emissions](#) subject area

[Storage and Transfer of Hazardous Materials](#) subject area

[Underground Injection Control](#) subject area

The only official copy of this file is the one online in SBMS. Before using a printed copy, verify that it is the most current version by checking the document effective date on the BNL SBMS website.

1.0-061999/standard/0c/0c01d011.htm

Send a question or comment to the [SBMS Help Desk](#)
[Disclaimer](#)



Forms
Contact List
SBMS Instructions
Help Desk

Find Subject Areas: Categories

Show Side Menu **Search Subject Areas & Legacy Documents:**

Subject Area: **Environmental Monitoring**

Definitions: Environmental Monitoring

Effective Date: **March 1999**

Point of Contact: [Environmental Subject Matter Expert](#)

Term	Definition
drinking water	Water suitable for human consumption (also known as potable water).
environmental monitoring	Sample collection and analysis of environmental media (i.e., air, groundwater, drinking water, soil, sediment, flora and fauna) for the purpose of assessing the impacts, if any, of operations on environment, and to demonstrate compliance with applicable environmental requirements.
line manager	Chairperson or Manager (Level 3) of a BNL Department or Division.
monitoring well	Any test hole that is bored, drilled or driven that is intended for the acquisition of groundwater measurements or samples.
permit	An authorization, license or equivalent document issued by the U.S. Environmental Protection Agency (EPA), New York State Department of Environmental Conservation (NYSDEC), or Suffolk County Department of Health Services (SCDHS). A permit may contain specific requirements for environmental surveillance or effluent monitoring.
SME	Subject Matter Expert (e.g., Hydrogeologist, Environmental Engineer, Health Physicist, etc.).
TLD	A TLD, Thermoluminescent Dosimeter, is used to measure cumulative radiation exposure.
underground source of drinking water	An aquifer that contains a sufficient quality and quantity of water to supply a public water system.

[Back to Top](#)

The only official copy of this file is the one online in SBMS. Before using a printed copy, verify that it is the most current version by checking the document effective date on the BNL SBMS website.

1.0-061999/standard/0c/0c001011.htm

Send a question or comment to the [SBMS Help Desk](#)
[Disclaimer](#)



Forms
Contact List
SBMS Instructions
Help Desk

Find Subject Areas: Categories

Show Side Menu Search Subject Areas & Legacy Documents:

Subject Area: **Environmental Monitoring**

Revision History: Environmental Monitoring

Point of Contact: [Environmental Subject Matter Expert](#)

Revision History of this Subject Area

Date	Description	Management System
March 1999	This is a new subject area.	Environmental Management System

The only official copy of this file is the one online in SBMS. Before using a printed copy, verify that it is the most current version by checking the document effective date on the BNL SBMS website.

1.0-061999/standard/0c/0c00a011.htm

Send a question or comment to the [SBMS Help Desk](#)
[Disclaimer](#)