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Subject Area: **Lessons Learned**

Contents: Lessons Learned

Effective: **November 1999**

Point of Contact: [Laboratory Lessons Learned Coordinator](#)

Section	Overview of Content (see section for full process)
<p>Introduction</p> <p>1. Identifying, Analyzing, and Disseminating Lessons Learned Information</p> <p>Definitions</p> <p>Exhibits</p> <p>Lessons Learned Communication</p> <p>Lesson Learned Information Sources</p> <p>Lessons Learned Process Flowchart</p> <p>Forms</p> <p>Lessons Learned Information Screening Process Checklist</p>	<ul style="list-style-type: none"> • Review lessons learned information sources. • Analyze for applicability. • Prepare lessons learned communication. • Disseminate lessons learned communication. • Document resulting process or program improvements.

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

[ES&H Standard 1.3.5., Planning and Control Of Experiments](#)

[ES&H Standard 1.3.6., Work Planning and Control for Operations](#)

[Integrated Assessment](#) Subject Area

[Published Lessons Learned](#)

Standards of Performance

All staff and guests shall share information based on experience (e.g., lessons learned) to promote continuous improvement in business and work practices.

Management System

This subject area belongs to the management system.

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Organizations that have a continuous improvement culture (i.e., learning, radiological, and industrial safety organizations) improve their operations by learning from their own experience and from the experience of others. They systematically identify sources of information that are relevant to their work or operations, they analyze these sources of information for both good work practices as well as adverse work practices, and they take appropriate action in response to the value of these improvement opportunities.

The Lessons Learned Program at BNL implements a systematic review of operating experiences at the Laboratory and across industry to identify opportunities for performance improvements within BNL management systems and product lines to achieve the Laboratory's critical outcomes.

The Lessons Learned Program supports two key elements of the Integrated Assessment Program:

- evaluating overall performance
- identifying and implementing actions for improvements.

This subject area defines the process for effective lessons learned identification and dissemination (see the [Lessons Learned Process Flowchart](#)). It describes the system for recording and tracking management improvement initiatives generated by lessons learned (such as lessons learned incorporated into [ES&H Standard 1.3.6, Work Planning and Control for Operations](#) and [ES&H Standard 1.3.5, Planning and Control of Experiments](#) process) that are appropriate to operations at the Laboratory by integrating the lessons learned program intimately with the Laboratory's Self-Assessment Program.

The Laboratory Self-Assessment Program is the vehicle by which organizations determine how well they are meeting their identified goals and objectives. They do this through the development of an annual self-assessment plan, executing the assessment activities in the plan, documenting the results, and taking appropriate corrective actions based on these results. The incorporation of an effective lessons learned program into the organization's self-assessment program can, when combined with the other organizational self-assessment methods (e.g., performance indicators, operational assessments, benchmarking, customer feedback, peer review, internal/external oversight, program/project reviews, staff satisfaction surveys), be of substantial value to the organization in assessing their overall performance.

All Laboratory managers and staff are highly encouraged to develop a systematic approach to lessons learned using the approach described in this subject area. The identification, analysis, and incorporation of both good and adverse experience of others (i.e., Lessons Learned) is a valuable self-assessment tool available to Laboratory managers and staff in their quest to continuously improve operations and avoid recurrence of adverse events.

Lessons learned opportunities can be identified by managers and staff in a number of ways:

- They receive lessons learned communications directly from external or internal sources such as the DOE Lessons Learned List Server and the [Laboratory Lessons Learned Coordinator](#).
- They identify applicable lessons learned through their routine review of operational data, such as [Occurrence Reporting, Radiation Awareness Reports, and Processing System reports](#), the DOE

Occurrence Reporting, Radiation Awareness Reports, and Processing System reports, the DOE Operating Experience Weekly, deficiency reports, and other performance-related data.

Every work unit within the Laboratory has some relevant counterpart in the DOE or commercial sector from which they can glean this experience information. Researchers should routinely exercise this option by reviewing professional journals, attending professional meetings, collaborating on research projects, networking, and performing library searches. Operations staff should exercise this option by reviewing occurrence reports, radiological problem reports, quality deficiency reports, and equipment manufacturers bulletins. [Subject Matter Experts](#) should exercise this option by reading their professional journals, attending professional meetings and conferences, networking, and reviewing equipment manufacturers' bulletins.

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Subject Area: **Lessons Learned**

1. Identifying, Analyzing, and Disseminating Lessons Learned Information

Effective Date: **November 1999**

Point of Contact: [Laboratory Lessons Learned Coordinator](#)

Applicability

This information applies to management system stewards, [Subject Matter Experts](#), line managers, staff, and [Lessons Learned Coordinators \(Organizational\)](#) who are responsible for conducting lessons learned activities as a method of their organization's self-assessment (see the [Integrated Assessment](#) Subject Area).

Note: This subject area is required for organizations that have identified lessons learned as a method of self-assessment. It is recommended for all other organizations as a good method of capturing and sharing lessons learned information.

Required Procedure

Managers and staff identify, analyze, and disseminate lessons learned information to promote repeat application of good work practices or innovative approaches and to avoid recurrence of adverse work practices or experiences.

[The Lessons Learned Process Flowchart](#) shows the following process.

<p>Step 1</p>	<p>Managers, staff, Lessons Learned Coordinators (Organizational), and the Laboratory Lessons Learned Coordinator review lessons learned information sources (see the Lessons Learned Information Sources exhibit) and identify both positive and negative lessons learned opportunities either as an integral part of their formal Self-Assessment Program (see the Integrated Assessment Subject Area) or during the accomplishment of their routine duties (see ES&H Standard 1.3.6, Work Planning and Control for Operations).</p> <p>Note: If staff are unsure of the process for disseminating lessons learned information, they can contact their immediate manager, a Subject Matter Expert, organizational LL Coordinator, or the Laboratory Lessons Learned Coordinator to help determine whether there is a lessons learned opportunity and the process for sharing the information.</p>
<p>Step 2</p>	<p>Managers and staff forward the lessons learned opportunities to the Lessons Learned Coordinator (Organizational) for screening. See the exhibit Lessons Learned Information Screening Process Checklist.</p>
<p>Step 3</p>	<p>The Lessons Learned Coordinator (Organizational) analyzes the referred lessons learned opportunity, with the assistance of the appropriate Subject Matter Experts, for applicability and prepares a lessons learned communication. See the Lessons Learned Communication exhibit for the recommended format and an example of a lessons learned communication.</p>
<p>Step 4</p>	<p>The Lessons Learned Coordinator (Organizational) disseminates the lessons learned</p>

	<p>The Lessons Learned Coordinator (Organizational) disseminates the lessons learned communication to the appropriate managers and staff within their organization and sends a copy to the Laboratory Lessons Learned Coordinator.</p> <p>Note: The lessons learned communication should only be distributed to appropriate staff to avoid overloading staff with information that does not apply to them.</p>
<p>Step 5</p>	<p>The Laboratory Lessons Learned Coordinator</p> <ul style="list-style-type: none"> • posts the communication on the Laboratory Published Lessons Learned; • evaluates it for additional applicability within BNL; • modifies it as appropriate; • disseminates it to applicable BNL managers and staff. <p>Note: The Laboratory Lessons Learned Coordinator will also evaluate the communication for applicability within the DOE and disseminate it to the DOE Lessons Learned List Server, as appropriate.</p>
<p>Step 6</p>	<p>The Lessons Learned Coordinator (Organizational) documents process or program improvements that result from the organizational lessons learned activities through the normal documentation process inherent in the Self-Assessment Program (i.e., midyear and annual reports).</p> <p>Note: There are no requirements to document the specific actions taken to individual lessons learned communications; however, significant improvement, results, or new issues should be documented as a part of the Laboratory's normal Self-Assessment Program and Laboratory Improvement Agenda processes.</p>

References

[ES&H Standard 1.3.6, Work Planning and Control for Operations](#)

[Integrated Assessment](#) Subject Area

[Published Lessons Learned](#)

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Lessons Learned Communication

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Point of Contact: [Laboratory Lessons Learned Coordinator](#)

The recommended format for a lessons learned communication and a completed example are provided as a [Word](#) file for viewing and printing.

A lessons learned communication is disseminated to appropriate staff and managers, and a copy is sent to the [Laboratory Lessons Learned Coordinator](#).

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Lessons Learned Communication

(Sections underlined are the minimum required for internal submission)

a) Templates

Lessons Learned Communication

Title:

Date:

Identifier:

Lessons Learned Statement:

Discussion of Activities:

Analysis:

Recommended Actions:

Estimated Savings/Cost Avoidance:

Priority Descriptor:

Work/Function Bin(s):

Lessons Learned Hazard Bin(s):

ISM Core Function(s):

Originator:

Contact:

Authorized Derivative Classifier:

Reviewing Official:

Key Words:

References:

b) Lessons Learned Template Field Descriptions

Title: *Short & meaningful*

Date: *date issued*

Identifier: *Organizational Unit letter code & sequential numbering scheme for BNL internal distribution – more complex for a Lesson(s) Learned external distribution.*

Lesson Learned Statement: *bullets, as appropriate.*

Discussion of Activities: *Brief description of the facts*

Analysis: *Results of any that was performed, if available.*

Recommended Actions: *A brief description of management-approved actions which were taken, or will be taken, in association with the Lesson(s) Learned.*

Estimated Savings/Cost Avoidance: *As appropriate.*

Priority Descriptor: **Red, Urgent** (Actual Event)
Yellow, Caution (Potential Event Conditions)
Blue, Information (Fact or discovery of benefit to others)

Green, Good Work Practice (*Practice Promoting or Producing Positive Proven Results*)

Work/Function Bin(s): see Attachment A*

Lessons Learned Hazard Bin(s): see Attachment B* (one or more)

ISM Core Function(s): see Attachment C: ISM Core Functions (one or more)

Originator: *Originating organization or contractor*

Contact: *name and phone number of individual to contact for additional information.*

Authorized Derivative Classifier: *for external Lessons Learned distribution.*

Reviewing Official: *for external Lessons Learned distribution.*

Keywords: *words used to convey related concepts or topics and commonly used in the "trade"*

References: *as appropriate.*

*subject to revision/expansion of category list in 1999/2000 time frame.

b) Lessons Learned Communication Sample Document

Lessons Learned Communication

Title: **Change in Commercial Cleaning Product Contaminates Industrial Waste**

Date: **10/1/1999**

Identifier: **SM-1999-01**

Lesson(s) Learned:

- **Do not accept vendor samples or products without adequate ES&H review.**
- **Request MSDS literature on products the vendor is recommending and have them reviewed for safety, health and environmental issues through your ES&H representative.**
- **If in doubt, ask your ES&H representative.**

Discussion:

Recently, on the advice of a vendor, a BNL group changed from an existing cleaning product to a newer one with the promise of superior performance. The item was accepted and used without adequate ES&H review for environmental and health consequences. The cleaner was dispensed via aerosol cans; hence little waste material was generated. However, the small portion of liquid waste, which was generated by the use of approximately 1.5 gallons of this material over a three-month period, was mixed in with other industrial wastes produced by the group. The result of this action was the contamination of about 350 gallons of industrial waste -- changing it to hazardous waste --

and the waste storage container. The cost of cleaning out the contaminated tank and to dispose of the waste material will be approximately \$5,000. This cost will be a direct cost borne by the Division's operating expenses.

It should be noted that the use of this material is not a violation of any State or Federal regulation (that is why the product may be purchased over the counter) however, the waste products generated by the use of this material (rags, paper towels, excess solvent, etc.) must be managed as hazardous waste. In addition, the use of this material goes against the Lab's policy to minimize the use of hazardous materials and the subsequent generation of hazardous waste.

Analysis: n/a

Recommended Actions: Review of MSDS associated with the potential purchase of a new product

Estimated Savings/Cost Avoidance: see above

Priority Descriptor: **Blue, Information**

Work/Function Bin(s): Operations, Facility; Environmental Protection, General; Conduct of Operations, Work Planning

Lessons Learned Hazard Bin(s): Other

ISM Core Function: Analyze Hazards, Implement Controls

Originator: Brookhaven National Laboratory

Contact: George Goode (telephone #) (631) 344-4549

Authorized Derivative Classifier: n/a

Reviewing Official: n/a

Keywords: solvent(s), cleaners

References: n/a

Attachment A. Work/Function Major Bins

- Alternate Fuels
- Authorization Basis
- Business & Support Services
- Conduct of Operations
 - General
 - Configuration Management
 - Lock & Tag
 - Procedure Writing
 - Procedure Following
 - Work Planning
 - Work Control
- Construction
- Criticality
- Decontamination & Decommissioning
- Demolition
- Driving
- Emergency Management
- Energy Conservation
- Engineering & Design
 - Nuclear
 - Non-Nuclear
- Environmental Protection
 - General
 - Releases
 - RCRA Management
 - Underground Storage Tanks
 - NEPA Management
 - TSCA Management
- Environmental Restoration
- Excavation
- Fire Protection
- Hoisting & Rigging
- Human Factors
- Human Resources
- Information Technology
- Inspection & Testing
- Laboratory Experimentation
- Maintenance
 - Electrical
 - Facility
 - HVAC
 - Instrumentation & Control
 - Mechanical
 - Power Distribution & Utilities
 - Roads & Grounds
 - Structural
 - Safety Systems
 - Heavy Equipment
 - Vehicle

Machining & Fabrication
Management
Material
 Handling
 Storage
Natural Phenomenon Hazards
Occupational Safety & Health
 General
 Personal Protective Equipment
Operations
 Facility
 Heavy Equipment
Other
Packaging & Transportation
Quality
Radiation Protection
Research & Development
Safeguards & Security
Safety Design
Training & Qualifications
Waste Management
Waste Remediation
Welding, Burning, Hot Work

Attachment B. Lessons Learned Hazard Bins

- Confined Space
- Electrical/NEC
- Elevated Work/Falling Objects
- Environmental Release
- Ergonomics/Lifting
- Excavation & Trenching
- Fire/NFPA/Smoke
- Firearms & Explosives
- Lasers
- Other
- Personal Injury/Exposure
 - Airborne Materials
 - Ambient Temperature Extremes
 - Asbestos
 - Beryllium
 - Hazardous Materials (General)
 - Infectious Agents
 - Mechanical Injury (Striking/Crushing)
 - Noise
 - Other
 - Radiation/Contamination
 - Slips & Tripping
 - Toxic Materials
- Plants/Animals/Insects
- Power Tools
- Pressurized Systems
- Radiological Release
- Traffic
- Weather Related

Attachment C. ISM Core Functions

Define Work
Analyze Hazards
Develop/Implement Controls
Perform Work
Feedback & Improvement



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Lessons Learned Information Sources

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Point of Contact: [Laboratory Lessons Learned Coordinator](#)

The following information sources are examples of the sources and types of publications staff and managers review in order to identify lessons learned information:

- Occurrence Reporting and Processing System
- Noncompliance Tracking System (DOE Office of Enforcement)
- Critiques
- Radiological Problem Reports
- Quality Problem Reports
- Assessment Tracking System
- DOE Lessons Learned List Server
- DOE HQ Independent Oversight
- Industry and Equipment Manufacturers Sources
- Post Job/Project Reviews
- Operational Readiness Reviews
- Journals, Text, Thesis, University Collaborations
- EH-10 Enforcement & Investigation Internet Web Site
- Laboratory Lessons Learned Database
- Operating Experience Weekly Summary
- Defense Nuclear Facilities Safety Board
- Government Accounting Office
- DOE Inspector General
- American National Standards Institute, American Society for Testing Materials, American Nuclear Society, International Standards Organization, Chemical Manufacturers of America
- Self-Assessments, External Oversight
- Peer Review Results
- National Institute of Occupational Safety and Health, Occupational Safety and Health Administration, Environmental Protection Agency, Federal Drug Administration, Nuclear Regulatory Agency, Department of Transportation, Office of Federal Contract Compliance Programs
- Laboratory Lessons Learned Distribution Matrix

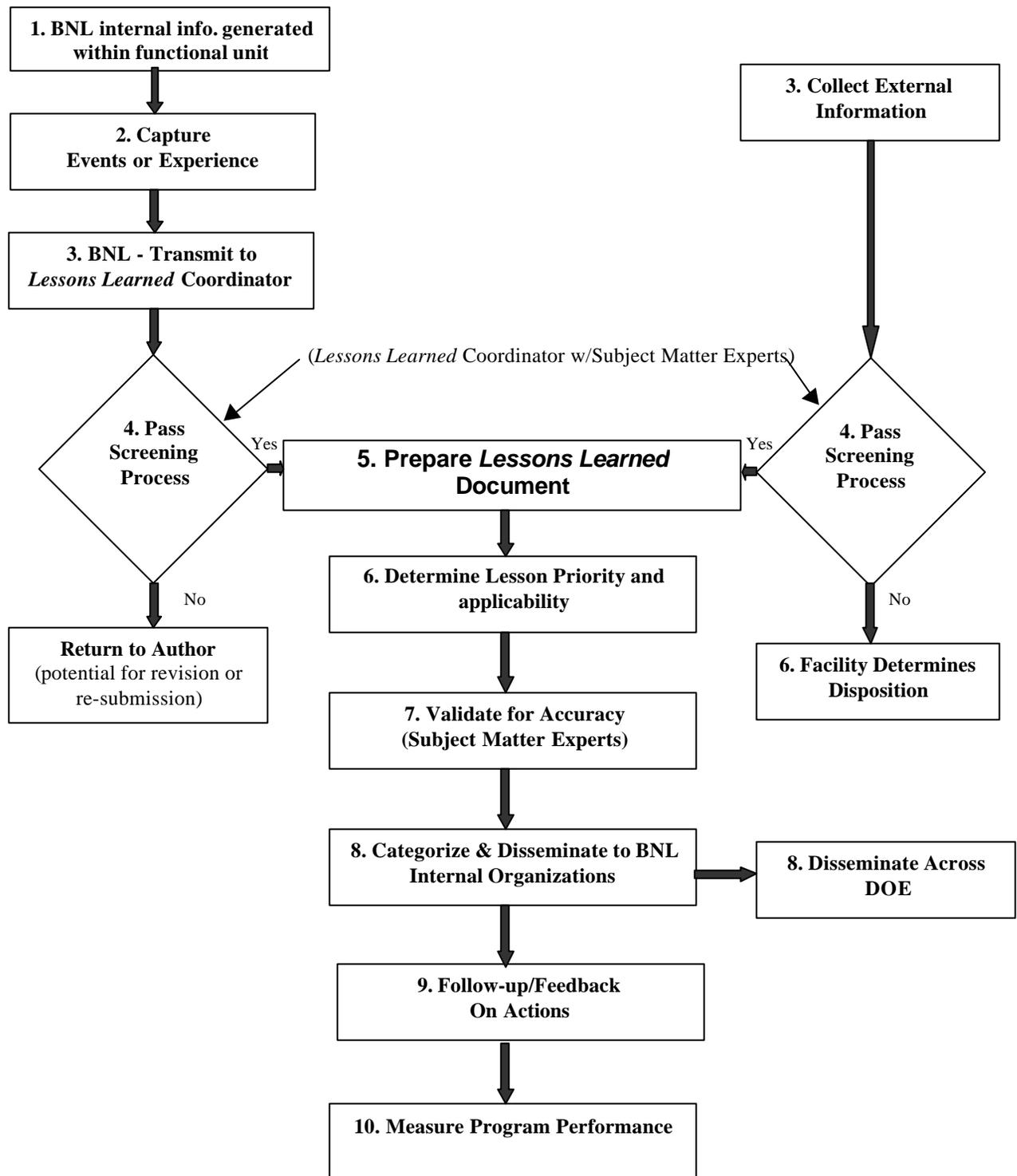
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BNL *Lessons Learned* Process Flowchart



***Lessons Learned* Information Screening Process Checklist**

NOTE: All of the following questions should be reviewed and answered if applicable before a preliminary information assessment decision is made.

1. Does the *lessons learned* information reference work activities similar to those performed onsite?
2. Does the site have procedures in place to control the activities described in the *lessons learned* information?
3. Do the procedures address the hazards identified in the *lessons learned* information?
4. Can the safety, efficiency, or cost-effectiveness of site activities be enhanced through the integration of the *lessons learned* information into the activities, work planning processes, or training?
5. Has the site experienced any adverse events as a result of these work activities?
6. Does the *lessons learned* information reference hazards (e.g., industrial, environmental, or radiological) found onsite?
7. Does the site have procedures in place to control the hazards described in the *lessons learned* information?
8. Can the site's hazard controls be enhanced through integration of the *lessons learned* information into procedures, work activities, or training?
9. Has the site experienced any adverse events as a result of these hazards?
10. Does the *lessons learned* information pertain to equipment used onsite?
11. Can the safety or efficiency of site equipment be enhanced through application of the *lessons learned* information to the equipment design or utilization?
12. Have site personnel experienced any equipment malfunctions or accidents while using the equipment?
13. Does the *lessons learned* information reference a politically sensitive issue or event that does not directly pertain to site activities?
14. Could the *lessons learned* information impact the public's attitude toward site activities?



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Definitions: Lessons Learned

Effective Date: **November 1999**

Point of Contact: [Laboratory Lessons Learned Coordinator](#)

Term	Definition
biennially	Every 24 months.
contributing causes	Contributing causes are causes other than primary specific or systematic factors that contributed or fostered adverse consequences.
lessons learned	Lesson learned is text that documents changes in activities or procedures made because of an event considered significant enough to become part of the corporate memory. This event may have either a positive or negative connotation.
root causes	Root causes are the primary specific or systematic factors that caused or fostered adverse consequences.

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Revision History: **Lessons Learned**

Point of Contact: [Laboratory Lessons Learned Coordinator](#)

Revision History of this Subject Area

Date	Description	Management System
November 1999	This is a new subject area that establishes a laboratory process to identify, evaluate, and disseminate lessons learned to a target audience.	Integrated Assessment

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