

**ISMS ASSESSMENT FORM
CHEMISTRY DIVISION**

Objective: Assess the adequacy of institutional safety requirements and the effectiveness of their implementation in Brookhaven National Laboratory's (BNL) Chemistry Department. Assess line management's role in effectively translating institutional requirements into departmental activities, the adequacy of hazard analysis processes and the effectiveness of the department's implementation of these processes. Review and assess Management's efforts in assuring work are performed within controls and its efforts at continuous improvement. Particular emphasis will be placed on examining the adequacy and sustainability of actions generated to correct identified deficiencies.

1. Line Management Responsibility for Safety

Guiding Principle #1: *"Line Management Is Directly Responsible for the Protection of the Public, Workers, and the Environment."*

a. Criterion 1: Policy and Expectations

Safety policies and goals, including ISM processes, are documented, and initiatives are in progress to improve ES&H programs and processes for ISM. Review departmental policies, goals, and initiatives with respect to accurate and adequate translation of institutional requirements.

b. Criterion 2: Leadership

Line management demonstrates a commitment to protect the public, workers, and the environment. Line management proactively demonstrates a leadership position in guiding the department toward integrated safety management. Review departmental performance metrics, if applicable, and conduct interviews of senior management and principal investigators to assess the effectiveness of their role in promoting safety in the workplace.

c. Criterion 3: Worker Empowerment

Line management recognizes that active participation by workers in work planning and control programs is essential to maintain and improve protection of the public and workers. Interview researchers, supervisors, and support staff to determine the level and effectiveness of employee participation in identifying hazards, working within controls and continuous improvement.

2. Clear Roles and Responsibilities

Guiding Principle #2: *"Clear Lines of Authority and Responsibility for Ensuring Safety Shall Be*

Established and Maintained at All Organizational Levels Within the Department and Its Contractors."

a. Criterion 1: Clearly Defined Roles, Responsibilities, and Authorities

Line management defines, documents and maintains clearly delineated roles, responsibilities and authorities for ES&H that provide a foundation for effectively integrating safety into departmental operations. Functions, responsibilities, and authorities are defined, communicated, understood, and implemented for providing direction, analyzing hazards, developing and implementing hazard controls, performing work within controls, collecting feedback, and pursuing improvement. Interview management, principal investigators, support staff and employees to evaluate their comprehension of the responsibilities they have for safety. Review the roles, responsibilities and authorities and accountabilities

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(R2A2s) of Department Chair, Group Leaders, Principal Investigators, support staff and employees regarding safety.

b. Criterion 3: Accountability for Performance

Line managers are accountable for safety performance through performance objectives and appraisal systems. Performance is explicitly tracked and measured, and inadequate performance should have visible and meaningful consequences. Line managers execute actions to attain and continuously improve the safety of their operations. Within scheduled interviews, explore the consequences of good and poor safety related performance.

3. Competence Commensurate with Responsibilities

Guiding Principle #3: *“Personnel Shall Possess the Experience, Knowledge, Skills, and Abilities That Are Necessary To Discharge Their Responsibilities.”*

a. Criterion 1: Staffing and Qualifications

Line managers and staff demonstrate a high degree of technical competence and a good understanding of programs and facilities. Review a sampling of departmental incident/occurrence reports to determine the extent to which training, experience, and other qualification issues were contributing or root causes.

b. Criterion 2: Technical Competence

Workers and managers are technically competent to perform jobs and are appropriately educated and knowledgeable of hazards, vulnerabilities, and risks. Review institutional and Department qualifications programs and standards as well as processes used to determine training needs and the Departments compliance with internal qualifications and training. Evaluate these technical qualifications, standards or training through scheduled interviews and a review of departmental incident/occurrence reports.

4. Define the Scope of Work; Balanced Priorities

Guiding Principle #4: *“Resources Shall be Effectively Allocated To Address Safety, Programmatic, and Operational Considerations. Protecting the Public, the Workers, and the Environment Shall Be a Priority Whenever Activities Are Planned and Performed.”*

Core Function #1: *“Missions are Translated Into Work, Expectations are Set, Tasks Identified and*

Prioritized, and Resources are Allocated.”

a. Criterion 1: Translate Mission into Work; Set Expectations

Contractors use defined mechanisms to define the scope, schedule and cost of work and to identify and communicate associated risks and hazards. Review departmental processes that assure work scope for research is adequate and that adequate resources and funding are identified prior to granting operational authority. Review and assess incidents/occurrence reports to assess factors relating to communication of hazards and lessons learned. Explore these factors in scheduled interviews.

b. Criterion 2: Provide for Integration

ES&H functions and activities are integrated into program, activity, and work planning at all levels of the line organization. Review departmental procedures

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for integrating ES&H into research and work activities. Evaluate personnel understanding of integration of safety into activities through scheduled interviews.

c. Criterion 3: Project Prioritization and Resource Management Systems

Contractor line managers at appropriate levels within the organization understand and synthesize program goals and risks in order to effectively deploy resources to adequately address both.

Review the Chemistry Department's process for prioritization of activities and allocation of safety-related funding.

5. Identification of Safety Standards and Requirements: Analyze the Hazards

Guiding Principle #5: *"Before Work Is Performed, the Associated Hazards Shall Be Evaluated and an Agreed Upon Set of Safety Standards Shall Be Established That, if Properly Implemented, Will Provide Adequate Assurance That the Public, the Workers, and the Environment Are Protected from Adverse Consequences."* Core Function #2: *"Hazards associated with the work are identified, analyzed and categorized."*

a. Criterion 1: Hazards Analysis and Work Planning

Prior to the initiation of work, line management identifies, analyzes, and categorizes the hazards associated with the work activity so that the appropriate administrative and engineering controls can be put in place to prevent or mitigate those hazards. Review selected departmental experimental safety reviews and work permits for adequate hazard identification and consideration of institutional safety requirements. Compare work planning documentation with observed departmental activities and evaluate incidents/occurrences for factors relating to hazard identification.

b. Criterion 2: Identification of Standards and Requirements

Line management has identified, communicated, executed, and monitored all applicable DOE requirements, and Federal, state, and local regulations in planning and executing work. Evaluate departmental incidents/occurrences for causal factors related to omission of an appropriate standard.

6. Hazard Controls Tailored to Work Being Performed; Develop and Implement Hazard Controls

Guiding Principle #6: *"Administrative and Engineering Controls To Prevent and Mitigate Hazards Shall Be Tailored to the Work Performed and Associated Hazards."* Core Function #3: *"Applicable Standards and Requirements are Identified and Agreed Upon, Controls to Prevent/Mitigate Hazards are Identified, the Safety Envelope Established, and Controls are Implemented."*

a. Criterion 1: Identify Controls to Prevent/Mitigate Hazards

Line management has established processes for identifying and tailoring controls for hazards associated with all facilities, operations and activities. Review departmental implementation of institutional processes for identifying and tailoring controls. Review departmental incidents/occurrences for factors relating to the identification and tailoring of hazard controls.

b. Criterion 2: Establish Safety Controls

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Hazard controls are established based on the understanding of the hazards, vulnerabilities, and risks in the work environment (e.g., nuclear, radiological, chemical, industrial, physical, and natural phenomena). Review selected departmental experimental safety reviews and work permits for the establishment of appropriate controls. Evaluate incidents/occurrences for factors relating to inadequate safety controls.

c. Criterion 3: Implement Controls

Line management has established methods to implement controls at every level and which ensure that controls remain in effect as long as hazards are present. Review the departmental processes for implementing safety controls. Examine incidents/occurrences for deficiencies relating to effective implementation of controls.

7. Operations Authorization; Perform Work Within Controls

Guiding Principle #7: *"The Conditions and Requirements to be satisfied for Operations initiated and Conducted Shall Be Clearly Established and Agreed-Upon.* Core Function #4: *"Readiness is Confirmed and Work is Performed Safely."*

a. Criterion 1: Confirm Readiness

Line management has established and implemented processes to confirm that a facility or work process/activity, as well as the work force, are in an adequate state of readiness prior to authorizing the performance of work. Review the adequacy of Chemistry Department work control processes that assure readiness. Observe research/work activities and review the associated documentation. Include readiness factors in an examination of departmental incidents/occurrences.

b. Criterion 2: Operations Authorization

Line management has assumed the responsibility for ensuring that all operations are authorized at a level commensurate with the hazards and has established work authorization processes for both facility- and activity-level operations. All work activities, including maintenance modifications, are subject to authorization based on appropriate review of the preparation and readiness to perform work. Examine a sampling of experimental safety reviews and work permits for the proper level of authorization. Verify that observed activities have appropriate authorizations in place. Review incidents/occurrences for adequate levels of authorizations.

c. Criterion 3: Perform Work Safely

Line managers are responsible for implementing programs in compliance with defined requirements. Line managers ensure that contractors, and subcontractors execute defined requirements in such a manner that employees, the public, and the environment are protected from adverse consequences. Observe research/work activities and note the level of compliance with institutional safety requirements. Explore Chemistry Department oversight of compliance in scheduled interviews with the department chair, principal investigators, support staff and employees. Evaluate the contribution of any procedural non-compliance to departmental incidents/occurrences.

8. Provide Feedback and Continuous Improvement

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Core Function #5: *“Feedback Information on the Adequacy of Controls is Gathered, Opportunities for Improving the Definition and Planning of Work are Identified and Implemented, Line and Independent Oversight is Conducted, and, If Necessary Regulatory Enforcement Actions Occur”*

a. Criterion 1: Assessment and Measurement of Performance for Continuous Improvement

Line management has established formal mechanisms and processes for collecting both qualitative and quantitative information on ES&H performance. This information is collected and used effectively as the basis for informed management decisions to improve safety performance through assessments, performance measures, and other feedback mechanisms. Review Chemistry Department processes for collecting and assessing safety-related performance (e.g., the Tier I Inspection Program). Interview departmental management and safety support personnel to determine the effectiveness and uses for gathered information.

b. Criterion 2: Follow-up and Correction of Safety Management System Deficiencies

Line management has established a formalized process to capture, evaluate, and track to resolution ES&H-related issues and deficiencies and associated corrective actions. Line management has executed graded mechanisms, such as independent verification and performance-based evaluations to ensure that corrective actions and recurrence controls are timely, complete, and effective. Review departmental incidents/occurrences and any previous assessments (e.g., Laser Accident Investigations) for the effectiveness and sustainability of corrective actions. Examine records for the occurrence of similar incidents, or the recurrence of issues. Explore the usefulness and effectiveness of identified corrective actions with departmental personnel.

c. Criterion 3: Lessons Learned

Line management has established formal methods to identify deficiencies and noteworthy practices with generic applicability, disseminate these lessons learned within and across organizations, and incorporate them into procedures and work control documents for subsequent work activities. Evaluate departmental processes for implementing the lessons learned system through scheduled interviews and review of incidents/occurrences and corrective actions.

Concerns:

Findings:

Observations:

Noteworthy Practices:

Records Reviewed:

Personnel Interviewed:

Work Observations:

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Signatures:

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