

PPPL	PRINCETON PLASMA PHYSICS LABORATORY	PROCEDURE	No. QA-002 Rev 6 page 1 of 9
Subject: PPPL Audit Program	Effective Date: 10/1/03	Initiated by: Head, Quality Assurance	
	Supersedes: QA-002 Rev 5, Dated 1/11/02	Approved: Director	

Applicability

This procedure is applicable to the entire Laboratory and its activities and to outside organizations or suppliers performing work for PPPL.

Introduction

The Department of Energy requirements for quality assurance are defined in 10 CFR 830.120 for nuclear facilities and DOE O 414.1A for non-nuclear facilities. These documents specify two types of assessments: management and independent assessments. Management assessments are performed by line personnel with the goal of continuous improvement. This program is implemented, in order of hierarchy, via the Institutional Quality Assurance Plan and Policy P-026, Assessment and Oversight.

The requirement for independent assessments is from 10 CFR 830.120 (nuclear), criterion 10 and DOE O 414.1A (non-nuclear). This criterion specifies the following (from 10 CFR 830.120):

- “(1) Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement.
- (2) Establish sufficient authority and freedom from line management for the group performing independent assessments.
- (3) Ensure persons who perform independent assessments are technically qualified and knowledgeable in the areas to be assessed.”

This requirement is satisfied, in order of hierarchy, via the Institutional Quality Assurance Plan, Policy P-026, Assessment and Oversight, and this procedure.

Independent assessments, known as audits, are the responsibility of Quality Assurance. Audits are typically comprehensive evaluations of systems or programs, such as the PPPL Environmental Monitoring Plan or the PPPL Configuration Control Program.

The frequency of an audit of a particular area is sometimes specified by regulation, DOE Orders, or internal documents; an example is the audit of the occupational radiological protection program, which is required by 10 CFR 835 to be performed every three years. When not specified, it is determined by a variety of factors including area performance, changes occurring in the area, availability of staff to perform the audit, etc.

Audits and their associated findings are tracked via the Quality Assurance Audit Database, which may be accessed via the QA home page at <http://www-local.pppl.gov/qa> .

All forms mentioned in this procedure are available on the Quality Assurance Division fileserver. Forms shall be used as indicated unless prior approval is obtained from the Quality Assurance Division Head.

Definitions

Audit Area	An organizational unit of the Laboratory or outside organization to be included in the audit. Audit areas may be Divisions, Departments, Projects, specific shops, suppliers, etc.
Compliance-based Audit	Audits which primarily focus on verifying adherence to DOE requirements, regulatory requirements, policies, plans, procedures, milestones, or other predetermined requirements. These audits may identify performance issues but generally only if they result from compliance issues.
Concern	A management system weakness or activity that could <u>potentially</u> impact ES&H, program quality or could potentially lead to a regulatory non-compliance; a conflict or non-compliance with DOE contractual or PPPL policy/procedural requirements but is <u>not</u> "systemic" in nature. A written response of "acknowledgement" is required. (definition taken from DOE/PG procedure 2-3. Applicable to DOE assessments only)
Corrective Action	Measures taken to rectify problems or conditions identified in an audit and, where necessary, to preclude repetition.
External Audit	An audit of a PPPL Department, Division, or Functional Area by an outside organization, typically DOE or a DOE contractor.
Finding	The documented result of an audit or surveillance which identifies a problem in sufficient detail to enable corrective action to be taken by the organization responsible for the area included in the audit or surveillance. The finding may document noncompliances to system requirements or performance issues that have or could have the potential for significant impact on the product, process, or system from either a quality or an environmental, safety, and health perspective.
Internal Audit	An audit performed by PPPL personnel of programs that are under the direct control of the Laboratory and within its organizational structure.
Observation	Either an anomaly that does not warrant a finding or a practice that could cause future problems. Observations do not require formally specified corrective action or tracking by Quality Assurance.
Performance-based Audits	Audits that primarily focus on the product, process, and system to determine how well they meet the customer's and PPPL's needs (specified and unspecified). These audits may identify compliance issues as a secondary concern, especially if these issues impact performance.

Recommendation	A suggestion for improvement made by the audit team, usually based on good industry practices. The audited organization is not required to respond to recommendations.
Tracker	The individual assigned to track an audit or surveillance to closure and to verify corrective action. This is usually the individual who led the audit or surveillance.
Supplier Audit	An audit performed by PPPL of a contracted Supplier.

Reference Documents

10 CFR 830.120, Quality Assurance
 DOE Order 414.1A, Quality Assurance
 EQP-004, PPPL Institutional QA Plan
 DOE-PG ES&H Procedure 2-3
 P-044, ES&H and Infrastructure Support Department – External Audits and Appraisals
 QA-017, PPPL Tracking & Trending System
 QAT-001, Training for the PPPL Audit/Surveillance Program

Procedure**A. Scheduling Audits**

Note that under special circumstances the entire scheduling process specified below may be delayed, e.g. if knowledge of the Laboratory budget for a fiscal year is delayed.

Responsibility**Action**

Manager, Quality Assurance

1. Requests input for the schedule for internal and supplier audits from Department and Division Heads approximately two months prior to the start of the new fiscal year. Such requests are implemented via an email message sent to the “Supervisor” list.
2. Proposes fiscal year audit schedule based on the following:
 - The received input,
 - The list of required audits contained in Attachment 1,
 - The list of recommended audits contained in Attachment 2,
 - Potential problem areas as identified in other systems such as the performance indicators or occurrence reports,
 - Areas that are determined to have the greatest impact or risk on short-term and long-term Laboratory goals,
 - And other areas for which an audit would be beneficial, employing a graded approach.

3. Meets with manager(s) of potential areas to be audited to discuss benefits of the proposed audit. If determined to be value added, discusses the type (performance-based, compliance-based, or combination), scope, general criteria for the audit, and timing. Solicits suggestions for the audit team composition, ideally consisting of representative(s) from the audit area(s) as well as customers served by the audit area. The responsibilities of the representative are to:
 - Serve as an escort for the audit team within his or her home organization,
 - Serve as an independent auditor for audit activities that do not involve his or her home organization,
 - Observe the problems identified by the audit team, work to correct any misconceptions, and work within the home organization to correct the identified problems,
 - Maintain open communications with his or her management so that they are aware of the progress of the audit,
 - Perform a level of organizational self-assessment.

Note, in order to assure the independence required by 10 CFR 830.120 and DOE O 414.1A, QA reserves the right to make the final decisions on the audits to be performed, their objectives, and the audit team members.

4. Assigns Lead Auditors for each audit. Usually lead auditors are from within Quality Assurance. However, the Manager of Quality Assurance can select other PPPL employees with line management approval as long as the employees have the appropriate qualifications and experience to lead the audit. Audits of areas covered by 10 CFR 830.120 must be performed by qualified PPPL Lead Auditors.

Manager, Quality Assurance
PPPL Director

5. Transmits proposed fiscal year schedule to the Office of the Director.
6. Issues fiscal year audit schedule to Department and Division Heads upon approval.

B. Conducting Internal Audits

Occasionally, narrowly scoped audits are performed, typically with short notice. Such audits must follow the rules of this section except they are not formally scheduled, the notification form and checklist are recommended, but not required, and no entrance meeting is required. Approval of the Head, Quality Assurance is required for these exceptions.

Though the steps below indicate that the formal exit meeting is conducted after the audited organization proposes any corrective action, if the optional meeting discussed in step 17 is held to discuss the report and if the proposed corrective action received after this meeting is acceptable to the audit team, the meeting of step 17 may serve as the formal exit meeting.

<u>Responsibility</u>	<u>Action</u>
Manager, Quality Assurance	1. Assures all audit team members are trained prior to the start of the audit. The training is contained in the Quality Assurance internal document QAT-001.
Audit Team	2. Collates history of area to be audited via previous audits, occurrence reports, accident reports, inspection reports, and nonconformance reports. 3. Determines requirements for area to be audited. Typical sources include: <ul style="list-style-type: none"> • Safety Analysis Reports (SARs) • Safety Assessment Documents (SADs) • DOE Orders and regulations • PPPL Procedures and Policies • Federal and state laws and regulations
	4. Reviews appraisal history and identifies areas of concern.
	5. Identifies proposed and specific performance objectives and criteria (POCs), if a performance-based audit. These POCs should be indicative of the indicators of a successful system or program.
	6. Meets with manager(s) responsible for programs or systems being audited to clarify the purpose of the audit. If the audit is performance-based, obtains agreement on the performance objectives and criteria to be used for the audit. If the audit is compliance-based, reviews the documents that specify the requirements. Identifies, with the managers, the distribution list for the final audit report.

Note: Copies of all audit reports are transmitted to the Head, ES&H and Infrastructure Support, for informational purpose, and to the Head, Site Protection, for review of PAAA applicability. Copies of all audit reports with an environmental, safety, and health (ES&H) impact are transmitted to the Chairperson of the ES&H Executive Board. Copies of all radwaste audit reports are transmitted to the PPPL Waste Certification Official (WCO).

7. Develops audit plan and checklists, when required. Guidance on sampling is available in internal QA Division procedures.
- Lead Auditor 8. Transmits preliminary audit checklists, when required, to the manager(s) responsible for the programs or systems being audited. These checklists may be modified during the audit as additional information is obtained.
- Lead Auditor 9. Issues Audit Notification Form.
10. Conducts the entrance meeting. The entrance meeting is the last opportunity to review the purpose and scope of the audit prior to its actual start. Distributes the Manager's Survey form at this meeting.
- Audit Team 11. Performs audit. Distributes the Interviewee Survey Form to each individual interviewed during the audit.
- Lead Auditor 12. During the performance of the audit, keeps managers of the audited areas informed of the status of the audit and any potential findings. Periodic debriefings are held to assure open communications throughout the audit. Debriefings may be either in person or via email as desired by the managers of the audited areas.
13. Informs the appropriate PPPL line manager of any ongoing activities that should be corrected before completion of the observed action, e.g. before the subcontractor leaves the site or before the discrepant conditions result in more serious or multiple discrepancies. These are not necessarily the same managers as the ones identified in step 6.
14. Discusses potential occurrence reporting or Price Anderson concerns with the Manager, Quality Assurance. It is important that this be performed in a timely manner since such items must be reported within a specified time frame.
- Quality Assurance Manager 15. Brings potential occurrence reporting or Price Anderson concerns to the attention of appropriate PPPL management.
- Audit Team 16. Generates draft of the audit report. When multiple problems are identified that could potentially result from the same root cause, it is preferable that they be documented on the same finding form.
- Lead Auditor 17. Provides draft copies of the audit report and associated findings to the manager(s) responsible for the programs or systems being audited and to the Manager, Quality Assurance. Makes offer to meet and discuss the report prior to the determination of the corrective action.
- Program/System Manager(s) 18. Reviews draft report and associated findings for accuracy. Proposes corrective action for each finding. The proposed corrective action must include both the corrective action to resolve the finding and the preventive action to preclude the finding from recurring, the name of the individual responsible for implementing the corrective action, and the date that the corrective action is scheduled to be completed.

Manager, Quality Assurance	19. Reviews draft report for completeness, clarity, and adherence to audit program requirements. Provides comments to audit team.
Audit Team	20. Evaluates to what extent the proposed corrective action addresses the issues that lead to the finding. Discusses potential weaknesses, if any, with the Program/System Manager(s) who has ultimate responsibility for the action.
Lead Auditor	21. Schedules formal exit meeting once any comments or concerns are resolved and the proposed corrective action is incorporated in the final report. Invites Program/System Manager(s), audit team, and Manager, Quality Assurance. 22. Conducts exit meeting. Summarizes results and follow-up actions and obtains signatures on audit report. If the scheduled due date for any corrective action is greater than six months of the issuance date of the report, the concurrence of the responsible Department Head is required on the report. If the scheduled due date for any corrective action is greater than one year of the issuance date of the report, the concurrence of the PPPL Deputy Director is required on the report. 23. Issues the report. If no findings were generated, the audit is closed upon issuance of the report.
Program/System Manager(s)	24. Returns all survey forms to Quality Assurance.
Lead Auditor	25. Evaluates the effectiveness of the audit using the survey forms as input. Documents the evaluation and distributes the evaluation to the Program/System Manager(s) and the Manager of Quality Assurance.

C. Conducting Audits of Suppliers

Note that in the steps below the term "supplier" is intended to be any appropriate outside organization being audited.

<u>Responsibility</u>	<u>Action</u>
Audit Team	1. Develops audit plan and checklist. Typical planning documents include: <ul style="list-style-type: none"> • Statements of Work and Specifications and referenced documents • Previous audits of the same supplier performed by PPPL or other sources, e.g. DOE Supplier Quality Information Group (SQIG)
Lead Auditor	2. Determines with Subcontract Administrator or Buyer how the audit notification and audit report should be issued to the supplier. Options are either Lead Auditor issues it directly to the supplier with a copy to Procurement or Procurement issues it directly to the supplier.

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| Audit Team | <ul style="list-style-type: none"> 3. Issues audit notification. Copies the PPPL Procurement Technical Representative (PTR). Copies of the preliminary checklist to be used for the audit should also be transmitted. 4. Performs audit. During the performance of the audit, keeps the supplier informed of the status of the audit and any potential findings. 5. Conducts exit meeting with the supplier at the conclusion of the audit to present the audit results and verify any draft findings. 6. Reviews draft report with the PTR, Subcontract Administrator or Buyer, and the Manager, Quality Assurance. |
| Manager, Quality Assurance | <ul style="list-style-type: none"> 7. Issues the report within 15 working days to the Supplier. If findings, informs the Supplier that a response which includes details of corrective actions is required within 30 working days of the date of issue. Copies of the report are also sent to the PTR, the Manager of ES&H/Infrastructure Support, and, if the audit addresses environmental, safety, or health issues, the Chairperson of the ES&H Executive Board. |
| Lead Auditor | <ul style="list-style-type: none"> 8. Interfaces with suppliers and evaluates proposed corrective action with the PPPL Procurement Technical Representative. Informs the supplier of acceptance or rejection of proposed corrective action within 10 working days. Updates audit files. |

D. Tracking External Audits having the Potential for Quality or ES&H Findings

<u>Responsibility</u>	<u>Action</u>
Audited Organization	<ul style="list-style-type: none"> 1. Provides Quality Assurance with advance notification of scheduled external audits, including any scheduled audit meetings 2. Forwards copy of draft and official audit reports to Quality Assurance for incorporation into the Quality Assurance Tracking and Trending System per P-044. Includes names of individuals to whom findings are assigned.
ES&H Division Head	<ul style="list-style-type: none"> 3. Forwards copies of DOE/PAO audits, e.g. mini-reviews and USRs, and other external audits to Quality Assurance. Includes names of individuals to whom findings or concerns are assigned.
Quality Assurance	<ul style="list-style-type: none"> 4. Includes audit findings and concerns in the Audit Database and files for incorporation into the Tracking and Trending System. (see Section E.)

Audited
Organization

5. Responds to findings contained within audit report and transmits a copy of the response to Quality Assurance. The response must include the proposed corrective action and completion date. Copies Quality Assurance on all documentation related to audit. Notifies Quality Assurance when corrective action has been completed.

Provides written acknowledgement of concerns identified in DOE/PAO surveillance reports to appropriate DOE/PAO individual and transmits a copy of the acknowledgement to QA.

Quality Assurance

6. Verifies corrective action of findings prior to requesting closure from the outside organization who performed the audit.

Closes concerns when a copy of the written acknowledgement by the organization who performed the audit is received. (PPPL line management may, however, elect that a concern remains open until it is resolved to management's satisfaction..)

External audits are automatically considered closed once all the associated findings are closed. No closure notice is generated

E. Tracking Open Items to Completion

The six months/one year concurrence mentioned below is only applicable to QA audits, internal independent assessments, assessments performed upon PPPL programs by outside organizations, and formal accident reports.

Responsibility Action

Quality Assurance

1. Reminds audited organizations of all open items via the Quality Assurance Tracking and Trending System. For supplier audits, all reminders are sent to the audit tracker. Any overdue items that are older than six months since the issuance date of the report are also sent to the appropriate Department Head. If older than one year, they are also sent to the PPPL Deputy Director.

Individual assigned responsibility for corrective action

2. Informs Quality Assurance when corrective action is completed or when extensions, change of assignments, or change of corrective action are requested. The information may be provided on the Overdue Notice Form, in memorandum format, or via electronic mail. Justification must be provided for extension requests, change of assignments, or change of corrective action. If the change in any due date for any open corrective action results in the due date being greater than six months of the issuance date of the report, concurrence of the responsible Department Head is required. If the change in any due date for any open corrective action results in the due date being greater than one year of the issuance date of the report, concurrence of the PPPL Deputy Director is required. Such approval may be via email.

Note: At any time, PPPL employees may determine the current status of any item via the web interface to the audit database available at URL <http://www-local.pppl.gov/qa>.

Lead Auditor/Tracker

3. Verifies implementation of the corrective action(s) or justification for extension, change of assignment, or change of corrective action requests. If an item is newly assigned to a different individual, provides information on the item's status to this individual and the line Division Head. If verification for closure is required, such verification should be completed within three weeks unless additional time is required to allow for implementation.

Quality Assurance

4. When all findings for a PPPL lead audit are closed, distributes an Audit Closure Notice. Distribution always includes appropriate line management, the Head of ES&H/Infrastructure Support, and, when ES&H issues are involved, the Chairperson of the ES&H Executive Board. For supplier audits the Audit Closure Notice is issued to the outside organization via Procurement.

Attachment

1. Required Audits
2. Recommended Audits

Unless the requirement for audit frequency is specified, it shall be PPPL's policy to perform required audits no less frequently than every three years. If, however, the Manager, Quality Assurance, determines that adequate oversight by qualified personnel indicates an area is in compliance and effective, the frequency of the audits may be changed. If audit areas have been adequately assessed by a reputable non-PPPL source, PPPL may accept the results of these assessments without performing additional audits. General guidelines are that the assessments are indeed independent and the results indicate an acceptable program within the audit areas. Examples are:

- 1) DOE maintains the DOE Laboratory Accreditation Program (DOELAP). PPPL is not required to audit vendors certified under DOELAP since the DOELAP program includes comprehensive audits.
- 2) Audits performed by DOE with no significant concerns or findings identified.
- 3) Independent assessments of areas performed by technically qualified non-PPPL personnel of an area with no significant findings.
- 4) Supplier audits performed by other DOE Laboratories with no significant and relevant findings identified.

Conversely, if the Manager, Quality Assurance determines that concerns in an area indicate potential problems, the frequency for an audit may be increased.

The scope listed is the minimum required for the audit. Audits should also include other applicable executive orders and DOE Orders, Federal and State Laws and Regulations, permit requirements, PPPL Procedures and Policies, and internal Department/Division Procedures and Policies, as applicable.

Areas to be audited do not necessarily represent a one-to-one relationship with actual audits. An area may in practice be covered via multiple audits or one audit may cover multiple areas.

REQUIRED AUDITS

DOE required audits are either explicitly defined in a Code of Federal Regulations or a DOE Order.

Source of Rqmt. for Audit	Scope	Frequency
10 CFR 830.120	<p style="text-align: center;">QUALITY ASSURANCE</p> <p>Requires independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement</p> <p>Scope – All work covered by the PPPL Quality Assurance Plan. Selection of areas to be audited based upon risk.</p>	Not specified

Source of Rqmt. for Audit	Scope	Frequency
10 CFR 835	OCCUPATIONAL RADIATION PROTECTION Requires a comprehensive assessment of the PPPL Radiation Protection Program.	36 months
DOE O 210.1	PERFORMANCE INDICATORS AND ANALYSIS OF OPERATIONS INFORMATION Requires the contractor to “Periodically assess ES&H performance indicator programs to verify that indicators are accurately measuring performance and are resulting in improvements to performance.”	Not specified.
DOE O 224.1	CONTRACTOR PERFORMANCE-BASED BUSINESS MANAGEMENT PROCESS Requires the contractor to have “ongoing, internal self-assessments to advise management and parent organizations of how well the contractor is meeting the predetermined performance objectives, measures, and expectations...”	Not specified. Implemented via the audit system as a whole.
DOE O 420.1	FACILITY SAFETY (FIRE PROTECTION) “DOE Elements and contractors shall develop, implement, and maintain an acceptable fire protection program with the following features: 9. A comprehensive, documented fire protection self-assessment program, which includes all aspects (program and facility) of the fire protection program.”	Frequency to be established by DOE.
DOE O 470.1	SAFEGUARDS AND SECURITY PROGRAM The Contractor Requirements Document, Chapter X, requires self-assessments to include reviews of all applicable DOE F 5634.1, “Safeguards and Security Survey Report,” topical and subtopical areas of the facility’s safeguards and security program/system.”	To be conducted between periodic surveys conducted by the Surveying Office
PPPL Procedure HP-PP-06, Nuclear Materials Control and Accountability Plan	NUCLEAR MATERIALS CONTROL AND ACCOUNTABILITY DOE Order 5633.3B and HP-PP-06	Biennially

Required Audits

Source of Rqmt. for Audit	Scope	Frequency
Nevada Test Site Waste Acceptance Criteria, latest revision	<p>RADWASTE PROGRAM</p> <p>Comprehensive audit of the program per the requirements of DOE O 435.1 and NTSWAC</p>	Annual, to be performed in February or March using, minimally, the NTSWAC audit checklist.
DOE O 151.1A	<p>COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM</p> <p>The Contractor Requirements Document, step 5, specifies: "Conduct an annual assessment of the emergency management program."</p> <p>At PPPL, the annual requirement is met with annual drills and evaluations of the drills. QA is chartered to perform comprehensive independent assessments.</p>	Every three years.
DOE N 203.1	<p>SOFTWARE QUALITY ASSURANCE</p> <p>From the Contractor Requirements Document:</p> <p>"The contractor must conduct systematic review to ensure that the requirements of this directive and DOE O 414.1A, Quality Assurance, are met and determine the need to update its own SQA program. Relative to software, these reviews should also ensure that appropriate safety and security controls are in place, are effective, and reflect currently accepted industry practices."</p>	Not specified.
DOE N 205.1	<p>UNCLASSIFIED COMPUTER SECURITY PROGRAM</p> <p>The Contractor Requirements Document, requirement 5.A, requires an organizational self-assessment.</p>	No less frequently than once every two years.
DOE N 205.2	<p>FOREIGN NATIONAL ACCESS TO DOE CYBER SYSTEMS</p> <p>The Contractor Requirements Document, #2, requires periodic audits consistent with the documented risk upon which the approval is based.</p>	Based on risk upon which approval is based.

Recommended Audits**page 1 of 2**

While no requirements exist for specific audits in these areas, it is considered to be best management practice to periodically audit each of these areas.

1. Environmental Protection**a. Air**

Applicable Regulation: 40 CFR 50-88, Clean Air Act Implementing Regulations, EPA
Chapter 7:27, New Jersey Administrative Code -Air Pollution Control, NJDEP

b. Surface Water/Drinking Water

Applicable Regulation: 33 USC 1344, Clean Water Act
33 CFR 320, General Regulatory Policies NJAC 7:10, Safe Drinking Water Act

NJAC 7:14A, The New Jersey Pollutant Discharge Elimination System

c. Groundwater

Applicable Regulation: 40 CFR 3000, "National Oil and Hazardous Substances Pollution Contingency Plan"
NJAC 7:14A, The New Jersey Pollutant Discharge Elimination System

d. Hazardous Waste Management

Applicable Regulation: 40 CFR Parts 260-299, Resource Conservation and Recovery Act (RCRA), EPA

49 CFR Parts 100-177, Transportation regulations, DOT

Solid, hazardous, radioactive, and mixed waste management. Waste Transportation. Waste treatment, storage, and disposal facilities.

e. Toxic and Hazardous Chemicals**f. National Environmental Policy Act (NEPA)****g. Spill Prevention and Control & Countermeasure (SPCC) Plan****h. Pollution Prevention****2. Personnel Selection, Qualification, and Training****3. Personnel Safety****a. Industrial Hygiene, Industrial Safety****b. Electrical Safety – Lockout/Tagout, Arc Protection****c. OSHA****d. Hoisting and Rigging****4. Documents and Records**

Recommended Audits**page 2 of 2**

5. Management and Organization
6. Conduct of Operations
7. Control of Measuring and Test Equipment (Calibration Programs)
8. Quality Improvement
9. Work Processes – welding, brazing, and other special processes
10. Identification and control of items
11. Procurement – includes contractor oversight
12. Design and Configuration Control
 - a. Design Reviews
 - b. Drawing Control
 - c. Project requirements, such as performance, systems, or research
13. Inspection and Acceptance Testing
14. Management Assessments
15. Independent Assessments
16. Maintenance – Preventive, Prediction, Corrective
17. Analytical Analysis
18. Integrated Safety Management
19. Collaborations
20. Standards and code compliance, e.g. National Electric Code
21. Accident Investigation
22. Construction Safety
23. Corrective Action/Nonconformance Control
24. Facility Operations
25. Integrated Safety Management System Implementation
26. Occupational Medicine
27. Occurrence Reporting/Trending
28. Suspect/Counterfeit Items
29. Packaging and Transportation
30. Material Management
31. Use of Procedures
32. Radiofrequency/Microwaves
33. Chemicals – procurement of, use of, disposal of