

**ARGONNE NATIONAL LABORATORY INDEPENDENT APPRAISAL PROGRAM ENVIRONMENTAL,  
SAFETY, HEALTH/QUALITY ASSURANCE OVERSIGHT\***

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**ABSTRACT**

Argonne National Laboratory has developed a proceduralized methodology for performing Environmental, Health and Safety (ES&H) technical appraisals of their departments and programs and managing the information produced in a database format. The methodology is consistent with the requirements of DOE Order 5482.1B, "Environmental, Safety and Health Appraisal Program."

The methodology is composed of the following phases:

- Phase I - Checklist Development and Desktop Review
- Phase II - On-site Appraisal
- Phase III - Appraisal Report Development
- Phase IV - Evaluation of Department/Program Developed Corrective Action Plans

The methodology has been used to date to perform appraisals in the following ES&H areas:

- Packaging and Transportation of Hazardous Materials
- Environmental Protection
- Fire Protection
- Health Physics and Radiation Safety
- Occupational Medicine
- Waste Management
- Emergency Preparedness
- Industrial Safety
- Industrial Hygiene
- Safety Analysis Review
- Occurrence Reporting

DOE has reviewed the Internal Appraisal Program, ESH/QA Oversight during periodic functional appraisals by DOE-CH and the 1993 Progress Assessment Team which accomplished a follow-up review of the findings from the 1990 Tiger Team assessment. These reviews have indicated that ANL's Program is in compliance with requirements.

This paper presents the use of the methodology in preparing for, performing, and reporting on a Packaging and Transportation of Hazardous Material Program appraisal involving radioactive mixed wastes.

**INTRODUCTION**

At Argonne National Laboratory, waste management issues are included in three specific appraisals, 1) Environmental Protection Appraisal, 2) Waste Management Appraisal, and 3) Packaging and Transportation of Hazardous Materials Appraisal.

The Environmental Protection Appraisal covers Laboratory programs regarding compliance with state and federal regulations and appropriate DOE Orders for air, water, etc. (i.e. not related to the Resources Conservation and Recovery Act [RCRA]). Waste Management Appraisals cover areas of Laboratory programs compliance regarding radioactive waste management, hazardous waste management (i.e.

RCRA), and packaging and disposal requirements established by DOE Orders and disposal sites.

The Packaging and Transportation of Hazardous Materials Appraisal is unique in that it covers, in the area of radioactive mixed waste, state and federal hazardous waste regulations, DOE Orders, hazardous waste requirements and DOE Order radioactive waste requirements (i.e. Title 49 Code of Federal Regulations). The Transportation of Hazardous Material Appraisal is further complicated in that assessments are performed at the Argonne-West site (near Idaho Falls, ID), as well as at Argonne-East (near Chicago), and hazardous waste regulatory requirements of Illinois and Idaho must be considered. In addition, each Argonne site uses

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different DOE radioactive mixed waste disposal facilities (ANL-E disposes of mixed waste at the DOE-Hanford facility and ANL-W disposes of mixed waste at the DOE Radioactive Waste Management Complex located at the Idaho National Engineering Laboratory). Therefore, both burial sites wastes acceptance criteria must also be factored into the appraisal.

### APPRAISALS GOAL

The overall goal of transportation of hazardous material appraisals is to provide ANL's management an overview of the current status of the Laboratory's Hazardous Materials Packaging and Transportation Program strengths and areas of concern with regard to applicable Laboratory policy and procedures, state and federal regulations, DOE Orders, and provide documented evidence of the Laboratory's compliance with DOE Order 5482.1B.

### APPRAISAL METHODOLOGY

The Transportation of Hazardous Materials Appraisal has four unique phases described below. The attached figure presents graphic depiction of the phases.

#### Phase I

##### Development of site-specific appraisal checklists for ANL-E and ANL-W.

Each checklist contains:

1. performance objectives
2. specific requirements with references
3. declaration of compliance or non-compliance
4. space for comment/documentary reference

##### Checklist Items Common to ANL-E and ANL-W

For both the ANL sites, checklist focus has been on the implementation of corrective action plans developed as a result of previous appraisals' findings, Laboratory policy and applicable Program/Department procedures, 49 CFR "Hazardous Materials Transportation Regulations," and DOE Order requirements and guidance, including the following:

- DOE Order 5700.6C, *Quality Assurance*
- DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE Order 5400.1, *General Environmental Protection Program*
- DOE Order 5480.3, *Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes*
- DOE Order 5480.20, *Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities*
- DOE Order 1324.2A, *Records Disposition*
- DOE Order 5482.1B, *Environmental Health & Safety Appraisal Program*
- DOE Order 1540.1, *Materials Transportation and Traffic Management*
- DOE Order 5480.3, *Safety Requirements of the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes*
- DOE Order 5484.1, *Environmental Protection, Safety and Health Protection Information Reporting*
- WIPP/DOE-069, *TRU Waste Acceptance Criteria for the Waste Isolation Pilot Plant*

- DOE/EH-229, *Performance Objectives and Criteria for Conducting DOE Environmental Audits*
- DOE/EH-0135, *Performance Objectives and Criteria for Technical Appraisals at Department of Energy Facilities and Sites*

##### Checklist Items Specific to ANL-E

- Title 35 of the State of Illinois, *Environmental Protection Subtitle G: Waste Disposal*
- WHC-EP-0063-2, *Hanford Site Radioactive Solid Waste Acceptance Criteria*

##### Checklist Items Specific to ANL-W

- DOE ID - 10179, *Hazardous Waste Storage Facility, Waste Acceptance Criteria*
- DOE ID 5480.3, *Hazardous Materials Packaging and Transportation Requirements*
- DOE ID 5480.1 *Environmental Protection, Safety and Health Information Reporting Requirements*

Also during this Phase, a desk appraisal is performed, including a review of plans, procedures and other applicable documents. Applicable checklist items are then completed.

#### Phase II

##### Perform on-site appraisal at each ANL facility

The on-site portion of appraisals have taken a maximum of five days at each site. The developed site-specific checklists were used as the basis of the appraisals. All checklist items are completed to the greatest extent practical. The on-site appraisal support includes the following:

1. Conducting interviews with ANL personnel with hazardous materials and waste packaging and transportation related responsibilities.
2. Reviewing ANL packaging and transportation operations to assess compliance with the Laboratory's packaging and transportation plans and procedures, regulatory requirements and good practices.
3. Reviewing ANL research and facilities operations compliance with ANL's packaging and transportation procedures and plans, regulatory requirements and good practices.
4. Reviewing implementation of corrective action plans developed as a result of past Hazardous Materials Packaging and Transportation Appraisal findings.

As part of this Phase, information sheets are prepared daily. They document program strengths, findings and areas of concern. Completed information sheets are utilized in the development of the appraisal's report. In addition, these sheets are utilized during appraisal close-out, providing an overview of results to interested Laboratory personnel.

#### Phase III

##### Develop Formal Appraisal Report

The report conforms to the following typical contents:

- Executive Summary
- Description of Appraisal
  - Appraisal Methodology
  - Appraisal Team Members
  - Personnel Interviewed
  - References Used in the Appraisal
- Appraisal Results (Areas Specifically Reviewed)
  - Organizational Responsibility

- Policy, Program, Procedure
- Basis Documents
- Training
- Other
- References

After review and comment, the report is delivered to the Laboratory for upper management review.

#### Phase IV

#### Evaluation of Department/Program Developed Corrective Action Plans

Programs evaluated in the appraisal are given an opportunity to respond to the observations identified. Three levels of observations are indicated in this report:

- Findings are considered the most significant result. A **finding** is a documented result of an appraisal that identifies a noncompliance in need of corrective action. A corrective action is a plan for responding to a **finding**. If a **finding** has been previously identified in another audit or appraisal, and if a corrective action plan currently exists to respond to that **finding**, reference may be made to that previously documented corrective action.
- A **concern** is a documented observation that, while by itself have had an inadequacy in current operational practice, may eventually evolve into a noncompliance if left unconsidered. While it is recognized that **concerns** should be acted upon during the normal course of events in order to improve the level of compliance, no corrective action plan is required for responding to a **concern**. Nevertheless, **concerns** must be acknowledged, and commitments for further review stated.
- Good practices may also be noted in this report. A **good practice** is a task, procedure, methodology, or protocol that is viewed as being an industry standard. **Good practices** are not required by governmental regulations. **Good practices** will not be considered as the basis for a **finding** since no specific regulatory non-compliance was identified. However, they can serve as the basis for a **concern** or for identifying a noteworthy issue.

The Laboratory's Manager, Internal Appraisal Program, ESH/QA Oversight, reviews the corrective action plans for the findings and can 1) reject the plan and request that another be developed, 2) accept the plan and await its completion, 3) review evidence provided and close the finding.

#### DBASE CHECKLIST FORMAT

The checklists used for the appraisal are derived from records maintained in an electronic database. Each record of the database is either a performance objective or related criterion which may be included in the appraisal checklist. Database records are coded for easy retrieval. These records are prepared from source documents pertinent to the appraisal topic, such as state and federal regulations, DOE Orders, Laboratory policies, etc. The entire database currently has over 14,000 records.

This database is available to all Laboratory personnel with assessment responsibilities. This is a value added because all such personnel may not be Environmental Safety & Health

professionals or technical experts. These personnel may access this database for information on an assessment topic and receive a checklist as broad or specific as they want. Since this database is regularly reviewed by appraisal team members who are experts, the contents of the database are considered to be valid for most assessments. Another value added involves the language used in the records. Text is kept as non-technical as possible to make it available to a broader audience. A typical checklist item associated with packaging and transportation of hazardous materials is presented below. The particular item can be retrieved by topical area (packaging and transportation) or management issue (organizational responsibility, quality assurance, training, etc.).

#### Performance Objective

*A system is in place to ensure that packaging and transportation of hazardous materials is performed in accordance with a quality assurance program.*

#### Criteria:

*There is a system of checklists for all important packaging and transportation operations that have safety significance. These checklists include worker signatures, supervisor approvals, dates, container serial numbers, and maintenance records.*

Basis: DOE Order 5700.6C, Criterion 8

Report	Record	Sort1
93PT	34	QA

The major identifiers in this example are:

1. "Report" - The example indicates that the checklist was used for a 1993 packaging and transportation of hazardous material appraisal.
2. "Basis" - The example indicates that this criterion is derived from requirements of DOE Order 5700.6C, *Quality Assurance*
3. "Sort1" - The example indicates that this criterion involves quality assurance issues.

#### CONCLUSION

Argonne National Laboratory has implemented a proceduralized, systematic method for evaluating the capabilities of ES&H programs at its Illinois and Idaho sites, the program appraisals by the Internal Appraisal Program, ESH/QA Oversight. This method of ES&H program evaluation has been proven to be an effective information gathering tool for ANL's management. The method provides several value added attributes besides providing an indication of Laboratory compliance with regulations.

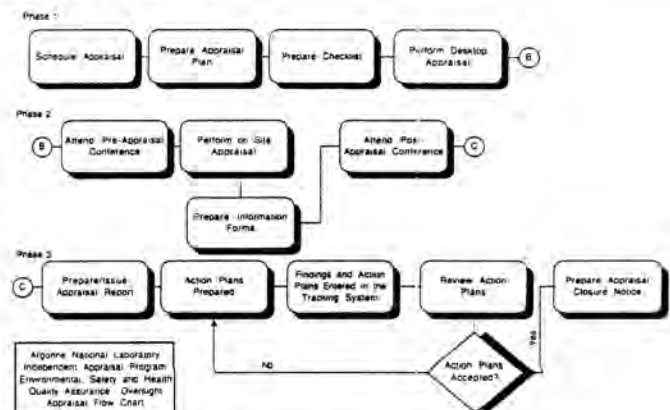


Fig. 1. Quality assurance oversight appraisal flow chart.