

**DEPARTMENT OF ENERGY ENVIRONMENT, SAFETY & HEALTH
ASSESSMENT PROGRAM - "TIGER TEAMS"**

L. A. Weiner

M. A. Gilbertson

Office of Environment, Safety and Health

U. S. Department of Energy Washington, D. C. 20585

ABSTRACT

On June 27, 1989, Secretary of Energy James D. Watkins announced the establishment of a "Tiger Team" Assessment Program to conduct independent oversight assessments of DOE facilities' environment, safety and health (ES&H) programs. The scope of the assessments is broad and focuses on several ES&H areas, including compliance by each facility with applicable Federal, state, and local environmental regulations, requirements, permits, agreements, orders, and consent decrees as well as compliance with DOE ES&H order requirements. Also addressed is the adequacy of DOE and site contractor ES&H management programs, including planning, organization, resources, training, and their respective relationship with regulatory agencies. Based on the first six assessments some preliminary trends were identified. These trends, which may prove to be endemic at DOE facilities, highlight several high priority issues, including: unclear lines of authority and responsibility for complying with ES&H management programs, difficulty in recruiting staff with the requisite ES&H expertise, and poor compliance with OSHA requirements.

INTRODUCTION

On June 27, 1989, Secretary of Energy James D. Watkins announced a 10-point Initiative to strengthen safety, environmental protection, and waste management activities at DOE's production, research, and testing facilities. Among the key points announced by the Secretary was the establishment of a "Tiger Team" Assessment Program to conduct independent oversight assessments of DOE facilities' environment, safety and health (ES&H) programs. The purpose of the Tiger Team Assessment Program is to provide the Secretary of Energy with concise information on the current ES&H compliance status and associated vulnerabilities of each facility. DOE-wide ES&H compliance trends and root causes for cases of noncompliance are determined along with response actions needed to address identified problems. The Secretary assigned responsibility for conducting the Tiger Team Assessments to the Assistant Secretary for Environment, Safety and Health.

Tiger Team Assessments will be conducted at over 100 DOE operating facilities through December 1992. The scope of the assessments is broad and focuses on several ES&H areas, including compliance by each facility with applicable Federal, state, and local environmental regulations, requirements, permits, agreements, orders, and consent decrees as well as compliance with DOE ES&H order requirements. Also addressed is the adequacy of DOE and site contractor ES&H management programs, including planning, organization, resources, training, and their respective relationship with regulatory agencies. Conformance by the facilities with applicable, "best" and "accepted" industry practices is also being examined. In addition, the facilities will eventually be trained to conduct their own self assessments so that a proactive management system which

embodies the Secretary's Environment, Safety and Health goals and objectives will be achieved.

Each Tiger Team is organized to conduct assessments of environment, safety and health, and management and organization activities. These three assessment components are fundamental to the organization, procedures, and documentation to be produced by the Tiger Teams. The scope of the Tiger Team Assessment also provides the opportunity for training site personnel. One of the Secretary's initiatives addresses the strengthening of line management ES&H capabilities, requiring line management to conduct self-assessments of its operating facilities. The Tiger

Team Assessments are an ideal vehicle for on-the-job training of DOE line personnel in the assessment process. DOE line personnel are selected to participate in the assessments as either observers, trainees, or members depending on their level of expertise and program affiliation. This on-the-job training is supplemented by a structured Tiger Team training course consisting of both classroom and field exercises.

ASSESSMENT METHODOLOGY

Tiger Teams are generally comprised of three component teams: Environment; Safety and Health; and, Management and Organization.

On-site activities by the Tiger Teams includes document review, observation of site operations, interviews with DOE and site contractor personnel, evaluation of site procedures and protocols, and review of previous audits and assessments. Federal, state, and local regulatory agencies are invited to observe the assessment proceedings. The scope and depth of the information collection process is not intended to be so exhaustive as to identify every compliance problem at a facility, but rather to compile a representative

sampling of information in order to develop a broad understanding and awareness of the compliance status at the site, and the range of compliance issues and problems which exist.

TIGER TEAM ASSESSMENT FINDINGS

The information obtained by each assessment team is used to develop findings. For the purposes of the Tiger Team Assessments, three principal types of findings will be developed: Regulatory and Procedural Compliance Findings; Best Management Practice Findings; and, Noteworthy Practices.

Regulatory and Procedural Compliance

Team members ascertain whether the site operations and other activities comply with applicable Federal, state, and local statutes, regulations, ordinances, or any other legally enforceable requirements. These requirements include those found in: the United States Code, the Code of Federal Regulations, state statutes and regulations, and local ordinances; legally enforceable documents, such as court orders, consent decrees, and Federal facility compliance agreements; and DOE Orders, from which mandatory DOE procedural requirements are developed.

In general, the environmental assessment is concerned with both regulatory requirements, which are externally enforced, and DOE orders, which are internally enforced. The safety and health assessment is primarily concerned with internally enforced DOE order requirements.

Best Management Practices

Team members review site activities for adherence to Best Management Practices (BMPs). BMPs are typically used when regulations, which are usually minimum requirements for a particular practice or activity, do not exist, do not apply, or do not go far enough. Most BMPs complement existing regulations and provide an added degree of protection when prudently employed. When used, BMPs are normally described in appropriate site operations documents such as procedures manuals. Unlike regulations, with which compliance is required, compliance with BMPs is optional. The decision to employ a BMP is based on professional judgment, common sense, and available resources.

Noteworthy Practices

Team members review site activities for any noteworthy practices, activities, or programs that have general application to DOE facilities and warrant documentation for the purposes of information transfer among DOE facilities. A practice may be noteworthy because its design and/or execution successfully addresses activities that have frequently resulted in compliance problems at other facilities. The presence or absence of noteworthy practices at a facility

is not viewed as a measure of a facility's ES&H performance. The purpose of identifying noteworthy practices is to facilitate information transfer and problem solving across the DOE complex.

IDENTIFICATION AND DEVELOPMENT OF FINDINGS

In general, the first step in the development of a finding is the identification of a condition or practice which appears to meet the criteria for a finding, as discussed above. "Identification" may be provided directly by site personnel, written documents or visual observations made by a team member. Regardless of how the information is obtained each finding must be supported by certain additional minimum information, including: 1) the specific nature of the problem, issue, condition or practice; 2) a detailed location, if appropriate; 3) the framework or perspective within which the problem or practice exists (e.g., 25 leaking drums observed within a storage area containing over 500 such drums); 4) the regulatory or performance standards being violated, met, exceeded, etc.; 5) supporting information describing the problem or practice, or events leading to the problem; 6) information on corrective actions being taken with respect to the problem or practice; and 7) information regarding how the assessment team member learned of the problem or practice.

With such information the individual team member discusses the matter with the Assessment Team Leader and other team members (e.g. during daily team debriefings). It is the cognizant Assessment Team Leader's responsibility to determine whether or not the information supports a finding, and whether additional information should be obtained. At this point, the finding may be described as tentative, and require further development and validation. The development and validation of a finding is an interactive process, the objective of which is a factually accurate, well-documented, defensible finding statement. Note that the existence of a documented corrective action (either planned or in progress) does not eliminate the basis for a finding, but rather is supporting information that is fully described in the finding statement.

Each finding identified by a Tiger Team initiates a significant chain of events and actions for DOE Headquarters (oversight and program), DOE field, and site contractor offices. Each finding must be addressed in an action plan prepared by the program office and the progress made in correcting the finding must be tracked and verified by the DOE program and oversight offices, respectively. In addition, each finding is factored into a periodic analysis of compliance trends at DOE facilities. The information generated by the trend analysis is critical to directing the focus of future assessments. Given the significance of the events, actions and associated resources that must be dedicated to the Tiger Team findings it is essential that the

factual accuracy of all potential findings made by the Tiger Team be validated during the on-site assessment by the subject DOE field office and/or site contractor(s) and appropriate regulatory agencies. The validation process involves frank and open discussions between the Tiger Team, DOE and site contractor management and representatives from the regulatory agencies, if present. While findings are not negotiable (final authority to make a finding rests with the Tiger Team Leader), it is the Tiger Team Leader's responsibility to ensure the factual accuracy of the finding statement prior to its inclusion in the draft assessment report.

DEVELOPMENT OF ROOT CAUSES

One of the most important purposes of the Tiger Team Assessments is to identify the root causes of compliance problems at each site. Root causes can be defined as the factors contributing to the observed ES&H deficiencies. Identification of root causes begins at the team member level since these individuals are in the best position to ask questions to evaluate the circumstances leading to each finding. It is incumbent upon each team member to take the next step after identifying a problem, and attempt to determine why the problem arose in the first place.

Root causes can generally be identified using a two-stage process. The first stage in developing root causes is essentially an identification, where possible, of causal factors behind each finding. A list of generally applicable causal factors is provided in Table I. If one or more of these factors is identified as contributing to a specific finding, it is included with the documentation of the finding. The second stage of root cause development is an analysis of the findings developed by the Environment, and Safety and Health assessment teams. The Management and Organization assessment team reviews the findings, including the causal factor summaries, and discusses the findings with the other teams. Using information on management practices and conditions obtained through its own observations and discussions with site personnel, the Management and Organization assessment team groups and categorizes similar findings; identifies and further traces causal factors which appear to be commonly occurring and possibly related among several findings; and broadly defines the root causes for the ES&H deficiencies.

FOLLOW-ON ACTIVITIES

Assessment Reports and Action Plans

The findings of the Tiger Team Assessments are documented in written reports. Notably, the assessment reports do not contain recommendations for correcting the problems identified during the assessments. The main reason for not including recommendations is to preserve the objectivity of the Tiger Team and the assessment process,

i.e., the objectivity of the Tiger Team could be challenged if the team was performing a follow-up assessment at a facility where it had previously made recommendations. This approach also recognizes that the Program Office, rather than the Tiger Team, may be in the best position to develop facility-specific recommendations for corrective actions. Consequently, the Program Senior Official is responsible for developing the corrective actions and submitting them to the Secretary in a formal Action Plan. Prior to submission to the Secretary the Tiger Team reviews the Action Plan to ensure that the findings are interpreted correctly.

A draft assessment report, prepared by the Tiger Team, is completed during the on-site assessment. The draft report contains individual findings, root causes, and requisite supporting documentation. The draft report is provided at the assessment closeout to the facility manager, DOE Operations and Area Office managers, PSO's, Office of General Counsel, Office of Environment, Safety and Health, Office of Environmental Restoration and Waste Management, and regulatory agency representatives present during the assessment. The draft report is also made available to the public in DOE (or other) public reading rooms immediately following the briefings for the Secretary and Members of Congress.

The PSO is responsible for consolidating comments on the draft report from the site contractor and DOE Operations Office and providing them to the Team Leader. The Team Leader incorporates, as appropriate, the draft report comments received from the PSO and other reviewers, and prepares a final report. The final report is provided to the Secretary who forwards the report to the cognizant PSO and directs the PSO to prepare a final action plan. After the PSO prepares the final action plan, and obtains concurrence from the Office of Environment, Safety and Health, the plan is forwarded to the Secretary for approval.

The PSO has the lead responsibility for ensuring that the approved action plan is implemented and progress is tracked. The Office of Environment, Safety and Health provides oversight and verification of action plan implementation and tracking. Any findings which identify a near-term threat to public health or workers' health or safety are addressed immediately, i.e., at the time the problem is identified. All other findings are addressed in a timely manner pursuant to the approved action plan.

CURRENT STATUS

As of December 8, 1989, in-depth assessments have been completed at nine facilities. Five additional assessments will begin during the first several months of 1990: Pinellas Plant, Largo, Florida (1/15); Savannah River Site, Aiken, South Carolina (1/29); Lawrence Livermore National Laboratory, Livermore, California (2/26); Sandia National Laboratory, Livermore, California (4/2); and Brookhaven National Laboratory, Upton, New York (4/30). Assess-

TABLE I
Causal Factors

<u>POLICY:</u>	Evaluate if ineffective, outdated, or nonexistent policies contributed to the finding.
<u>POLICY IMPLEMENTATION:</u>	Ascertain if written policies, reflecting Federal, state and local laws and regulations, codes and standards were appropriately disseminated, implemented, and updated.
<u>PROCEDURES:</u>	Identify if written procedures have been prepared to effectively implement site policy, DOE orders, and Federal state and local laws and regulations were contributing factors to the finding. Determine if a lack of familiarity or availability of those procedures contributed to the finding.
<u>PERSONNEL:</u>	Identify if the lack of educational and work experience for personnel holding responsible positions contributed to the finding. Determine if the level of personnel knowledge about the technical and safety aspects of their jobs contributed to the finding.
<u>RESOURCES:</u>	Ascertain if the number of personnel assigned to a job contributed to the finding. Evaluate if inadequacies in facilities and equipment were contributing factors to the finding.
<u>TRAINING:</u>	Identify if inadequate personnel training on implementing site policy, DOE orders, and applicable Federal, state and local laws and regulations were contributing factors to the finding.
<u>CHANGE:</u>	Evaluate if changes in site mission, function, operation and established requirements, which rendered existing policies or procedures inadequate or inappropriate, were contributing factors to the finding. Evaluate if the timeliness and effectiveness of changes to site and DOE policy, and the implementing procedures, were contributing factors to the finding.
<u>RISK:</u>	Evaluate if the site personnel responsible for a situation contributing to a finding have assessed and were aware of the relative degree of risk involved in the action.
<u>SAFETY:</u>	Determine if inadequacies in the site's safety program, or lack thereof, contributed to the finding. Evaluate if appropriate level of importance has been given to the safety aspects of the operation(s) being evaluated, and, if not, whether it is a contributing factor to the finding.
<u>APPRAISALS, AUDITS/REVIEWS:</u>	Determine if ineffective or insufficient appraisals, audits and reviews, and/or inadequate follow-up, were contributing factors to the finding.
<u>DESIGN:</u>	Evaluate if inadequate design of a system was a contributing factor to the finding.
<u>HUMAN FACTORS:</u>	Ascertain if human factors, such as fatigue or deliberate circumvention of a safety system, were contributing factors to the findings.
<u>QUALITY ASSURANCE/CONTROL:</u>	Identify if inadequacies in the quality assurance/control program were causal factors in the identified finding.
<u>BARRIERS & CONTROLS:</u>	Determine if inadequacies in established barriers and controls, both administrative and physical, including operational readiness, routine inspections and preventive maintenance, and/or a lack of these controls, contributed to the finding.
<u>SUPERVISION:</u>	Identify if ineffective supervisory controls for implementing policies, directives, procedures, standards, laws were contributing factors to the finding.

ments for the remaining 22 major DOE facilities will be conducted from May 1990 through June 1991. Assessments of the approximately 65 other DOE facilities will be scheduled for completion by December 1992.

TREND ANALYSIS

The Assistant Secretary for Environment, Safety and Health performed an analysis of the findings from the first six Tiger Team assessments. The assessments were: the Rocky Flats Plant, Feed Materials Production Center, West Valley Demonstration Project, Y-12 Plant, Pantex Facility, and Mound Plant.

The analysis is very preliminary at this point because of the relatively small data set available. Despite the small data set, it is possible that the preliminary trends identified may prove to be endemic to the Department's facilities. The six areas of greatest concern are:

Management and Oversight of Environment, Safety and Health Activities

Environment, Safety and Health authority and responsibilities are not well defined or understood. Facilities tend to operate in a reactive mode and have either not implemented, or are slow to implement, comprehensive management systems to ensure compliance with ES&H requirements. The facilities lack adequate self-assessment programs to ensure that ES&H deficiencies are identified, reported, and corrected. In addition, Operations Offices and the Area Offices do not provide sufficient oversight of contractor activities. Management systems and controls should be reviewed and revised, if necessary, to include accountability, monitoring, feedback, reporting, and oversight of performance to ensure implementation of ES&H requirements and objectives.

Conduct of Operations/Formality and Discipline

Management systems lack sufficient formality and discipline to implement effective ES&H programs. Situations that are inconsistent with the letter and/or intent of DOE Order requirements have been identified and yet allowed to continue. A prime example is the widespread lack of comprehensive Safety Analysis Reports for many moderate and high-risk facilities. Other observations include: inconsistent application of quality assurance/quality control, lack

of comprehensive follow-up, lack of trend analysis, and lack of adequate documentation.

Communication of Environment, Safety and Health Policy

Although evidence of improvement exists, ES&H policy is not being communicated to all levels of DOE and contractor staff. ES&H directives and guidance that communicate these policies are often unclear and do not contain needed supplementary guidance. Cost-plus-award-fee plans and contract structures need improvement to be effective as management and incentive tools. A consistent set of performance expectations and technical requirements are not being communicated throughout the entire system.

Resources

Major difficulties exist in obtaining sufficient numbers of staff with appropriate qualifications to carry out program activities in a manner that ensures full compliance. Staffing needs are not well identified or documented. The Department's recruitment process is too slow. In addition, the Department's training programs are not adequate, especially in the areas OSHA and RCRA.

Occupational Safety and Health

The OSHA review of the workplaces at Y-12, Mound, and Pantex Plants identified relatively large numbers of non-compliances.

The major areas of non-compliance include: construction activities, machine guarding, electrical safety, hazard communication, and walking/working surfaces. These areas generally reflect relatively high risks of injury or death to small numbers of workers.

Technical Issues

Key deficiencies in each of the following technical areas/ programs were identified:

- Radiological Protection - system design and procedures for control of radioactive contamination;
- Emergency Preparedness - procedures and public involvement;
- Waste Management - waste characterization and waste storage, treatment, and disposal;
- Inactive Waste Sites - planning, oversight and quality assurance; and
- Environmental Monitoring - sampling and laboratory quality assurance programs and practices.