Tiger Team Assessment of the Pantex Plant Amarillo, Texas

February 1990

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PREFACE

THE DEPARTMENT OF ENERGY

TIGER TEAM ASSESSMENT

OF THE

PANTEX PLANT

AMARILLO, TEXAS

This document contains the findings and associated root causes identified during the Tiger Team Assessment of the Department of Energy's (DOE) Pantex Plant in Amarillo, Texas. This assessment was conducted by the Department's Office of Environment, Safety and Health between October 2 and 31, 1989. The scope of the assessment of the Pantex Plant covered all areas of environment, safety and health (ES&H) activities, including compliance with Federal, state, and local regulations, requirements, permits, agreements, orders and consent decrees, and DOE ES&H Orders. The assessment also included an evaluation of the adequacy of DOE and site contractor ES&H management programs.

The draft findings were submitted to the Office of Defense Programs, the Albuquerque Operations Office, the Amarillo Area Office, and regulatory agencies at the conclusion of the on-site assessment activities for review and comment on technical accuracy. Final modifications and any other appropriate changes have been incorporated in the final report.

The Tiger Team Assessment of the Pantex Plant is part of the larger Tiger Team Assessment program which will encompass over 100 DOE operating facilities. The assessment program is part of a 10-point initiative announced by Secretary of Energy James D. Watkins on June 27, 1989, to strengthen environmental protection and waste management activities in the Department. The results of the program will provide the Secretary with information on the compliance status of DOE facilities with regard to ES&H requirements, root causes for noncompliance, adequacy of DOE and site contractor ES&H management programs, and DOE-wide ES&H compliance trends.

The leader of the Tiger Team was Ralph Stein, and his Deputy was Dorner T. Schueler. The Environmental Team was headed by Joseph O. Boda, with Carolyn M. Osborne leading the National Environmental Policy Act, Environmental Sub-Team. Norman H. Davison lead the Health and Safety Team and Tony C. Upchurch lead the Management and Organization Team. Carolyn M. Haylock served as Administrative Assistant to the Tiger Team.

February 9, 1990
Washington, D.C.

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This document provides an overall environmental, safety and health (ES&H) compliance and management assessment of the Pantex Plant located near Amarillo, Texas. This plant is a Department of Energy (DOE) government owned, contractor operated activity under the management of the DOE Amarillo Area Office (AAO) of the Albuquerque Operations (AL) Office. The main mission of the Pantex Plant is the manufacture of high explosive components, and the assembly, maintenance and retirement of nuclear weapons. In addition to the overall assessment, a specific review of workplace conditions, as they relate to health and safety, was performed by a team of compliance officers from the Occupational Safety and Health Administration (OSHA) of the Department of Labor.

The assessment of the Pantex Plant was undertaken as part of a 10-point initiative announced by Secretary of Energy James D. Watkins on June 27, 1989, to strengthen environmental protection and waste management activities in the DOE. The assessment was conducted by a Tiger Team consisting of three teams of Federal and private sector specialists in the disciplines of environment, safety and health, management and organization, and an OSHA team.

The scope of the Pantex Plant Tiger Team Assessment included:

- compliance with applicable Federal, State and local regulations, requirements, permits, agreements, orders and consent decrees;
- compliance with DOE Order requirements for ES&H activities;
- conformance with applicable OSHA requirements;
- adequacy of DOE and the site contractor's ES&H management programs;
- conformance with applicable "best" or "accepted industry practices;" and,
- identification of root causes for noncompliance.

On-site activities for the assessment took place from October 2, 1989 to October 31, 1989, and included document review, observation of site operations, and interviews with DOE and site contractor personnel. Using these sources of information the Tiger Team developed findings. These findings fall into three general categories: compliance findings, best management practice findings, and noteworthy practices. Compliance findings and best management practices findings were then evaluated to determine root causes for the noncompliances identified. In addition to these two categories of findings, the Tiger Team identified a noteworthy practice that can have general application to other DOE facilities.

Although a significant number of environmental, and safety and health, management and organization findings and OSHA violations were identified at the Pantex Plant, which represent problems requiring corrective action, they do not pose an immediate or imminent threat to public and worker health, or the environment, with continued operation of the facility.

KEY FINDINGS AND A NOTEWORTHY PRACTICE

A brief summary of environmental, safety and health, and management key findings and noteworthy practices follows. For a full description of these and other findings, the reader is referred to Section 2 and subsequent sections of the report.

ENVIRONMENT

The Environmental Assessment Team identified three key compliance findings. It was noted that the Pantex Plant has not sought a National Pollutant Discharge Elimination System (NPDES) determination as to whether an NPDES permit is required from the Environmental Protection Agency for discharges into playas on the site. Other noncompliance findings deal with conformance with documentation and process requirements of DOE Orders relating to the National Environmental Policy Act.

Environmental best management practice findings include observations that the Pantex Plant groundwater monitoring is insufficient to assess the site's impact on the underlying aquifer(s); and that Pantex Plant sampling protocols for surface water, groundwater, air, soil and biota do not meet current industry standards. In addition, the Pantex Plant does not yet have in-place an Environmental Monitoring Plan to formally direct and update its ongoing Environmental Monitoring effort.

SAFETY AND HEALTH

The Safety and Health Assessment team identified thirteen compliance findings. One of these findings, which is supported by several other findings, is considered key. The contractor was evaluated as having a serious lack of experienced technical capability in the area of health physics and radiation technician support for routine operations and, particularly for potential radiation contamination incidents. The remaining findings dealt with deficiencies and inconsistencies in safety documentation and procedure.

OCCUPATIONAL SAFETY AND HEALTH

The OSHA inspection of the Pantex Plant was completed in about the same period at the Tiger Team report. The OSHA final report is appended (Appendix G) to this report. At

the time the Tiger Team completed its field assessment, 168 OSHA report forms were ready for analysis. Of these 168 report forms, 28 alleged violations of construction standards, 133 alleged violations of industrial safety standards, and 6 alleged to a hazardous situation in which no standard was violated. One report form referred to an OSHA reporting requirement.

MANAGEMENT AND ORGANIZATION

The Management and Organization Assessment Team had six key best management practice findings. Three of the findings related to organization and administration issues. One of these findings describes how the DOE ES&H directives contribute to an ineffective system of policy direction, another notes the absence of an integrated ES&H Program planning process in DOE, and the third finding reflects the situation that the professional staffs at the Amarillo Area Office and Mason & Hanger - Silas Mason Co., Inc. (the Pantex Plant site contractor) are spending as much as 80-90% of their time reacting to outside audits and reviews.

With regard to the communications of ES&H objectives, the Team is concerned about needed changes in the operating culture at the Pantex Plant from a production orientation to a greater awareness of ES&H responsibilities. Also of concern is the subjectivity of the Performance Evaluation Plan that is used to assign a rating that determines the proper fee to the site contractor in the Cost Plus Award Fee process. A finding related to resources, notes the inadequacy of directly relevant technical expertise in the site contractor's ES&H oversight organization.

NOTEWORTHY PRACTICE

One noteworthy practice was identified. The Pantex Plant has developed the application of protective covers for safety purposes to protect certain assemblies containing radioactive material from ballistic discharge. This is a significant enhancement of the interface between security and safety.

ROOT CAUSE ANALYSIS

All of the noncompliance and best management practice findings of the Tiger Team were subjected to a root cause analysis in order to determine the underlying contributing reasons for the observed deficiencies documented by the Tiger Team. The methodology used is described in Section 1.5 and Appendix E.

Conclusions derived from the root cause analysis follow:

- Resources available (dollars and people) are insufficient to accomplish the job as presently defined.
- ES&H policy is promulgated in numerous orders at the Headquarters, AL, and AAO level. They are voluminous, unclear, often duplicative and considered generally inadequate to ensure their correct and timely implementation.
- The site contractor does not approach the management of information in an integrated manner, and lacks adequate records and tracking systems for ES&H matters. The support organization is primarily production-oriented.
- The present mode of operations at the Pantex Plant relative to ES&H matters is reactive in nature. This is created and perpetuated by, among other things, the essentially continuous unconsolidated audit activity on site, reporting requirements generated by these audits, the nonintegrated planning and budgeting processes, the lack of objectively stated expectations in the cost plus award fee plan, and the inadequate number of trained or qualified staff to perform the tasks.

These root causes need to be addressed at all levels of DOE and the site contractor for their specific applicability and required action.

1.0 INTRODUCTION

1.0 INTRODUCTION

On June 27, 1989, Secretary of Energy Watkins announced a 10-point Initiative to strengthen environmental protection and waste management activities in the Department of Energy (DOE). One of the initiatives involves conducting Tiger Team Assessments at DOE's operating facilities. Another was to attempt to achieve full compliance with Occupational Safety and Health Administration (OSHA) standards at all DOE facilities.

1.1 PURPOSE

The purpose of the Pantex Plant Tiger Team Assessment is to provide the Secretary of Energy with concise information on the:

- o current environmental, safety and health (ES&H) compliance status of the Pantex Plant and associated vulnerabilities;
- o root causes for noncompliance;
- o adequacy of DOE and site contractor ES&H management programs; and
- o ES&H compliance trends and root causes.

1.2 SCOPE

The scope of the Pantex Plant Tiger Team Assessment includes but is not limited to the following areas:

- o compliance with applicable Federal, state and local regulations, requirements, permits, agreements, orders and consent decrees;
- o compliance with DOE order requirements for ES&H activities;
- o conformance with applicable OSHA requirements;
- o adequacy of DOE and site contractor's ES&H management programs, including planning, organization, resources, training, and relationships with regulatory agencies and the public;
- o conformance with applicable "best" or "accepted industry practices;" and,
- o identification of root causes.

1.3 APPROACH

The Tiger Team Assessment at the Pantex Plant was conducted in accordance with the Draft Tiger Team Guidance Manual, September 1989, and followed accepted audit techniques.

The Pantex Plant Tiger Team was composed of three component teams, i.e., environment; safety and health; and management and organization. In addition to the three component teams for the Pantex Assessment, a team from OSHA was included as a consultant to the Department to assess consistency with occupational safety and health requirements. The OSHA final report is appended to the final Tiger Team report. A listing of the Tiger Team personnel and biographical sketches are contained in Appendix B.

The Tiger Team Assessment of the Pantex Plant included three distinct phases: planning, on-site activities, and reporting.

PLANNING

Planning for the Pantex Plant included the issuance of an introduction and information request memorandum, a Pre-Assessment Site visit, and initial review of documentation which was sent to the Tiger Team by the Pantex Plant as a result of the information request memorandum. (See Appendix C)

The Pre-Assessment Site visit was conducted on September 19-21, 1989. The Amarillo Area Office (AAO) and the site operating contractor, Mason and Hanger - Silas Mason Co., Inc. (M&H), provided an overview of site operations and of the ES&H program. Discussions were held to provide the site with the scope and purpose of the Tiger Team Assessment program and needed support requirements for the actual assessment. Federal and State regulators were invited to attend and participate in all activities. Representatives from the Environmental Protection Agency Region 6, the Texas Water Commission, the Texas Air Control Board, and the Texas Department of Health participated in the pre-assessment visit.

ON-SITE ACTIVITIES

The on-site activities for the Pantex Plant Tiger Team Assessment took place from October 2, 1989, to October 31, 1989. On-site activities included: document review; observation of site operations; interviews with DOE and site contractor personnel, and personnel from Federal, state and local regulatory agencies; and review of previous audits and assessments. The OSHA Team conducted an inspection of selected buildings and construction sites using procedures specified in the OSHA Field Operations Manual. Using these sources of information the Tiger Team developed findings. These findings fall into three general categories, i.e., compliance findings, best management practice (BMP) findings, and

noteworthy practices. Compliance findings are conditions which, in the judgement of the assessment team, may not satisfy applicable environmental or safety and health regulations, DOE Orders (including internal DOE memoranda, where referenced), consent orders, agreements with regulatory agencies, or permit conditions. BMP findings are conditions where, in the judgement of the assessment team, best management practices could and should be employed. Compliance findings and BMP findings were then evaluated to determine root causes for the non-compliances identified. The methodology of determining findings is depicted in Figure 1.1. In addition to these two categories of findings, the assessment team sought to identify practices, which in their judgement, may be noteworthy and have general application to DOE facilities and should be documented for the purposes of information transfer.

Figure 1.1 Tiger Team Assessment Methodology

REPORTING

The findings are presented under chapters identified by media (e.g., Air, Surface Water), issue (e.g., Emergency Preparedness and Security and Safety Interface), or regulation (e.g., National Environmental Protection Act). Each finding is preceded by a Performance Objective. The Performance Objectives for Regulatory or DOE Order Requirement Findings are derived from promulgated regulations and final DOE orders, consent orders, agreements, and permit conditions. The Performance Objectives for BMP findings are derived from regulatory agency guidance, accepted industry practices, and professional judgment. The findings within each chapter are not arranged in order of relative significance.

A summary of all Tiger Team Assessment key findings and noteworthy practices is presented in Section 2.0. Sections 3.4, 4.4, 5.4, and 6.4 present all team assessment findings and noteworthy practices within the respective Sections.

The Assessment reflects a fixed point in time. As a result, improvements in the ES&H areas that were planned by the Pantex Plant, but were not completed at the time of this Assessment, are identified as findings if the Team judged them to be necessary to satisfy ES&H requirements or Best Management Practices. Many of the violations of OSHA standards identified by the OSHA Team were remedied prior to the conclusion of the inspection.

The findings, audit observations, BMPs, and noteworthy practices made by the Assessment Team were verbally presented to representatives from the Office of Defense Programs, the Albuquerque Operations Office (AL), AAO, M&H, and Federal and State regulators at a close-out briefing on October 31, 1989.

Comments on the draft report from the Office of Defense Programs, AL, AAO and the site contractor have been incorporated, as appropriate, in this Final Tiger Team Assessment Report. In addition, the Program Secretarial Officer, in this case the Assistant Secretary for Defense Programs, will prepare a draft and final action plan to address the findings and root causes identified during the Tiger Team Assessment of the Pantex Plant. When the Secretary approves the final action plan, the Program Secretarial Officer will implement the plan.

1.4 FACILITY DESCRIPTION

The Pantex Plant is located approximately 17 miles northeast of downtown Amarillo, Texas, between U.S. Highway 60 on the south, Texas Farm-to-Market (FM) Road 293 on the north, FM 683 on the west, and FM 2373 on the east (see Figure 1.2). The plant is located on a 16,000 acre portion of the former Pantex Army Ordnance Plant. The Pantex site was constructed in the first half of the 1940s by the U.S. Army for the production of conventional ordnance. At the end of World War II, the plant was deactivated and the property eventually reverted to the War Assets Administration. In 1949, the entire installation was sold to Texas Technological College for one dollar. The land was to be used for experimental farming, but was subject to recall under the National Security Clause. Following an extensive survey of World War II ordnance plants, the Pantex site was chosen in 1951 by the Atomic Energy Commission (AEC) for expansion of its nuclear weapons assembly facilities. The Army Ordnance Corps reclaimed the site for the AEC and contracted the Silas Mason Company to rehabilitate it.

Figure 1.2 Location of Pantex Plant

The Pantex Plant includes over 323 buildings. Within the 16,000 acres, approximately 2,000 acres are dedicated to active facility operations, such as high explosive machining and assembly. Approximately 8,000 acres is devoted to storage, disposal and miscellaneous activities in support of Plant operations. The remainder of the Plant site, or about 6,000 acres, is leased from Texas Tech University (formerly Texas Technological College) to provide a Government-controlled safety and security zone on the south side of the facility. The buffer zones are used by Texas Tech University for agricultural research, and some acreage is leased for private farming (see Figure 1.3). An additional 1110 acres northeast of the facility provide supplemental water rights and include a lake formerly used for the disposal of sewage effluent.

All the land within a 3-mile radius of the Plant site is used for agricultural purposes, either farming or grazing. There are about three dozen farm houses and the settlement of St. Francis, population about 30, within a 5-mile radius.

Figure 1.3 Land Use at the Pantex Plant

The main mission of the Pantex Plant is the manufacture of high explosive components and the assembly and maintenance of nuclear weapons. Activities in support of the mission are conducted in portions of the facility referred to as zones. The major zones are shown in Figure 1.4.

Figure 1.4 Pantex Plant Major Zones

The mission of the Pantex Plant can be divided into several functions:

1. New-weapon production. High-explosive raw materials are received from private industry and the Holston Army Ammunition Plant. The materials are inspected, sampled, and, upon acceptance, prepared for compaction pressing into billets in Zone 12. The billets are inspected to ensure quality and safety, and they are X-rayed for any cavities or foreign matter. They also go through a series of machining operations and inspections to produce a finished, shaped charge. To ensure a quality product, samples of a lot are test-fired at the firing sites to determine if the desired explosive characteristics have been attained. The billet may require some subassembly preparation in Zone 12. Certain attachments may be made to the shaped charge prior to the mating of the high explosive to the nuclear assemblies. Assembly of the high explosive and nuclear material is accomplished in special containment cells within the Material Access Area (MAA) in Zone 12. The MAA is a highly restricted area where special nuclear materials are staged and assembled. Once the nuclear material and high explosive components are encased, the assembly is moved into an assembly bay for installation of the fusing and firing components. Upon final acceptance by the DOE, the weapon is packaged and deployed to the staging area in Zone 4.

2. **Stockpile maintenance.** Weapons that require maintenance beyond the capability of the U.S. Department of Defense are returned to the Pantex Plant for maintenance and/or repair. Units returned may have been inadvertently damaged or may have become nonoperational. Upon arrival, the weapons are subject to receipt, inspection, and safety checks in Zone 4. Disassembly to the degree necessary to accomplish the maintenance and/or repair is performed. The weapon is then reassembled, tested, and returned to the staging area.
3. **Stockpile and new-material testing.** Weapons samples are randomly drawn from the stockpile or the production line for quality assurance testing and processed through the receipt, inspection, and safety checks. The weapon is then disassembled. The Pantex Plant performs surveillance testing of the physics package on behalf of Los Alamos and Lawrence Livermore National Laboratories.

Electrical component testing at the Pantex Plant is executed by the Sandia Systems Test Laboratory located in Zone 12. Essentially, the laboratory simulates the conditions typical of a functioning weapon. Critical functions are measured and checked for conformity with design criteria, and the weapon is then reassembled. In cases of destructive testing, new material is used. Upon final acceptance, the weapon is returned to the staging area.

4. **Stockpile and new-material flight tests.** Weapons are randomly withdrawn from the stockpile or production line and are subjected to Pantex receipt, inspection, and safety checks. Upon acceptance, the weapon undergoes the amount of disassembly necessary for removal of the nuclear portion; the fusing and firing are not disturbed. The nuclear material goes back into the production process. The nuclear portion of the weapon is replaced by an assembly that consists of a test bed and the instrumentation required for the test. The instrumentation package contains various telemetry devices for recording and transmitting critical weapon function data. Test flights are not conducted at the Pantex Plant.
5. **Weapons disposal.** Surplus or outmoded weapons are returned to the Pantex Plant; processed through receipt, inspection, and safety checks; and disassembled. Some limited evaluation work is performed to provide information on the older systems in the stockpile. All nuclear materials are returned to the DOE Plants which supplied them. High explosives and high-explosive scrap are disposed of on site at the burning grounds.

6. Explosives development. Pantex is also responsible for the synthesis and formulation of explosives and the physical property testing of adhesive and potting compound formulations. Instrumental analysis and compatibility study of weapon materials include the destructive and nondestructive testing of explosive components, devices, and systems. Explosive components are developed and evaluated for their sensitivity to unintended detonation.

Additional sources of support to the Pantex Plant mission include the administrative offices in Zone 12, warehousing and landfill operations in Zone 10, a new sewage treatment plant in Zone 12, water wells and a water treatment plant in Zone 15, and a vehicle maintenance facility in Zone 16.

1.5 ROOT CAUSE METHODOLOGY

The purpose of the root cause analysis is to determine the underlying contributing reasons (root causes) for the observed deficiencies documented in the findings of the Tiger Team. The process used was a structured Management Oversight and Risk Tree (MORT) based root cause analysis system, with adjustments made to accommodate the Tiger Team approach.

The MORT method defines 23 categories of surface causes, listed below, which help provide the foundation for the subsequent development of root causes:

* Technical Information	* Hazard Analysis
* Safety	* Change
* Appraise/Audit/Review	* Procedures
* Codes, Standards, and Regulations	* Design
* Ameliorations	* Quality Assurance/
Quality Control
* Communications	* Barriers & Controls
* Operational Readiness	* Maintenance
* Inspection	* Supervision
* Task Performance	* Personnel
* Training	* Environment
* Equipment	* Personal Protective
Equipment
* Human Factors	

Each team member was instructed to complete the compliance or best management practice finding first in the proper format and depth of content. At this point, the team member was to select and verify (using the structured set of questions which is part of the MORT methodology) the surface cause(s) applicable to each finding and to document the reasons "why" the selection was made. Each selection was weighted on a scale of 1 (least) to 5 (most) as to its importance as a causal factor for the finding.

Each team member reviewed the generic questions (MORT methodology) for "POLICY", "POLICY IMPLEMENTATION", AND "RISK ASSESSMENT" and selected the most appropriate root cause category applicable for each finding, weighted their selection, and documented their rationale for selection.

The first analytical process consisted of simply entering the numerical data from each individual finding onto a spread sheet and graphically portraying the results. This was done both with the data weighted as to its importance to the finding and using raw data - unweighted counts of entries. This allowed the team to visualize which management process deficiencies were the major causal factors for all the findings collectively.

By arranging the "why" statements into surface and root cause categories, the team was able to focus on why the findings occurred rather than the specifics of the findings themselves. Analyzing this information consisted of observing the frequency and weight placed on items, noting common threads that seemed to flow through the statements, and making professional interpretations and intuitive judgements to deduce underlying root causes for each of the Team's findings.

The results of applying the root cause analysis for all the teams' findings are provided in Section 2.4. For further information on root cause methodology, the reader is referred to Appendix E.

2.0 KEY FINDINGS, NOTEWORTHY PRACTICES, AND PROBABLE ROOT CAUSES

2.0 KEY FINDINGS, NOTEWORTHY PRACTICES, AND PROBABLE ROOT CAUSES

2.1 ENVIRONMENTAL ASSESSMENT

The purpose of the environmental portion of the DOE Tiger Team Assessment of the Pantex Plant was to evaluate the activities of the Amarillo Operations Office (AAO) and the Pantex Plant operating contractor, Mason & Hanger-Silas Mason Co., Inc. (M&H) with regard to compliance with Federal, State, and local environmental requirements, and DOE environmental orders.

The Environmental Team identified 30 compliance findings and 27 best management practice findings. Of these, six were identified as key findings.

2.1.1 KEY FINDINGS

2.1.1.1 Compliance Findings (CF)

■ SW/CF-1

The Pantex Plant has not sought a determination from the Environmental Protection Agency under 40 CFR 122 concerning the applicability of a National Pollutant Discharge Elimination System (NPDES) permit. Based on the NPDES regulations and definitions within 40 CFR 122, the Pantex Plant playas are waters of the United States, and therefore discharges to them may require NPDES permits.

■ NEPA/CF-1

The National Environmental Policy Act (NEPA) determination and review process by the Albuquerque Operations Office (AL) does not include the full range of NEPA review categories listed in the DOE NEPA Guidelines as specified in the DOE Order 5440.1C.

■ NEPA/CF-2

AL does not provide sufficient documentation to support its determinations that actions are "clearly insignificant" or "substantially the same as other actions..." as required by the DOE NEPA Guidelines and DOE NEPA Order.

2.1.1.2 Best Management Practice Findings (BMPF)

■ GW/BMPF-1

The Pantex Plant groundwater monitoring is insufficient to assess the site's impact on the underlying aquifer(s). Although the site does have wells installed into the perched (shallow) groundwater zone and the deeper Ogallala aquifer, the wells are localized. Since there are over 140 solid waste management units throughout the site, the existing wells are not at appropriate or sufficient locations and depths to define the potential impacts to the groundwater from these sites.

■ QA/BMPF-1

The Pantex Plant does not yet have in place an Environmental Monitoring Plan to formally direct and update its ongoing Environmental Monitoring Program. Thus, the Pantex Plant currently generates and reports environmental monitoring data that may be subject to challenge by regulatory agencies or public interest groups on the basis that the Plant has no sufficiently auditable or verifiable Monitoring Plan under which the data was produced.

■ QA/BMPF-2

The Pantex Plant sampling protocols for surface water, groundwater, air, soil, and biota do not meet current industry standards. Procedures set forth in the current Mason & Hanger Internal Operating Procedure No. 3405 and the draft Operations and Inspections Standard No. 3-1044 either do not adequately address or do not provide any information on several critical sampling procedures and practices. Failure to adequately address all pertinent issues in the Pantex Plant sampling and analysis protocols could result in data that may be improperly collected, lost, or otherwise invalidated for technical or administrative reasons.

2.2 SAFETY AND HEALTH ASSESSMENT

The purpose of the Safety and Health (S&H) portion of the DOE Tiger Team Environmental, Safety and Health Assessment of the Pantex Plant was to evaluate the activities of the AAO and the plant operating contractor in their conduct of the S&H worker protection program in plant operations.

The Safety and Health Team identified thirteen compliance findings, two best management findings, and one noteworthy practice in its review. One specific compliance finding which warranted immediate management attention was referred to AL and AAO management for action. This finding indicated a visible lack of adequate health physics and radiation technician coverage for both routine and potential radiation contamination incidents.

2.2.1 KEY FINDINGS

2.2.1.1 Compliance Findings (CF)

- The more significant findings involve imbalances between S&H requirements and appropriate staff to fulfill those requirements. The clearest example of this is the inability of the Radiation Safety Department to fulfill its mission. Other findings of noncompliance relate to inconsistencies in safety documentation and deficiencies in safety procedures.

2.2.1.2 Best Management Practice Findings (BMPF)

- Examination of two specific topics (reviews of operating experience and awareness of the status of facilities) led the team to conclude that "best management practices" were not being followed in all cases.

2.2.1.3 Noteworthy Practice Finding (NPF)

- The Team identified one practice which is worthy of particular note to the DOE community at large. The Pantex Plant uses various forms of bulletproof coverings to protect important hardware. This is a significant enhancement of the interface between safety and security.

2.3 MANAGEMENT AND ORGANIZATION ASSESSMENT

The purpose of the Management and Organization (M&O) Assessment Team's review of the Pantex Plant was to evaluate the adequacy of the organization, management systems and activities as they relate to environmental, safety and health (ES&H) issues at AAO and M&H.

The M&O Assessment Team identified thirteen findings, (one compliance and twelve best management practices). Of the thirteen findings, six were identified as key findings that had a significant impact on the Pantex Plant.

2.3.1 KEY FINDINGS

2.3.1.1 Compliance Findings (CF)

The M&O Assessment Team had no key compliance findings.

2.3.1.2 Best Management Practices Findings (BMPF)

The M&O Assessment Team identified six key BMPF findings. Three of the findings were related to organization and administration issues, two involved communications of ES&H objectives, and one concerned resources.

ORGANIZATION AND ADMINISTRATION

■ M/BMPF-1

DOE ES&H Management/Policy Directives Shortcomings - This finding describes how the DOE ES&H directives system contributes to an ineffective system of policy direction.

■ M/BMPF-2

Lack of an Integrated Planning System That Ties to the Budget Process - This finding notes the absence of an integrated ES&H Program Planning Process in DOE.

■ M/BMPF-3

Reactive Management Practices - This finding points out that the professional staffs at AAO and M&H are spending as much as 80-90%

of their time reacting to a variety of reports and review findings from a myriad of both internal and external audits and reviews.

COMMUNICATIONS OF ES&H OBJECTIVES

■ M/BMPF-6

ES&H Culture Has Not Fully Permeated the AAO and M&H Organizations - This finding is concerned with the changes in the operating culture at the Pantex Plant from primarily a production orientation to a greater awareness of ES&H responsibilities.

■ M/BMPF-7

Cost Plus Award Fee Initiatives and Milestones (Evaluation Standards) - This finding describes how the Performance Evaluation Plan used to evaluate M&H's performance is too subjective and does not provide sufficient specificity to assign a rating to determine the proper fee to the contractor.

RESOURCES

■ M/BMPF-9

Technical Qualifications of M&H ES&H Division Professional Staff - This finding notes the inadequacy of directly relevant technical expertise in the M&H ES&H oversight organization.

2.4 PROBABLE ROOT CAUSES

2.4.1 APPROACH

The findings of the Tiger Team were analyzed to determine the underlying contributing reasons (root causes) for the observed deficiencies. The process utilized by the team was a structured Management Oversight and Risk Tree (MORT) based root cause analysis system with adjustments made to accommodate the Tiger Team approach. The source document was the MORT text, "MORT - The Management Oversight and Risk Tree" (SAN 821-2), authored by W. G. (Bill) Johnson.

As described in Section 1.5, each team member first completed the compliance or best management practice finding in the proper format and depth of content. Using the structured set of questions contained in the MORT methodology, each team member selected and verified the surface cause(s) applicable to each finding and documented the reasons "why" the selection was made. Each team member weighted the selection on a scale of 1 (least) to 5 (most) as to its importance as a causal factor for the finding. Surface cause categories include:

- * Technical Information
- * Hazard Analysis
- * Safety
- * Appraisal/Audit/Review
- * Change
- * Procedures
- * Codes, Standards, and Regulations
- * Design
- * Human Factors
- * Quality Assurance//Quality Control (QA/QC)
- * Amelioration
- * Barriers and Controls
- * Operational Readiness
- * Maintenance
- * Inspection
- * Supervision

- * Task Performance
- * Personnel
- * Training
- * Environment
- * Equipment
- * Communications
- * Personal Protection Equipment

The numerical data from each individual finding was entered onto a spread sheet and graphically portrayed using both weighted and unweighted data (see Figures 2.1 and 2.2). This allowed the team to visualize which management process deficiencies were the major causal factors for all the findings collectively. When the surface causes were weighted based on the criticality of their impact on the individual findings, "Procedures" emerged as the prominent causal factor. "Task Performance," "Appraisal/Audit/Review," and "Training" were next in importance. It should also be noted that using the unweighted data to prepare the graphs did not alter the results significantly. One caution concerning these statistics is that the results may be slightly skewed since environmental team findings amounted to 65% of the total findings.

Figure 2.1

Figure 2.2

Each team member reviewed the generic questions (MORT methodology) for "POLICY", "POLICY IMPLEMENTATION", and "RISK ASSESSMENT" and selected the most appropriate root cause category applicable for each finding, weighted their selection, and documented their rationale for selection. Again, the numerical data are graphically presented in Figures 2.3 and 2.4. Inadequacies in "Policy Implementation" emerged as the most appropriate root cause category, with 54% of findings falling in this area. "Policy" was next with approximately 38% and "Risk Assessment" followed with approximately 8%. Once again, the weighting did not materially alter the distribution of the data.

This information helped focus the team's attention in the development of root cause conclusions. The documentation of the rationale used for selecting the surface and root cause categories served as the basis to arrange the "why" statements by category. By requiring the individual writing the finding to answer the "why" questions and arranging that data into the categories, the team was able to focus on why the findings occurred rather than the specifics of the findings themselves. This information was analyzed by observing the frequency and weight placed on items, noting common threads that seemed to flow through the statements, and making professional interpretations and judgments

Figure 2.3

Figure 2.4

to deduce underlying root causes for the team's findings. Using a Delphic process of successive approximation, the team produced the conclusions in this report.

2.4.2 SUMMARY ANALYSIS

Appendix E provides additional detail on the root cause analysis.

2.4.2.1 Root Cause Categories

POLICY

Policies and orders applicable to the Pantex Plant are in many cases inadequately defined. The following root cause statements exemplify the Team's concerns (information in parentheses refers to associated findings):

- o The site policy of retaining stopwork authority by the AAO Manager and Pantex Plant Manager, and not delegating it further, with one exception, provides inadequate assurance that oversight personnel closest to the actual plant operations have the appropriate authority. (M/BMPF-5)
- o The DOE system of orders and directives is not an up-to-date, clear, internally consistent set of policies and procedures. (M/BMPF-1)
- o Examples where policies are absent, ambiguous or otherwise inadequate include the M&H workers compensation program (M/BMPF-4); the Performance Evaluation Plan used to evaluate the performance of M&H (M/BMPF-8); systems for monitoring corrective actions resulting from environment, safety and health appraisals (M/BMPF-11); keeping logs of systems status (S/BMPF-2); land use census (RAD/BMPF-3); monitoring underground storage tanks (GW/BMPF-2); labelling radwaste (RAD/BMPF-1); Environmental Compliance Agreements (IWS/BMPF-2); and NEPA determinations (NEPA/BMPF-1).
- o Site policy for identifying and ensuring compliance with Resource Conservation and Recovery Act (RCRA) regulatory requirements is inadequate. (All findings related to RCRA)
- o The impacts of new policies on available resources (e.g. staff, funding) need more careful attention so as to avoid conflicts in an organization's ability to implement change. (S/CF-1)

- o AL inappropriately defers to M&H some responsibility for NEPA determinations. (NEPA/CF-1)

POLICY IMPLEMENTATION

Policy implementation becomes relevant after adequate statements of policy are in place. Many of the team's concerns are rooted in the systems utilized for implementing policy. Possible inadequacies are exemplified by the following root cause statements:

- o Uncertainty regarding how the Nuclear Regulatory Commission Quality Assurance Order Applicable to Nuclear Facilities (NQA-1) requirements would apply to the non-weapons quality assurance program caused failure by M&H to implement the policy contained in AAO Order 5700.6B, as evidenced by the small number of approved quality assurance plans and complete audits. (M/CF-1; S/CF-4)
- o AAO and M&H do not have adequate staff to accomplish the total job involving environment, safety, and health as that job is currently defined. (M/BMPF-9; M/BMPF-10; S/CF-1)
- o There are 75 orders from DOE, AL, and AAO relating to environment, safety, and health. The AAO and M&H managers are aware of the importance of compliance, but the process to ingrain this culture into all employees is as yet incomplete. (M/BMPF-6; M/BMPF-8)
- o Neither AAO nor M&H is aggressively pursuing the requirements of the site operating contract regarding the evaluation of the contractor's performance. The CPAF Performance Evaluation Plan used to evaluate M&H's performance is too subjective and does not provide sufficient specificity to assign a rating to determine the proper fee to the contractor. (M/BMPF-7)
- o AL has not complied with its own orders which prescribe time frames and procedures for scheduling, conducting, reporting and following up on appraisals. (M/BMPF-11)
- o M&H and AAO are competing against other parts of DOE, against the commercial nuclear industry, and against the chemical process industry to acquire the services (as employees and as contracted technical support) of a finite, nationwide pool of individuals qualified in environment, safety, and health. M&H and AAO have no particular

competitive advantage in this competition. In fact, the M&H salary structure, the security clearance requirements, and the geographical location of the Pantex plant may be competitive disadvantages. (S/CF-1; S/CF-10; S/CF-13)

- o Site management has not received the resources or the guidance necessary for timely implementation of DOE 5480.11 regarding radiation protection. (S/CF-10; S/CF-11; S/CF-13)
- o Examples where M&H has inadequately implemented policies to assure compliance include the operation of the sewage treatment plant; discharge into the playas; containment of above ground storage tanks required by 40 CFR 112; Texas Water Commission wastewater discharge; monitoring of forage crops for fluoride and atmospheric releases of fluoride; paint shop solvent hazardous waste, and protecting wetlands. (SW/BMPF-1; SW/CF-1; SW/CF-2; SW/CF-3; SW/CF-4; AIR/CF-1; AIR/CF-2; RCRA/CF-6; CNR/CF-1)
- o DOE NEPA procedures, as specified in the DOE NEPA guidelines, are incorrectly implemented in making NEPA determinations. (NEPA/CF-2; NEPA/CF-3)

RISK ASSESSMENT

Properly targeting policy and policy implementation depends on accurately understanding risks. Risk assessment at the Pantex Plant is inadequate to guide and direct the effective development and implementation of policy. These root cause statements exemplify the team's concerns in terms of inadequacies in the risk assessment activities:

- o A documented technical basis, which accurately portrays the relative risk presented by the various operations and facilities at Pantex, would enable M&H and AAO to establish priorities more effectively. A similar basis covering the entire DOE weapons production complex would enable DOE to establish priorities more effectively at an even higher level. (S/CF-1)
- o Risks are not properly addressed prior to the start of the work process. (S/BMPF-1)
- o M&H's risk assessment of the routine manual gauging program and the leak testing program for the underground storage tanks is weak. (GW/BMPF-1; GW/BMPF-2)

2.4.2.2 Surface Cause Categories

The four most frequently selected surface causes were "Procedures", "Task Performance", "Appraisal/Audit/Review", and "Training". Figures 2.1 & 2.2 provide a graphic representation of the relative importance placed on the categories as causing agents for the findings documented by the Tiger Team. Details concerning the information in each category are provided in Appendix E.

2.4.3 ROOT CAUSE CONCLUSIONS

The probable root causes of the inadequacies observed by the Tiger Team are as follows:

- o ES&H policy is promulgated in numerous orders at the HQ, AL, and AAO level. They are voluminous, unclear, and often duplicative, and considered generally inadequate to ensure their correct and timely implementation. The requirements for implementing a new policy typically do not consider the impacts on existing resources and create a situation of conflict that is not reconcilable in a practical manner.
- o The number and unconsolidated nature of audit activity on-site, the voluminous reporting requirements generated by these audits, the nonintegrated planning and budgeting processes, the lack of objectivity in evaluating M&H performance including the CPAF process, and the inadequate resources available to perform the ES&H functions as presently defined have created a mode of operations at the Pantex Plant that is reactive in nature. The technical staff is unable to operate in a mode of day-to-day surveillance and self-assessment where preventive efforts would be more proactive in improving ES&H compliance.
- o A positive ES&H culture has not been established in AAO or M&H. Although managers and staff are aware of their responsibilities in ES&H matters, this awareness is not fully reflected in policies, procedures, functional statements, performance requirements, or day-to-day activities.
- o M&H and AAO are at a competitive disadvantage in attracting technically competent employees from the finite nationwide pool of qualified manpower. Salary structure, security requirements, and relative technical/geographical isolation are among the disadvantages which are unlikely to be overcome by managers at Pantex.

- o DOE has not assigned sufficient new or reallocated resources (people and dollars) to accomplish the ES&H mission at the Pantex Plant. The actual allocation of finite resources is starting to reflect the Secretary's increase in emphasis but is inadequate to complete the mission as defined by existing laws, regulations, policies, orders, and standards of excellence.
- o There is a lack of an objective, well documented and clearly articulated technical basis for assessing risk of facilities and operations at the Pantex Plant and within DOE. This deters the ability of decision makers to establish priorities and allocate resources most effectively.
- o M&H does not approach the management of information in an integrated fashion. The support organization is primarily technology-oriented. M&H does not maintain adequate records and other program documentation. M&H does not have an accessible and integrated management information and tracking system that: (1) provides current and meaningful data for management decisions; (2) defines and displays priorities for assessing and managing risks, both internally within ES&H and relative to other program areas; (3) provides management with the means to monitor and prioritize ES&H compliance requirements; and (4) effectively communicates operational and compliance requirements throughout affected divisions. Communication has not been effective in disseminating ES&H information to the level necessary for performance.

These root causes need to be addressed at all levels (HQ, AL, AAO, and M&H) for their specific applicability and required action. The root causes must be considered collectively (i.e., to add staffing to the equation without analyzing the processes creating the reactive nature of ES&H activities would not be the optimal solution). DOE and M&H need to examine the present approach to auditing which results in numerous and sometimes duplicative findings and action plans requiring continuous follow-up. They also need the resources to identify and prioritize necessary corrective actions using appropriate risk assessment techniques. A comprehensive action plan including costs by item, fiscal year, staffing, and other resource needs could then be prepared that would be acceptable to management at all levels. The team firmly believes that such an approach would be the proper response to the root causes underlying the deficiency findings and would change the mode of operations from one of reacting to isolated stimuli to proactive problem solving and eventual ES&H compliance.

3.0 ENVIRONMENTAL ASSESSMENT

3.0 ENVIRONMENTAL ASSESSMENT

3.1 PURPOSE

The purpose of the Environmental Assessment Team is to assess the Pantex Plant's adherence to applicable environmental Federal and State laws, and DOE Headquarters (DOE/HQ), Albuquerque Operations Office (AL), and Amarillo Area Office (AAO) environmental orders and requirements, and the Pantex Plant operating contractor, Mason & Hanger - Silas Mason Co., Inc. (M&H) procedures as they relate to environmental compliance. The team identified deficiencies, developed findings, and identified root causes of the noted deficiencies. The development of root causes is intended to assist AAO and M&H management in taking appropriate corrective actions and in formulating policies and procedures to prevent a recurrence of similar problems.

3.2 SCOPE

The scope of the Pantex Plant environmental assessment was comprehensive, covering all environmental media and applicable Federal, State, and local regulations, requirements, best management practices, and DOE and M&H Plant-specific regulations and standards. The environmental disciplines addressed in this assessment include air, soil, surface water, groundwater, waste management, toxic and chemical materials, radiation, quality assurance, inactive waste sites, and cultural and natural resources. The assessment also addressed National Environmental Policy Act (NEPA) requirements.

3.3 APPROACH

The Environmental Assessment at the Pantex Plant was conducted in accordance with the Draft Tiger Team Guidance Manual, September 1989, and followed accepted audit techniques.

The Environmental Assessment Team at the Pantex Plant was managed by a Team Leader from the DOE Office of Environmental Audit and an Assistant Team Leader from the DOE Chicago Operations Office with technical specialists support provided by a support contractor. The names, responsibilities, affiliation, and biographical sketches of the team members are provided in Appendix B.

On-site activities for the Environmental Assessment Team included field inspections, files/records reviews, and interviews with DOE and site contractor personnel and Federal and State regulatory agencies. Using these sources of information, the Assessment Team made determinations on whether activities and conditions at the site satisfied applicable

environmental regulatory requirements, including Federal and State laws, DOE Orders and site procedures, and best management practices. The Assessment Team also made note of practices, activities, and programs, if any, which were so exceptional that they warranted documentation for purposes of information transfer among other DOE facilities.

The on-site activities for the Environmental Assessment took place from October 2, 1989, to October 31, 1989. The site plan which identifies the environmental team's activities while on site is presented in Appendix D.

3.4 ENVIRONMENTAL ASSESSMENT SUMMARY

The Environmental Assessment Team identified 59 findings during the course of its review. A summary of the key findings is presented in Section 2.1. None of the findings were considered to be significant enough to cause an interruption of Pantex Plant activities.

The most significant findings were related to compliance issues with NEPA, inadequate environmental sampling protocols, lack of an overall groundwater monitoring program, and findings dealing with inadequate, unclear, and at times conflicting DOE-HQ and AL Orders, and Pantex standards within the areas of regulatory and environmental control.

Table 3.4-1 is a listing of the findings identified by the Environmental Assessment Team.

Table 3.4-1. Environmental Assessment Team Findings

<u>Number</u>	<u>Finding</u>
AIR/CF-1	Inadequate Fluoride Forage Monitoring
AIR/CF-2	Inadequate Monitoring of Atmospheric Fluoride Releases
AIR/BMPF-1	Volatile Organic Compound (VOC) Emissions Minimization
AIR/BMPF-2	Air Monitor Siting Requirements
SW/CF-1	Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Permit Determination
SW/CF-2	Inadequate Containment of Aboveground Storage Tanks and Drums
SW/CF-3	Untimely Reporting of Texas Water Commission (TWC) Wastewater Discharge Permit Exceedances
SW/BMPF-1	Inadequate Wastewater Treatment in the Pantex Plant Sewage Lagoon
SW/BMPF-2	Unnecessary Diesel Fuel Releases at Cement Batch Plant
SW/BMPF-3	Deterioration of Sewer Lines
SW/BMPF-4	Unrepresentative Wastewater Flow Measurement
GW/BMPF-1	Inadequate Groundwater Monitoring
GW/BMPF-2	Unknown Integrity of Underground Storage Tanks and Pipes
WM/CF-1	Storage of Hazardous Waste in Non-Interim Status Facilities for Longer than 90 Days
WM/CF-2	Inadequate Labeling of Hazardous and Mixed Waste Containers
WM/CF-3	Extended Storage of Land-Disposal-Restricted Hazardous Waste
WM/CF-4	Inadequate Secondary Containment for Resource Conservation and Recovery Act (RCRA) Treatment Facility Hazardous Waste Tanks

Table 3.4-1. Environmental Assessment Team Findings
(Cont'd.)

<u>Number</u>	<u>Finding</u>
WM/CF-5	Lack of Waste Characterization
WM/CF-6	Inadequate Operating Records at RCRA Treatment and Storage Facilities
WM/CF-7	Inadequate Follow-up of Inspection Deficiencies
WM/CF-8	Inadequate Identification of RCRA Hazardous Waste 90-Day Accumulation Areas
WM/CF-9	Minor Inaccuracies in RCRA Documents
WM/CF-10	Open Hazardous Waste Containers
WM/CF-11	Inadequate Aisle Space at Interim Status Hazardous Waste Storage Facility
WM/CF-12	Inspection of Evaporation Pans Not Performed Daily
WM/CF-13	Inadequate Sign Posting at RCRA Treatment Facilities
WM/BMPF-1	Inadequate RCRA Inspection Checklists
WM/BMPF-2	Lack of Timely Disposition of Potential Hazardous/Mixed Waste from Damaged Joint Test Assemblies
TS/CF-1	Nonconformance with Chemical Storage Area Inspection Requirements
TS/CF-2	Chemical Storage in Defective Containers
TS/BMPF-1	Polychlorinated Biphenyls (PCB) Item Labeling and Documentation Inconsistencies with Regulatory Definitions
QA/CF-1	Lack of Quality Assurance Project Plans
QA/BMPF-1	Lack of a Written Environmental Monitoring Plan
QA/BMPF-2	Inadequate Sampling Protocols
QA/BMPF-3	Inadequate Sampling Techniques

**Table 3.4-1. Environmental Assessment Team Findings
(Cont'd.)**

<u>Number</u>	<u>Finding</u>
RAD/CF-1	Inadequate Staffing Levels for the Position of Atmospheric Release Advisory Capability (ARAC) Operator
RAD/BMPF-1	Inadequate Labeling of Radiological Waste
RAD/BMPF-2	Identification of Radioactive Check Sources
RAD/BMPF-3	Lack of an Annual Land Use Census
RAD/BMPF-4	Inadequate Air Sample Analysis
RAD/BMPF-5	Posting of Contaminated Firing Sites
RAD/BMPF-6	Pantex Plant Annual Environmental Monitoring Report Inadequacies
RAD/BMPF-7	Improper Lining of Radiological Waste Trash Containers
IWS/CF-1	Underreporting of Chemical Releases and Inventories
IWS/CF-2	Inadequate Toxic Chemical Release Documentation
IWS/CF-3	Lack of Hazardous Chemical List Update
IWS/CF-4	Incomplete Distribution of Emergency Planning and Community Right-to-Know Act (EPCRA) Reports
IWS/CF-5	Inadequate Community Relations Activities
IWS/BMPF-1	Lack of AAO Environmental Restoration Oversight
IWS/BMPF-2	Lack of Timely DOE HQ and AL Approval of AAO Environmental Restoration (ER) Activities
IWS/BMPF-3	Lack of Input from Regulatory Agencies on ER Activities
IWS/BMPF-4	Incomplete Spill Reporting Procedure
NEPA/CF-1	Inappropriate Use of NEPA Determinations Process by the Albuquerque Operations Office
NEPA/CF-2	Unsupported Albuquerque Operations Office NEPA Determinations

Table 3.4-1. Environmental Assessment Team Findings
(Cont'd.)

<u>Number</u>	<u>Finding</u>
NEPA/CF-3	Inappropriate NEPA Categorical Exclusion of the High Explosive Machining Facility (HEMF)
NEPA/CF-4	Inadequate Albuquerque Operations Office NEPA Directions
NEPA/BMPF-1	Outdated Albuquerque Operations Office NEPA Supplemental Order
NEPA/BMPF-2	Inadequate Amarillo Area Office NEPA Records
CNR/CF-1	Lack of Wetlands Delineation and Environmental Review

3.5 ENVIRONMENTAL ASSESSMENT FINDINGS

3.5.1 AIR

3.5.1.1 Overview

The purposes of the air section of the environmental assessment at the Pantex Plant are to: 1) evaluate the AAO and M&H ES&H management structure and air issues review process; 2) identify problems that may lead to inappropriate procedures, inadequate environmental documentation, or sample data; and 3) evaluate compliance with the Clean Air Act (CAA) and the Texas Clean Air Act (TCAA) regulations, and DOE Orders, as applicable.

The Pantex Plant is located in Carson County, which is part of the Amarillo-Lubbock Intrastate Air Quality Control Region (AQCR). This region is designated as attaining National Ambient Air Quality Standards (NAAQS) for particulates, nitrogen dioxide, sulfur dioxide, and carbon monoxide; and unclassified for ozone.

The Texas Air Control Board (TACB) administers standards for the prevention and control of air emissions. These standards have been adopted by the State of Texas in the Texas Clean Air Act, (Texas Administrative Code, Title 31, Part III, Chapter 101). The TACB has adopted the NAAQS and administers the New Source Performance Standards (NSPS)(40 CFR 60) as well as the National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61), except for the NESHAP Subpart H (radiological). Texas also regulates inorganic fluoride and beryllium (Be) emissions in Chapter 113 (Texas Regulation III).

Several facilities at the Pantex Plant have been granted air permit exemptions by either the TACB or EPA Region VI. In addition to the air permit exemptions, the site has a "Written Grant of Authority" for open burning of high explosive (HE) materials at the Pantex Burning Grounds and the Firing Sites.

The site also has "Grandfathered Registration" for: 1) evaporation of HE-contaminated solvents in open pans; 2) open burning of HE-contaminated materials in burning cages at the Burning Grounds; and 3) the boiler house. Additionally the site follows the NESHAP notification process for asbestos.

Air compliance findings involve inadequate fluoride emissions monitoring. Best management practice findings deal with VOC emissions minimization and ambient air monitoring practices.

Table 3.5.1-1 summarizes the documents used for the assessment process and gives the area of applicability.

Table 3.5.1-1. List of Applicable Air Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Guidelines</u>	<u>Applicability Sections/Title</u>	<u>Authority</u>
TCAA (Texas Clean Air Act)	General Provisions	TX
TCAA	Regulation III/Toxic Materials	TX
TCAA	Regulation VI/New Sources/Stationary Combustion Units	TX
TCAA	Regulation I Visible Emissions and Particulates	TX
Clean Air Act	40 CFR 61-Subpart H-NESHAP for Radionuclide Emissions from DOE Facilities	EPA
Clean Air Act	40 CFR 61-Subpart M-NESHAP for Asbestos Emissions	TACB
DOE Order	5400.1-General Environmental Protection Program	DOE
DOE Order	5480.1-Requirements for Radiation Protection	DOE
DOE Order	5480.4-Environmental Protection, Safety and Health Protection Standards October, 1987	DOE

■ AIR/CF-1

Inadequate Fluoride Forage Monitoring

Performance Objective

Texas Air Control Board (TACB) Regulation III, Chapter 113, Subchapter A, Article 113.3 paragraphs (a)(2)(B) and (a)(3)(B) provide that operators with fluoride emissions monitor forage vegetation for fluorides by suitable tests, for up to 12 consecutive months, in affected bovine grazing lands (A-1).

Finding

M&H personnel are not conducting adequate monitoring for fluorides in forage in accordance with TACB Regulation III.

Discussion

Fluorine and hydrogen fluoride (HF) are released to the atmosphere by burning fluoride-bearing high explosive (HE) materials at the Pantex Burning Grounds and Firing Sites. Because on-site and adjacent land is used for grazing of cattle, the Pantex personnel are required under Texas law to monitor for fluorides in forage. AAO and M&H personnel have been aware of the applicable Texas regulations at least since November 1986 (A-2).

The Pantex Plant ES&H site personnel tried to obtain the necessary fluoride forage data recently, and six sets of data were published in the draft 1988 Pantex Environmental Report(A-3). However, the results of the data sets are scattered, and, with the exception of the background stations, do not represent the monitoring duration requirements of the TACB regulation. As a result of these data inadequacies, AAO personnel have not provided the required forage fluoride data to the TACB showing that the TACB Regulation III limits have not been exceeded (an average of 40 parts per million by weight on samples taken once a month over a period of 12 consecutive months, or an average of 60 parts per million by weight on samples taken once a month over a period of three months, or an average of 80 parts per million by weight on samples taken once a month over a period of two months).

■ AIR/CF-2

Inadequate Monitoring of Atmospheric Fluoride Releases

Performance Objective

Texas Air Control Board (TACB) Regulation III, Chapter 113, Subchapter A, Article 113.3, paragraphs (a)(2)(A) and (a)(3)(B) stipulate that the ambient air be monitored for fluoride emissions by suitable sampling and analysis or by approved alternate methods (A-1).

Finding

Ambient air sampling for fluorides is not being conducted at the Pantex Plant, nor has an alternative method of determining ambient concentrations been provided to the TACB for approval as required by TACB Regulation III.

Discussion

Fluorine and hydrogen fluoride (HF) are released to the atmosphere by open burning of fluoride-bearing HE materials at the Pantex Burning Grounds and the Firing Sites (A-2). To date AAO and M&H personnel have not provided the data required from ambient fluoride tests to show that the TACB Regulation III limits of 6.0 ppb (3-hour); 4.5 ppb (12-hr); 3.5 ppb (24-hr); 2.0 ppb (7-dy); or 1.0 ppb (30-dy) have not been exceeded (A-3). M&H has also not provided an approved alternate method for determining compliance to the TACB.

Approved alternate methods of determining compliance are possible (A-1), and the Pantex Plant is working towards that goal, but the methods have not been completed. M&H now limits the amount of HF-bearing HE burned at any one time (A-5). They have attempted to produce a computer model method of determining HF concentrations at the Pantex Plant boundaries, but they have not submitted this method to the TACB for approval as an alternative method for determining compliance, as required by Regulation III. The Pantex Plant has been aware of the applicable Texas regulations since November 1986 (A-2).

■ AIR/BMPF-1

Volatile Organic Compound (VOC) Emissions Minimization

Performance Objective

VOC emissions, especially from HE synthesis and formulation, and painting should be reduced, and a waste minimization program/plan should be developed as a best management practice.

Finding

Quantities and locations of VOC air emissions at Pantex are generally not well defined and minimized in accordance with best management practices.

Discussion

M&H operates many processes capable of creating VOC emissions. Presently most Plant VOC use is related to HE synthesis and formulation process equipment and activities at Zones 11 and 12, and oil-base painting operations throughout the Plant. Some of these sources have fugitive emissions and some have stack emissions. Essentially none of Pantex's VOC emissions, particularly those from paint operations, have been inventoried. Exceptions to this lack of inventory are the evaporation pans at the Pantex Burning Grounds.

AAO and M&H personnel are generally aware of the need for an inventory of their VOC emissions (I-A-5) and a waste minimization program. As a result, they are in the process of initiating a contract to have a total VOC emissions inventory conducted (I-A-5).

Nonetheless, the Pantex Plant has not conducted a VOC emissions inventory to date, but estimates (I-A-3) the current use of solvents in HE synthesis and formulation to be about 4500 gallons/ year. Of this quantity about 70 percent is from processes and 30 percent is from paint operations.

■ AIR/BMPF-2

Air Monitor Siting Requirements

Performance Objective

Ambient air monitor stations should be sited in accordance with guidelines that provide minimum clearance from buildings, trees, or other obstructions to prevent wake effects according to good practice.

Siting guidelines are given for ambient air monitor stations in DOE Order 5400.1, Chapter IV, as well as in "Ambient Air Monitor Guidelines for PSD" (A-6), and the Federal Register (A-7). M&H personnel should be using these siting guidelines as a best management practice to obtain the best data possible.

Finding

A few Pantex Plant ambient air monitoring stations are not sited in accordance with best management practices.

Discussion

M&H personnel operate high-volume and low-volume samplers to obtain information for certain specified radiation hazard pollutants. Closeness to buildings, trees, or other obstructions (primarily wake effects) have not been considered in the siting of some monitors. Three air monitoring stations were observed and some problems with siting were noted with two of the stations. Station numbers PA-AR-02 and OA-03 were found to be too close to buildings such that wind wake effects may interfere with collecting representative samples.

Since all sampling stations were not observed, there may be other stations where siting and aiming problems exist.

3.5.2 SURFACE WATER

3.5.2.1 Overview

The purposes of the surface water (SW) portion of the Pantex Plant environmental assessment are to: 1) evaluate the AAO and M&H water quality review processes; 2) identify problems that may lead to inappropriate procedures or inadequate water quality documentation; and 3) evaluate

compliance with the Clean Water Act, the Safe Water Drinking Act, the Texas Administrative Code and DOE Orders, as applicable.

The Pantex Plant receives its drinking water supply from groundwater wells located on-site. The Pantex Plant's industrial wastewater, partially treated sanitary wastewater, and stormwater runoff flow to on-site natural, unlined basins called playas through a series of unlined ditches. The Plant has a sanitary lagoon which treats sanitary wastewater prior to discharge to Playa 1. This Playa and Playa 2, have a "no discharge" permit from the Texas Water Commission (TWC) that limits biochemical oxygen demand (BOD), chemical oxygen demand (COD), pH, and flows to the playas.

The identified findings include the site not seeking clarification of the need for an NPDES permit for point source discharges to the three on-site and one off-site playas; the poor condition of the wastewater collection systems; inadequate spill prevention and controls; inadequate sampling protocols, as discussed under the Quality Control section 3.5.6 of this report; and activities which were not in conformance with administrative requirements and on-site standards.

The general approach to the surface water assessment included interviews with AAO and M&H staff, and Federal, State and local officials from applicable regulatory agencies, such as EPA Region VI, the TWC, and the Texas Department of Health, a review of wastewater discharge permits and water quality monitoring reports, and tours of the Pantex Plant operations. The information collected from these activities was evaluated with respect to Federal and State regulations and DOE Orders, as identified in Table 3.5.2-1.

**Table 3.5.2-1. List of Applicable Surface Water
Regulations/Requirements/Guidelines**

<u>Regulations/ Requirements/ Guidelines</u>	<u>Sections/Title</u>	<u>Authority</u>
Clean Water Act	40 CFR 112 (SPCC)	EPA
Clean Water Act	40 CFR 122/125 (NPDES)	EPA
Texas Water Code	Chapter 26	TWC
Safe Drinking Water Act	40 CFR 141/142 National Primary Drinking Water Regulations	EPA
Safe Drinking Water Act	40 CFR 143 National Secondary Drinking Water Regulations	EPA
Spill Prevention and Contingency Planning	Mason & Hanger - Silas Mason Co., Inc. (Safety Standard #344)	M&H
Texas Department of Health	Drinking Water Standards Governing Drinking Water Quality and Reporting	TDH
DOE	Order 5400.1 (General Environmental Protection Program)	DOE
DOE	Order 5484.1 (Environmental Protection, Safety and Health Protection Information, Reporting Requirements)	DOE
Texas Water Commission	Permit to Dispose of Wastes #02296 amended and approved May 3rd, 1988	TWC

3.5.2.2 Compliance Findings (CF)

■ SW/CF-1

EPA National Pollutant Discharge Elimination System (NPDES) Permit Determination

Performance Objective

Under the EPA NPDES Permit Regulations (40 CFR 122), "the NPDES program requires permits for the discharge of pollutants from any point source into the waters of the United States."

Finding

The Pantex Plant has not sought a determination from the EPA under 40 CFR 122, concerning the applicability of an NPDES permit.

Discussion

An NPDES permit as issued by the EPA may be necessary for all industrial and sanitary wastewater point source discharges and contaminated and potentially contaminated runoff point source discharges into Playas 1, 2, 3 and 4.

The Pantex Plant site has three playas (numbered 1, 2, and 3) on Federal land and an additional playa (#4) on land which is leased from Texas Tech University. All industrial wastewater point source discharges from Pantex Plant operations are directed into ditches which terminate in either Playas 1 or 2. Sanitary discharges from the Pantex Plant buildings are discharged into an on-site sewage lagoon prior to being discharged into Playa 1 by means of a ditch. Stormwater runoff which may be contaminated with surface contamination flows through the Pantex Plant site in surface ditches prior to discharge into Playas 1 through 4.

Examples of wastewater discharges to the playas include industrial wastewater from Building 12-43 and sanitary wastewater from the lined sewage settling pond into Playa 1. According to ENRECO ENGINEERING, INC.'s "Characterization of Wastestreams at Pantex Plant During FY88," published in September 1989 (SW-9), industrial wastewaters containing some heavy metals and explosives have been discharged from Buildings 12-43 into ditches which flow into Playa 1. According to the same source, wastewater from Building 11-50, containing metals and explosives, have been discharged into the ditches

which flow into Playa 2. According to "Pantex Sampling and Analysis Data Document" (SW-10), samples collected in the ditches leading to Playas 1, 2, and 4, and samples collected within Playas 1 and 2 have shown heavy metal and organic contamination in both the water and in the sediments.

Based on the NPDES regulations and definitions within 40 CFR 122, the Pantex Plant playas are waters of the United States, and therefore discharges to them may require NPDES permits. Although AAO has expressed various positions regarding the applicability of NPDES regulations to their point source discharges into the playas, it has never formally sought a determination of the need for an NPDES permit from the EPA, the agency responsible for NPDES permit issuance. Representatives of EPA Region VI (I-SW-19) indicated that the Pantex Plant should seek a determination on an NPDES requirement.

■ SW/CF-2

Inadequate Containment of Aboveground Storage Tanks and Drums

Performance Objective

According to M&H Safety Standard #344 the storage of petroleum products and hazardous materials in excess of drum quantities requires appropriate containment structures. The standard requires positive containment of the largest container stored therein or 10% of the total volume of material stored - whichever is greater. 40 CFR 112 standards call for secondary containment of petroleum products and positive return of spilled materials if stored in quantities greater than 1320 gallons in a number of containers or if a single container is greater in storage capacity than 660 gallons. In addition, spill containment must be considered in the Spill Prevention, Control, and Countermeasures (SPCC) Plan.

Finding

Chemical materials, hazardous waste, and petroleum products, in a number of locations, are not stored in accordance with the Pantex Plant spill control requirements (M&H Safety Standard #344) and 40 CFR 112.

Discussion

Various chemical materials, hazardous wastes, and petroleum products are being stored without spill containment structures. Examples include:

- o Building 11-38 - approximately 5 drums (petroleum products are stored on an elevated pad without secondary containment);
- o Building 11-36 (80+ drums of petroleum products);
- o 11-7 North Pad (approximately 22 drums of solvents);
- o Building 12-67 (60+ drums of petroleum products);
- o Building 12-41 (satellite drum storage);
- o Building 12-34 (approximately 29 drums of HE contaminated solvents and corrosives);
- o Inside and outside Old Steam Plant, Building 12-04 (numerous drums of water treatment chemicals and petroleum products);
- o Building BG-1 (drums of fuel oil);
- o The Burning Ground (five 500-gallon hazardous waste evaporation pans);
- o Building 12-R-8 (isopropanol and hexane drum satellite storage facility); and
- o Between Buildings 12-34 and 12-70 (satellite petroleum storage area).

This finding was first brought to the attention of AAO in 1986 when a similar finding was developed during the DOE Environmental Survey.

■ SW/CF-3

Untimely Reporting of TWC Wastewater Discharge Permit Exceedances

Performance Objective

The wastewater discharge permit issued by the TWC requires, in part, that BOD in the Pantex Plant wastewater discharge grab samples be less than 150 mg/l, and the average of daily samples collected over a 30-day period be less 50 mg/l. The permit also states that the Pantex Plant must notify the TWC within 5 days of becoming aware of a permit exceedance.

Finding

AAO did not report BOD exceedances of the TWC wastewater discharge permit to the TWC in a timely fashion as required by the TWC permit.

Discussion

Five exceedances of the TWC wastewater treatment plant permit were not reported by AAO to the TWC within 5 days, as required by the discharge permit conditions. The Pantex sewage discharge exceeded the 30-day average for BOD in August 1988 and January 1989 and exceeded the grab sample parameter twice in August 1988 and once in January 1989 (SW-7). AAO did not report these exceedances to the TWC until its annual compliance inspection during August 1989. In response to these reporting deficiencies, which AAO was aware of prior to the Tiger Team Assessment, the AAO has committed to changing reporting practices and procedures in November 1989 (SW-11).

3.5.2.3 Best Management Practices Findings (BMPF)

■ SW/BMPF-1

Inadequate Wastewater Treatment in the Pantex Plant Sewage Lagoon

Performance Objective

The wastewater permit issued by the TWC states, in part, that BOD in the Pantex Plant wastewater discharge grab samples be less than 150 mg/l and the average of daily samples collected over a 30-day period be less than 50 mg/l. The sewage lagoon should be designed and operated to meet the performance requirements of the TWC wastewater permit.

Finding

Inadequate wastewater treatment in the Pantex Plant sewage treatment lagoon is resulting in exceedances of the TWC permit discharge limits for BOD.

Discussion

The sewage treatment lagoon includes a lined settling pond that discharges to Playa 1 without aeration. The sewage lagoon effluent monitoring data, as reported by Pantex Plant ES&H (SW-7), indicate that the BOD limitations were exceeded for three grab samples and two 30-day averages during the period August 1988 to August 1989. It should be noted that the two instances where monthly average discharge limitations were exceeded occurred simultaneously with two of the grab sample exceedances. At present, the site and TWC are aware of these exceedances (see Finding SW/CF-3).

The causes of these BOD excursions from the TWC permitted limitations may be inadequate aeration, nutrients, and bacterial populations; variable loading; and insufficient capacity. AAO personnel stated that aerators are to be installed in the lagoon in Fiscal Year (FY) 1990.

■ SW/BMPF-2

Unnecessary Diesel Fuel Releases at Cement Batch Plant

Performance Objective

Unnecessary discharges of petroleum products onto the ground should be prevented to avoid environmental contamination.

Finding

Fueling operations at the Golden Spread cement batch plant on the Pantex Plant result in the discharge of diesel fuel to the ground.

Discussion

At the Golden Spread concrete batch plant, an aboveground diesel tank has a discharge hose connected to the tank by a valve. After a transfer of diesel fuel is completed, the valve is turned off and the free end of the hose is placed on the ground. Any remaining fuel in the line can subsequently drain from the hose onto the ground. A fuel stain on the ground is apparent.

■ SW/BMPF-3

Deterioration of Sewer Lines

Performance Objective

The sanitary sewer pipeline system should prevent discharges of sanitary waste to the subsurface environment in accordance with best management practices.

Finding

The poor condition of the underground sewer pipeline system is resulting in exfiltration of sanitary and industrial wastewater.

Discussion

The Pantex Plant sewer system transmits sanitary waste and industrial waste from floor drains to the Pantex Plant sanitary waste holding lagoon. In a portion of the older section of the sewer lines, offset joints and damaged pipes are evident due to chemical pitting and tree root intervention. This is resulting in exfiltration of wastewater and infiltration of percolating stormwater. Some of the worst sections of the old sewer system have been replaced or are due for replacement in upcoming FY 1990 and 1991 projects (I-SW-15). However, it should be noted that these are construction line items which require Congressional funding. Other deteriorated portions of the system have been abandoned. Much of this system has been in operation for 40 to 50 years and extensive deterioration is to be expected.

■ SW/BMPF-4

Unrepresentative Wastewater Flow Measurement

Performance Objective

The TWC wastewater discharge permit #02296 allows the Pantex Plant to discharge 650,000 gallons per day (30-day average) of treated sanitary and industrial wastewater into Playas 1 and 2.

Finding

M&H has no mechanism to separate sanitary and industrial discharge quantities from stormwater discharge quantities going into Playas 1 and

2, and, as a result, periodic exceedances of TWC wastewater discharge permit flow limitations for combined sanitary and industrial discharges have occurred.

Discussion

Under current Pantex Plant practice, the flow measurements to Playa 1 include sanitary and industrial discharges and stormwater runoff, and the flow measurements to Playa 2 include industrial discharges and stormwater runoff. The TWC discharge permit limits are only established for industrial and sanitary wastewater. However, because the flow measurements reported to the TWC by AAO are for the combined industrial and sanitary discharges plus the stormwater runoff, periodic exceedances of the TWC permit discharge limitations have occurred. These exceedances have resulted in a non-compliance finding by the TWC during a compliance inspection. Prior to the TWC inspection, this finding was made by AAO during an internal audit of the M&H Environmental Monitoring Program, which was conducted on August 1-2, 1989.

As a result, AAO and M&H personnel were aware of the problem prior to the Tiger Team Assessment and currently have an action plan (SW-11) to alleviate the cause of this finding. The details of this plan are being considered at present and a work plan has been issued for the necessary flow measurement equipment. Plans called for the equipment to be operational by December 1, 1989.

3.5.3 GROUNDWATER

3.5.3.1 Overview

The purposes of the Groundwater (GW) portion of the Pantex Plant environmental assessment are to: 1) evaluate the AAO and M&H management of the hydrogeologic program and overall hydrogeologic conditions at the Pantex Plant; 2) review the studies conducted at the site to evaluate the impact, if any, of operations on the groundwater; and 3) evaluate compliance with EPA and TWC regulations, and DOE Orders as applicable.

The primary groundwater feature beneath the Pantex Plant is the Ogallala aquifer, located approximately 400 to 465 feet below the ground surface. The Pantex Plant draws its potable water from this aquifer through wells located on the northeast corner of the site. In addition, the City of Amarillo draws its drinking water from the Ogallala aquifer through a wellfield

located about one mile northeast of the Plant. There is also a discontinuous shallow (perched) groundwater located approximately 200 to 270 feet beneath the site. Contaminants resulting from site activities have been detected in the shallow groundwater. The site is currently in the process of defining portions of both the shallow groundwater and the deeper Ogallala at various places on the plant for location, gradient, direction, flow, and constituents. Plans are being developed for an enhanced monitoring program to meet the intent of DOE Order 5400.1 dated November 9, 1988. The Groundwater Protection Management Program Plan is to be submitted by May 9, 1990.

The groundwater findings deal with an inadequate groundwater monitoring program and some underground storage tanks which have not been leak tested.

The general approach of the groundwater assessment was to evaluate the current and future programs involving hydrogeologic characterization at the Pantex Plant. The scope of the assessment included interviews with AAO and M&H personnel, a review and evaluation of past studies of the hydrogeologic setting and physical conditions at the site, a review of the current groundwater monitoring program, data evaluation and usage, and a review of the current plans for future programs and studies. The information collected from these activities was evaluated with respect to applicable Federal and State regulations and requirements and DOE Orders, as identified in Table 3.5.3-1.

Table 3.5.3-1. List of Applicable Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Guidelines</u>	<u>Sections/Title</u>	<u>Authority</u>
40 CFR 265F	Groudwater Monitoring	EPA
DOE Order 5480.2	Hazardous and Radioactive Mixed Waste Management	DOE
DOE Order 5484.1	General Environmental Protection Program	DOE
DOE Order 5400.1	General Environmental Protection Program	DOE
31 TAC Section 335.1-335.346	Interim Status for Owners and Operators of Hazardous Waste Disposal Sites	TWC
Chap 26.136	Prevention of Pollution Texas Water Code	TWC
31 TAC 281.5	Wastewater Discharge Application	TWC
31 TAC 287	Water Well Drilling Completion, Capping and Plugging	TWC
31 TAC 307	Surface Water Standards	TWC
31 TAC 334	Underground Storage Tanks	TWC
Primary Drinking Water Standards	40 CFR 141	EPA
Secondary Drinking Water Requirements	40 CFR 143	EPA
EPA Regulations on Test Procedures for the Analysis of Pollutants	40 CFR 136	EPA
-----	Technical Enforcement Guidance Document (TEGD)	EPA

3.5.3.2 Compliance Findings (CF)

There are no compliance findings for groundwater at the Pantex Plant

3.5.3.3 Best Management Practices Findings (BMPF)

■ GW/BMPF-1

Inadequate Groundwater Monitoring

Performance Objective

A groundwater monitoring program is required to determine the facility's impact on groundwater and to assess risk to the potable water supply for the Pantex Plant and other users of the aquifer.

Finding

Pantex Plant groundwater monitoring is insufficient to assess the site's impact on the underlying aquifer(s).

Discussion

The Pantex Plant site is underlain by a discontinuous perched (shallow) aquifer at about 200 to 270 feet which overlies a restricting, finer grained layer. Below the finer-grained layer is the Ogallala aquifer at a depth of about 400 to 465 feet.

M&H currently has a groundwater monitoring program which routinely monitors five on-site production wells and one off-site irrigation well for possible contamination. Groundwater monitoring is also being conducted at the Pantex Plant through the AL Environmental Restoration (ER) Program to assess localized areas of contamination resulting from the former chemical burn pit area at the Burning Grounds and from two gasoline leaks near Buildings 12-35 and 16-1 respectively. In the vicinity of the former chemical burn pit area, nine deep soil borings were drilled, and subsequently, three downgradient

monitoring wells were installed into the Ogallala aquifer. For the gasoline leaks, one shallow monitoring well near each building and numerous soil borings at both locations were drilled. One well drilled into the shallow perched groundwater was also installed adjacent to Playa 1 as part of the DOE/HQ Environmental Survey Program (GW-16)

Each of these wells can help to define the groundwater conditions underlying the areas described above. However, since the site has more than 140 on-site solid waste management units (GW-14), the wells are not at appropriate or sufficient locations or depths necessary to define the potential impacts from these sites to the groundwater. In addition, the site does not have a "structure contour map" of the top of the perched unit(s) so that the cause of perching can be determined.

The site has a subcontractor preparing an overall groundwater monitoring and sampling plan and will submit a Groundwater Protection Management Program to DOE by May 9, 1990, as allowed in DOE Order 5400.1 (see Finding QA/BMPF-3). Pantex is also negotiating with the EPA and TWC regarding required groundwater monitoring.

■ GW/BMPF-2

Unknown Integrity of Underground Storage Tanks and Pipes

Performance Objective

Under Texas law 31 TAC 334.48, Pantex Plant underground storage tank systems will begin requiring automated leak detection or manual gauging as early as 1991. However, as a best management practice owners and operators of underground storage systems (UST) including underground pipelines should leak test their UST systems to fix or remove failed systems as early as possible.

Finding

The current M&H leak testing program of underground storage tanks and pipelines is not consistent with best management practices.

Discussion

As of August 1989, the Pantex Plant had a total of 29 underground storage tank systems in operation (I-GW-1, GW-7). The tank systems

are either steel or fiberglass and range in age from 2 to 19 years (GW-6). To date only 11 of those systems have been leak tested (I-GW-1). Of those tank systems tested, two at the Vehicle Maintenance Facility (VMF) were found to have leaking pipes and one tank each at Buildings 12-5B and 12-17E were found to be leaking. The systems which failed the leak tests have been replaced.

Although the Plant is continuing to conduct leak tests on underground tank systems, with the largest tanks undergoing leak testing first, most of the systems (18) have yet to be tested. If the failure rate continues to be as high as in the first eleven tank systems tested, there could be substantive ongoing releases to the subsurface environment.

It should be noted that the site does conduct manual gauging for all tanks. However, M&H does not use accurate measuring devices to determine actual product usage. As a result, neither usage or product loss can be accurately determined.

3.5.4 WASTE MANAGEMENT

3.5.4.1 Overview

The purposes of the Waste Management (WM) portion of the Pantex Plant environmental assessment are to: 1) evaluate AAO and M&H current hazardous, radioactive, mixed (radioactive and hazardous), and solid waste management practices; 2) evaluate compliance with applicable Federal and Texas State waste management regulations and DOE Orders; and 3) identify other, less-than-adequate, waste management practices.

The Pantex Plant generates and manages hazardous (including land-disposal-restricted), radioactive, mixed, and nonhazardous solid waste. The Plant is regulated by RCRA and the Texas Administrative Code as a full quantity generator and interim status storage and treatment facility of hazardous waste. The major hazardous waste streams generated include HE, HE-contaminated wastewater, HE-contaminated solid waste, spent and HE-contaminated organic solvents, and wastes generated from the investigation and remediation of on-site inactive waste sites. These wastes are generally managed by (1) on-site accumulation and storage, followed by either, (2) on-site treatment, including wastewater filtering, evaporation, and burning, or (3) off-site treatment and disposal.

Mixed wastes generated at the Pantex Plant primarily consist of wastes from the remediation of on-site inactive waste sites, small quantities of classified

components from disassembled weapons, radioactively contaminated solvents, and swipes contaminated by such solvents. These wastes are being stored in on-site RCRA interim status facilities pending the potential future availability of RCRA treatment and disposal facilities for mixed waste and classified mixed waste. The primary radioactive constituent in these wastes is depleted uranium.

Radioactively contaminated solid waste is typically generated in small quantities at the Pantex Plant and includes classified weapons components and materials contaminated with depleted uranium and tritium. However, the remediation of an accidental tritium release early in 1989 is resulting in the generation of an additional tritium-contaminated solid waste stream. Radioactive wastes are stored on-site pending periodic off-site shipment to the Nevada Test Site (NTS) for disposal.

Nonhazardous solid waste generated on-site includes primarily paper and cardboard, construction wastes, and cafeteria waste. All nonhazardous wastes are disposed of on-site in either of the two active landfills, the construction debris landfill and the sanitary landfill.

Waste management compliance findings deal mainly with RCRA regulatory requirements that have not been implemented. The best management practice findings address inadequate dispositioning of potentially waste hazardous materials and inadequate checklists used to perform inspections of RCRA treatment and storage facilities.

A major hazardous waste management issue at the Pantex Plant is the current negotiation between AAO and EPA of a draft interim status corrective action order issued by EPA under RCRA 3008(h) authority. The order addresses the investigation and remediation of a number of contaminated areas, including some that resulted from process discharges that occurred as recently as 1988. These discharges, which have ceased, contained toxic and ignitable listed hazardous constituents. EPA has identified and intends to regulate these areas of contamination as solid waste management units through a negotiated final order. As a result, the Pantex Plant is in compliance with the RCRA requirements applicable to these units, and therefore no findings have been developed on this issue.

The general approach to the WM assessment included observations of on-site operations and facilities, interviews with M&H personnel, and review of documents. The information collected from these activities was evaluated with respect to Federal and State regulations and DOE Orders, as identified in Table 3.5.4-1.

Table 3.5.4-1. List of Applicable Waste Management Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Guidelines</u>	<u>Sections/Title</u>	<u>Authority</u>
RCRA	40 CFR Parts 260 through 270	EPA
Texas Industrial Waste Management Regulations	31 TAC Chapter 335	TWC
Texas Solid Waste Management Regulations	25 TAC Chapter 325	TWC
DOE	Order 5400.3, Hazardous and Radioactive Mixed Waste Program	DOE
DOE	Order 5820.2A, Radioactive Waste Management	DOE

3.5.4.2 Compliance Findings (CF)

■ WM/CF-1

Storage of Hazardous Waste in Non-Interim Status Facilities for Longer than 90 Days

Performance Objective

40 CFR 262.34 limits the storage time of hazardous waste in non-interim status facilities to no more than 90 days.

Finding

Hazardous wastes are being stored in Building D-72 in Zone 4, a non-interim status facility, in excess of 90 days, and are therefore not meeting the requirements of 40 CFR 262.34.

Discussion

As of October 6, 1989, Building D-72 is storing approximately 90 fiber drums of hazardous waste barium nitrate with an accumulation start date of June 1, 1989. This exceeds the allowable 90-day storage period by 38 days. It should be noted that the waste barium nitrate has been segregated from approximately 110 additional fiber drums of barium nitrate present in this building that have not yet been designated as waste because they may still be recycled on-site.

The site has not been able to find an off-site disposal or reclamation contractor for the waste. For the interim period, the Pantex Plant does not have adequate capacity in its RCRA hazardous waste interim status storage facilities. Construction of two storage facilities is being planned for the site in FY 1990 and 1991, and the necessary funding requests for one of the facilities has already been initiated (I-WM-41).

■ WM/CF-2

Inadequate Labeling of Hazardous and Mixed Waste Containers

Performance Objective

40 CFR 262.34 requires that hazardous waste containers be labeled with the words "Hazardous Waste" and the date that the waste accumulation begins, unless the waste is being accumulated at a satellite accumulation area. DOE 5400.3 requires that mixed waste be labeled according to RCRA hazardous waste requirements.

Finding

Hazardous waste containers, including mixed waste containers, are being used in several areas on-site without adequate labeling in accordance with 40 CFR 262.34.

Discussion

Inadequately labeled hazardous and mixed waste containers were identified at the following locations throughout the site:

- o Three out of four 500-gallon buffalo tanks containing hazardous waste located at the Burning Grounds had hazardous waste labels that were not filled out with their contents or accumulation start dates. The tanks reportedly contained a diesel fuel/water mixture generated from an UST remediation project at the Vehicle Maintenance Facility (VMF) and a solvent/water mixture generated from pumping out the evaporation pans (I-WM-36).

- o At least eight and as many as fifty hazardous and mixed waste containers (it was not possible to inspect all the containers [see findings WM/CF-7 and WM/CF-11]) in the Building 4-19B RCRA storage facility had hazardous waste labels that were not filled out with their contents or accumulation start dates.
- o Four out of six plastic containers of hazardous waste HE sludge from the 12-43 treatment system had no identification as to their contents or their accumulation start dates.
- o Two plastic drums of hazardous waste HE sludge from the non-RCRA 11-50 treatment system had no identification as to their contents.
- o Classified hazardous waste HE in Building 12-83, Bay 2, and Building 11-42, Bay 5, were not labeled as hazardous waste and given accumulation start dates.
- o Scrap and classified hazardous waste mock HE in Building 12-83, Bay 5, are not labeled as hazardous waste and given accumulation start dates.

In general, the site procedures for proper labeling of hazardous wastes are implemented only for those wastes that are routinely generated in small quantities at satellite accumulation areas or 90-day accumulation areas and will eventually be shipped off-site (WM-6, WM-7). The labeling procedures are not being applied to hazardous wastes that are classified, are weapons components, or are generated at the various on-site treatment facilities.

■ WM/CF-3

Extended Storage of Land-Disposal-Restricted Hazardous Waste

Performance Objective

40 CFR 268.50 prohibits storage of any land-disposal-restricted (LDR) hazardous waste. Storage for longer than one year is only allowed if the facility can prove that extended storage is necessary for the purpose of accumulating sufficient quantities to facilitate proper recovery, treatment, or disposal.

Finding

LDR hazardous wastes stored at the Building 4-19B and 11-7 North Pad RCRA interim status hazardous waste container storage facilities, do not meet the storage requirements of 40 CFR 268.50.

Discussion

At Building 4-19B, at least 17 containers (having a total volume of no more than 284 gallons) of LDR hazardous waste are being stored. Sixteen of the containers have been stored on-site for longer than one year. The contents of each of the containers of LDR hazardous waste are considered classified under the Atomic Energy Act of 1954, as amended, and are subject to declassification prior to unclassified treatment and disposal as hazardous waste. Although discussions are currently underway between DOE/HQ and EPA for treatment and disposal of classified LDR waste, no decision has been reached.

At the 11-7 North Pad, the LDR wastes, labeled with accumulation dates of over one year, include at least one five-gallon container of HE-contaminated "California List" halogenated solvent.

The site may store LDR wastes on-site longer than one year only if it can document that such storage is necessary to facilitate proper recovery, treatment, or disposal of the accumulated waste. The site is not able to document this (I-WM-41).

The site is preparing a bid request to procure off-site treatment services for the HE-contaminated solvents being stored at the 11-7 North Pad. In the interim, the site has begun to collect documentation of its contacts with treatment/disposal vendors; however, only one vendor contact has been documented (WM-9, I-WM-38). The site has not pursued similar services for handling of the classified waste at Building 4-19B.

■ WM/CF-4

Inadequate Secondary Containment for RCRA Treatment Facility Hazardous Waste Tanks

Performance Objective

40 CFR 265.193 requires secondary containment of tanks in RCRA interim status treatment, storage, or disposal (TSD) facilities that are more than fifteen years of age.

Finding

Hazardous waste tanks at the 12-43 and 11-44 RCRA treatment facilities are more than fifteen years old and are not equipped with secondary containment as required by 40 CFR 265.193.

Discussion

The main wastewater holding tanks at the 12-43 and 11-44 HE wastewater treatment systems are inground tanks. These tanks were constructed in the 1960s and are not equipped with secondary containment (I-WM-48).

The site has initiated procurement activities to provide secondary containment for the 12-43 tank and has performed an integrity test of this tank in the interim. The tank successfully passed the integrity test (I-WM-14).

The site has temporarily suspended operations of the 11-44 system, pending a decision to either install secondary containment or to ensure that the facility is not used for future treatment of characteristically reactive hazardous waste (I-WM-29). The latter option includes permanent facility closure or closer control of influent waste streams.

■ WM/CF-5

Lack of Waste Characterization

Performance Objective

40 CFR 262.11 requires that each solid waste stream be evaluated to determine whether it is a hazardous waste. Uncharacterized potentially hazardous wastes should be managed in a controlled, environmentally sound manner prior to characterization.

Finding

Potentially hazardous waste sandblasting grit is not characterized to determine whether it is extraction procedure (EP) toxic for lead, chromium, or other metals in accordance with 40 CFR 262.11, and the uncharacterized grit is not controlled in an environmentally sound manner prior to characterization.

Discussion

The 12-110 paint shop performs sandblasting of various portable equipment and disposes of the waste grit on the ground adjacent to the building. In addition, sandblasting of various stationary equipment and buildings is performed throughout the site, and the waste grit is allowed to remain on the ground.

Waste sandblasting grit may contain EP toxic lead- or chromium-based paint fines. If the waste grit proved to be EP toxic for lead, chromium, or other metals, the grit would have to be handled as a hazardous waste.

The heavy metal content of the old paint throughout the site is not known, and there is no site procedure to routinely arrange for the determination of the heavy metal content or EP toxic characteristics of the old paint before sandblasting is performed.

If the waste grit proved to be EP toxic for lead chromium, or other regulated waste metals, the grit would have to be managed in accordance with RCRA requirements in 40 CFR Parts 260 through 268. If the waste grit proved to be non-EP toxic, it would have to be managed as a non-hazardous industrial solid waste in accordance with the requirements of 25 TAC, Chapter 325.

■ WM/CF-6

Inadequate Operating Records at RCRA Treatment and Storage Facilities

Performance Objective

40 CFR 265.73 requires that a detailed operating log that includes waste quantity and characteristics information be maintained at RCRA TSD facilities. In addition, best management practices require that operating logs of chemical process equipment contain all potentially significant operating specifications.

Finding

Four RCRA TSD facilities (Buildings 12-43 and 11-44, the Burning Grounds, and 11-7N Pad) have operating logs that do not include the level of detail required by 40 CFR 265.73 or best management

practices, and a fifth non-RCRA treatment facility (Building 11-50) also does not have an adequately detailed operating log.

Discussion

Written logs are maintained for the 12-43 and 11-44 RCRA HE wastewater treatment systems and the 11-50 non-RCRA HE wastewater treatment system. However, the logs report only the filter pressure readings and identify the operator making the log entry. In addition, the filter readings are not consistently noted.

No records are maintained at the 12-43 and 11-44 RCRA treatment systems as to the quantity of wastewater or the HE content of the wastewater received at each system.

Site HE experts consider wastewater containing less than 20 percent (by weight) of HE to be nonhazardous (i.e., non-reactive)(WM-2). The site also believes the typical HE concentrations treated at these facilities to be 0.1 percent, but no equipment is available to measure the HE concentration at either facility. Although the wastewater would not be considered a characteristically reactive RCRA waste unless the HE content approached or exceeded 20 percent, RCRA regulations require the process influent and effluent concentrations and flowrates of the 12-43 and 11-44 systems be recorded, regardless.

The site is aware of the lack of influent flowrate monitoring at the 12-43 and 11-44 systems and is working toward installing the necessary equipment.

At the RCRA treatment facility Burning Grounds, detailed records are maintained as to the quantity of waste treated and the type of treatment facility used (e.g., flash pits, burn trays, burn pads, evaporation pans). However, the records do not specifically note which pit, tray, pad, or pan was used, as is required by RCRA regulations.

At the 11-7N Pad, the accumulation start date is not recorded in the computerized inventory recently developed for the facility. Although the date that the waste is received at the pad is recorded, this date may differ from the accumulation start date by 90 days. As a result, the new computerized inventory cannot accurately determine how long specific wastes (in particular LDR wastes that are not allowed to be stored on-site over one year without specific documentation) have been stored on-site.

In addition, other important operating measurements for the 12-43 and 11-44 RCRA treatment systems, as well as the 11-50 non-RCRA treatment system, are not consistently recorded in the log as required by best management practices. These measurements include the pressure differential readings across the string filters and carbon filters, the frequency that the filters are changed, the frequency that the sludge in the separator is removed, the quantity of sludge removed on each occasion, the quantity of sludge accumulating in containers at each facility, the notation of occasions when the liquid phase of individual sludge containers are decanted back to the system, the liquid levels in the separator effluent holding tanks, and (at 12-43) the liquid level in the sump under the separator.

■ WM/CF-7

Inadequate Follow-up of Inspection Deficiencies

Performance Objective

40 CFR 265.15 requires that deficiencies identified in regular inspections of RCRA interim status hazardous waste TSD facilities must be remedied in a timely manner.

Finding

Deficiencies identified by site personnel during regular inspections of the Building 4-19B RCRA hazardous waste storage facility are not remedied in a timely manner in accordance with 40 CFR 265.15.

Discussion

The Building 4-19B classified waste storage facility is inspected regularly by site ES&H personnel in accordance with the requirements of 40 CFR 265.15(a) and (b). The current log of inspection reports, which dates from January to September, 1989, identifies the same deficiencies in nearly every inspection form, including inadequately labeled containers and inadequate aisle space to perform inspections (WM-8, see Finding WM/CF-11). Actions have not been taken to remedy the deficiencies to date.

■ WM/CF-8

Inadequate Identification of RCRA Hazardous Waste 90-Day Accumulation Areas

Performance Objective

RCRA hazardous waste 90-day accumulation areas need to be identified to ensure compliance with the requirements of the applicable hazardous waste generator standards in 40 CFR 262.34.

Finding

The site has not identified at least five areas being used as hazardous waste 90-day accumulation areas to ensure that the generator standards in 40 CFR 262.34 are being met.

Discussion

At least five 90-day accumulation areas have not been identified by the site (WM-47). These areas include the HE staging areas in Buildings 12-65, 12-83, and 11-42, and the mock HE staging areas in Buildings 12-83 and Building D-72 in Zone 4. Each of these facilities meets the criteria for a RCRA hazardous waste 90-day accumulation area.

The applicable generator standards of the 90-day accumulation areas include container labeling requirements, inspections, preparedness and prevention requirements, and consideration in the site contingency plan. Although the site meets nearly all of these requirements, the site has not performed a hazards analysis for the purpose of ensuring RCRA compliance. Container labeling requirements were observed to be deficient in Building 12-83 (see finding WM/CF-2). Labeling is likely to be deficient in Buildings 12-65 and 11-42 as well since these buildings are generally operated in the same manner as 12-83. However, they were not storing waste when checked during the assessment. In addition, RCRA inspections are not performed in any of the 90-day areas that have not been previously identified.

■ WM/CF-9

Minor Inaccuracies in RCRA Documents

Performance Objective

40 CFR 270.11 requires RCRA Part A Notifications and Part B Permit Applications submitted to regulating agencies to be accurate and certified as such.

Finding

Some inaccurate information describing site facilities and operations has been provided to the TWC and EPA in the RCRA Part A Notification and the RCRA Part B Permit Application.

Discussion

The Part A Notification states that the Building 4-19B Container Storage Area and the Zone 4 Conex Container Storage Area are equipped with telephone communication (WM-2). However, in both cases the nearest telephone is approximately one-quarter-mile away in a guard station. Also, the Part B Permit Application states that the flashing pits at the Burning Grounds are used only for flashing (i.e., burning off) HE residues from scrap metal and equipment (WM-1). However, these facilities also are used for treatment of less commonly used types of pure HE (e.g., PETN) by open burning without any scrap metal present (I-WM-47, WM-5).

■ WM/CF-10

Open Hazardous Waste Containers

Performance Objective

40 CFR 265.173 requires that containers holding hazardous waste be closed except when it is necessary to add or remove waste.

Finding

Some hazardous waste containers were found open in Buildings 12-110, 12-43, and 11-50, and filter cartridges containing hazardous waste sludge cake from Buildings 12-43, 11-50, and 11-44 are transported to the Burning Grounds in open containers, which is not in accordance with 40 CFR 265.173.

Discussion

At the 12-110 paint shop, small quantities of spent solvents are accumulated in satellite accumulation containers. A container in the northernmost paint booth was observed to be maintained with an open bung.

At the 12-43, 11-50, and 11-44 HE wastewater treatment facilities, spent string filter cartridges contaminated with hazardous waste K044 HE sludge cake are stored and transferred to the Burning Grounds in plastic drums approximately 2 feet high. The string filter cartridges from the three treatment facilities are approximately four inches in diameter and three feet long. As a result, lids cannot be placed on the containers and the containers are kept open. The exposed cartridges are transferred to the Burning Grounds from the three treatment facilities over a distance of between three-and-one-half and five miles.

■ WM/CF-11

Inadequate Aisle Space at Interim Status Hazardous Waste Storage Facility

Performance Objective

40 CFR 265.35 requires that adequate aisle space be maintained in interim status hazardous waste facilities to allow the unobstructed movement of personnel, fire protection equipment, and decontamination equipment, if necessary.

Finding

The Building 4-19B interim status hazardous waste container storage facility does not have adequate aisle space in accordance with 40 CFR 265.35.

Discussion

Building 4-19B is a RCRA interim status facility used to store hazardous and mixed waste. The site inspection records for this facility indicate that the required aisle space is not routinely maintained. The inspection records for the period between January and September, 1989, consistently identify this problem with no corrective action having been taken (see finding WM/CF-7)(WM-8). The records also noted that it was not possible to properly inspect the facility due to a lack of aisle space.

■ WM/CF-12

Inspections of Evaporation Pans Not Performed Daily

Performance Objective

40 CFR 265.193 requires that interim status tanks be inspected each operating day.

Finding

The evaporation pans at the Burning Grounds, which are interim status RCRA treatment tanks, are not inspected daily in accordance with the requirements of 40 CFR 265.195.

Discussion

The evaporation pans at the Burning Grounds are stationary devices constructed of steel and designed to contain an accumulation of hazardous waste, and therefore meet the RCRA definition of tanks provided in 40 CFR 260.10. They are currently regulated under the RCRA interim status regulations for tank systems in 40 CFR Part 265, Subpart J, which include a requirement for daily inspections. The pans are continually holding hazardous waste and are therefore in constant operation. However, the pans are typically only inspected two to four times a week (I-WM-43) instead of daily, as required by 40 CFR 265.195.

The evaporation pans will continue to be regulated under interim status regulations until the Pantex Plant receives a Part B RCRA permit at some time in the future. The TWC has indicated that after the Pantex Plant is granted a Part B RCRA permit, the pans are likely to be regulated under the RCRA permitted facility regulations for miscellaneous units under 40 CFR Part 264, Subpart X. As permitted Subpart X units, the pans will be subject to any provisions in 40 CFR Part 264 that are deemed appropriate to ensure protection of human health and the environment, and the TWC may determine that such provisions include the requirement for daily inspections of permitted tank systems in 40 CFR 264.195. Nevertheless, until a permit is granted, the pans remain subject to the daily inspection requirement in 40 CFR 265.195.

■ WM/CF-13

Inadequate Sign Posting at RCRA Treatment Facilities

Performance Objective

40 CFR 265.14 requires signs with the legend "Danger - Unauthorized Personnel Keep Out" or an equivalent wording to be posted at all accessible approaches to a RCRA interim status treatment facility that is not in post-closure status.

Finding

The outdoor, hazardous waste holding tanks at the 12-43 and 11-44 treatment facilities are not posted with signs as required in 40 CFR 265.14.

Discussion

The hazardous waste holding tank at the 12-43 treatment system contains HE-contaminated wastewater, and hazardous waste holding tank at the inactive 11-44 treatment facility, although presently empty, also contains HE-contaminated wastewater when operating. The tanks are open-topped, outdoors, and have accessible approaches from all directions.

No signs are posted on the tanks, although the front door of each of the buildings adjacent to the tanks is properly signed.

3.5.4.3 Best Management Practices Findings (BMPF)

■ WM/BMPF-1

Inadequate RCRA Inspection Checklists

Performance Objective

Inspection checklists required for RCRA interim status hazardous waste facilities should be facility-specific and include explanatory procedures to ensure that all areas of the facility required to be inspected by 40 CFR 265.15 are included in the inspection.

Finding

The inspection checklists for the on-site RCRA interim status hazardous waste treatment and storage facilities lack identification of facility-specific concerns necessary to ensure proper inspection of the facilities.

Discussion

The Pantex Plant has both RCRA interim status hazardous waste treatment facilities and storage facilities (WM-1). The inspection checklists for these facilities lack specificity in many respects, as illustrated by the following examples:

- o For the 11-44, 12-43 and 12-68 treatment system inspection checklists, the checklists have only one check-off item each for leaks, wet spots, and controls/alarms. The checklists do not identify the specific pipe runs, connections, filters, tanks, controls, and alarms to be checked. In addition, the checklists do not identify the need to inspect accumulated containers of sludge and the integrity of the floor or curbing.
- o For the Burning Grounds treatment facility inspection checklist, the checklist does not have individual check-off items for each individual tray, pad, cage, pan, or pit. In addition, the degree of corrosion necessary to initiate a corrective action is not clear; although all five evaporation pans are completely covered with rust, the inspection records consistently indicate that the degree of corrosion on the units is not unsatisfactory.
- o For the 11-7 North Pad and the Building 4-19B storage facilities, the checklist has a check-off item for proper segregation of incompatible materials; however, no specific information as to what materials should be segregated is provided. In addition, the checklist for the 11-7 North Pad does not include individual check-off items for the two container storage sheds.

Although the inspection checklists for the remaining storage facilities do not have specific deficiencies, they are all identical and do not include any facility-specific information.

In addition, procedures describing the specific criteria to be evaluated for each check-off item on the checklists have not been developed. Without such criteria, it is not possible to ensure the proper inspection of facilities.

■ WM/BMPF-2

Lack of Timely Disposition of Potential Hazardous/Mixed Waste from Damaged Joint Test Assemblies (JTAs)

Performance Objective

Materials potentially containing hazardous, radioactive, or mixed waste should be promptly identified for reuse, storage, or disposal.

Finding

Three damaged JTAs, potentially containing classified hazardous or mixed waste, have not been evaluated in a timely manner to determine whether their contents must be managed as wastes under RCRA.

Discussion

Three damaged JTAs are being stored in Zone 4 Igloos 33B, 107, and 109, respectively, and have been stored on-site for several years. The JTAs are classified under the Atomic Energy Act of 1954 (as amended). The JTAs contain both classified hazardous and low-level radioactive materials.

All JTAs received at the Pantex Plant are to be disassembled and the various components either reused, stored, or discarded once they have been inspected and tested. Prior to disposition of the JTA components, the design agency must develop disposition instructions for the JTAs. However, no disposition instructions have been developed by the design agency for the three damaged JTAs stored at the Pantex Plant, although disposition instructions and/or disposal of the JTAs were identified as action items at a meeting held in 1985 (WM-68). Therefore, the damaged JTAs have remained in storage at the Pantex Plant, without disassembly, inspection, and evaluation of its waste content. If hazardous waste or mixed waste, as defined under RCRA, are determined to be present, the hazardous portion must be managed as such, including storage in a RCRA permitted facility.

3.5.5 TOXIC AND CHEMICAL MATERIALS

3.5.5.1 Overview

The purposes of the Toxic and Chemical Materials portion of the Pantex Plant environmental assessment are to : 1) evaluate the AAO and M&H procedures and practices for the storage and management of toxic chemicals; 2) identify problems that may lead to inappropriate procedures or inadequate storage of toxic substances; and 3) evaluate compliance with Toxic Substances Control Act (TSCA) and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulations, DOE Orders, Pantex Plant Safety

Standards, and general industrial practices for safe storage of toxic chemicals, as applicable.

The Pantex Plant uses large quantities of chemical substances to support its Production, Development, and Maintenance operations. The chemicals used in the greatest quantities are organic solvents, which are stored in drum quantities in various locations throughout the plant. Other materials used and stored include compressed gases, a wide variety of chemical reagents for laboratory use, pesticides and herbicides, and vehicle maintenance fluids. High concentration polychlorinated biphenyls (PCBs) are no longer used on-site, although there are several transformers in service that contain generally less than 50 parts per million PCBs.

Because of the hazardous nature of aspects of Pantex Plant production and development operations, chemical materials are generally stored and handled in a manner that will minimize the risk of igniting high explosive materials. Material Safety Data Sheets are available in the departments where chemicals are used. Smaller quantities and containers of flammable chemicals are stored in steel cabinets designed for that purpose and located throughout the plant, some of which have built-in fire control devices. Larger quantities of chemicals are generally stored in outdoor storage sheds, most of which have steel roofs and open sides, providing ventilation and at least partial protection from the elements, and they are generally equipped with lightning rods and grounding straps. These facilities are inspected regularly by the Pantex Fire and Environmental Safety and Health departments. Efforts are underway to upgrade the storage facilities by the installation of steel secure storage buildings that are equipped with fire protection and ventilation equipment, and have built-in secondary containment for spilled materials. A few of these buildings have been installed, with others scheduled as budget line items.

The environmental assessment focused on the administrative procedures and applied practices of Pantex Plant operations to control the potential for environmental releases of toxic chemical substances. One observation common to many on-site chemical storage areas, from the small dispensing stations to the Central Stores warehouse, was the general absence of physical barriers to contain any spilled materials and prevent their release to the environment. Although this is of concern from the standpoint of proper Toxic and Chemical Materials management, the regulatory basis for spill control is found in the Clean Water Act regulations, and the related finding is addressed in the Surface Water section (3.5.2, Finding SW/CF-2) of this report. The three Toxic and Chemical Materials findings presented within this section address procedural and documentation issues, the first dealing with chemical drum storage area inspections and records, the second with the conditions of containers used to store chemicals over extended

periods, and the third with documentation inconsistencies with PCB regulatory definitions.

The Toxic and Chemical Materials assessment was conducted generally as follows: tours of the overall plant area; inspections of chemical and pesticide storage areas; interviews with personnel responsible for those areas; inspection of transformers and PCB records; and interviews with Preventive Maintenance and Electrical department personnel. To assess the compliance status, the information and observations from these activities were then compared against the applicable standards and regulations listed in Table 3.5.5-1.

Table 3.5.5-1. List of Applicable Toxic and Chemical Materials Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Guidelines</u>	<u>Sections/Title</u>	<u>Authority</u>
TSCA	40 CFR 761	EPA
Safety Standard 344.1	Operational Inspection of Chemical Storage Areas	M&H
Standard Maintenance Instructions 305	Polychlorinated Biphenyls (PCBs)	M&H
Standard Maintenance Instructions 301	Pesticide and Herbicide Control Program	M&H
Safety Standard 326.2	Pantex Hazardous Chemical Warning Label System	M&H
Safety Standard 344	Spill Prevention and Contingency Planning	M&H
FIFRA	40 CFR Parts 150 to 189	EPA

3.5.5.2 Compliance Findings (CF)

■ TS/CF-1

Nonconformance With Chemical Storage Area Inspection Requirements

Performance Objective

M&H Pantex Plant Safety Standard 344.1, "Operational Inspection of Chemical Storage Areas," specifies that a designated person from each department storing chemicals shall inspect the storage site weekly. The inspection shall be documented on PX Form 1241 and retained on file for three years from the date of inspection.

Finding

Some Pantex Plant departments storing chemicals are not conducting weekly inspections in conformance with Safety Standard 344.1.

Discussion

Of five chemical storage areas reviewed during this assessment, two were not performing the inspections, two were performing them, and one was only partially doing so. Those areas performing the inspections had been doing so since August 1989, which is reasonably concurrent with the July 25, 1989 issue date of the standard.

There are numerous chemical storage areas and dispensing stations located throughout the Pantex Plant. Five were arbitrarily selected for inquiry into their inspection status, primarily on the basis of the apparent quantity of chemicals stored. The five storage areas selected were:

- o the drum storage shed north of Building 11-36;
- o the 12-38 solvent storage shed (adjacent to Building 12-59);
- o the 16-5 storage shed at the Vehicle Maintenance Facility (VMF);
- o the Central Stores warehouse (Building 12-67); and
- o the 12-34 flammable storage/hazardous waste accumulation area.

All of these areas are inspected regularly by the Fire Department and by the M&H Environmental Safety and Health Division. Of the five areas observed, however, the weekly departmental inspections were performed only at 12-38 and 12-67, and only partially at 12-34. The staff at the synthesis facility at 11-36 commented that they do not perform the inspections, but that the Fire Department and ES&H did so regularly. The Central Stores personnel at the VMF do not formally inspect the solvent shed at 16-5. Although located at the VMF, the solvent shed is under the control of Central Stores and is not included in the weekly work area surveys or monthly safety surveys of the VMF. Weekly inspections are conducted and documented on PX Form 1241 at the 12-34 flammable storage/waste accumulation area, but the inspections there only address the waste drums. Departmental inspections are performed weekly and documented on PX Form 1241 as required by the respective departments at 12-38 and 12-67.

■ TS/CF-2

Chemical Storage in Defective Containers

Performance Objective

Toxic and hazardous chemical products should be stored in such a manner as to prevent their inadvertent release to the environment, as well as to maintain their usefulness. M&H Pantex Plant Safety Standard 344 specifies that drum storage areas shall be protected from the elements to prevent bulging of containers, fading of labels, and collection of water. Safety Standard 344.1 further requires that if containers are defective (i.e. bulging or damaged so that leaks may occur), the contents must be emptied into good containers. In accordance with industry-wide best management practices, toxic chemicals for which further useful life is unknown or unanticipated should be controlled in an environmentally sound manner to allow potential future use, or be designated as hazardous waste and managed in accordance with hazardous waste regulatory requirements.

Finding

Hazardous chemical storage at the 11-7 North Pad and North of Building 11-36 does not conform with Pantex Plant Safety Standard 344 and 344.1 restrictions on bulging and defective drums, and some chemicals have been stored for indefinite time periods without any projected or designated use.

Discussion

Several drums storing toxic chemicals are of questionable integrity. These drums are rusted or bulging, and are emitting noticeable chemical odors. In some cases, the drums have been stored for long periods of time with no certain information as the condition or ultimate disposition of the drum contents. Two locations where such drums are stored are the 11-7 North Pad RCRA storage facility and the drum storage shed north of Building 11-36.

At the 11-7 North Pad, approximately 22 drums, with individual contents labeled as including methyl isobutyl ketone, cyclohexanone, ethylene chloride, and trichloroethane are being stored on pallets on a concrete pad without secondary containment (see finding SW/CF-2). The drums are noticeably rusted and solvent odors are detectable, indicating that the drums may be perforated. No grounding straps are provided for these drums, some of which are labeled as flammable (Class 3). One of the drums has two contradictory labels, one for methyl isobutyl ketone and one for isobutyl acetate, so that the true contents of the drum could not be determined from visual inspection. Personnel responsible for operation of the 11-7 North Pad reported that these drums have been stored at the facility for approximately eight years. However, no instructions have been given regarding the possible future use of these chemicals, or their management and disposal as hazardous wastes.

At the 11-36 storage shed, approximately 100 drums of chemicals are being stored, including acetone, methanol, toluene, tetrahydrofuran, propionic acid, heptane, and DMF. There are no sides to the storage shed, thus partially exposing the drums to the elements. Although stored on pallets on a concrete pad, the drums have no secondary containment (see finding SW/CF-2). Approximately 12 of these drums are noticeably older than the rest of the drums, have rusted tops, and some are bulging. Personnel at Building 11-36 indicated that the contents of these older drums, labeled as containing acetone and toluene, would eventually be used, although no time frame for that use was given. Based on the placement and accessibility of the drums within the shed, however, it appears that the newer drums would be used first.

3.5.5.3 Best Management Practices Findings (BMPF)

■ TS/BMPF-1

PCB Item Labeling and Documentation Inconsistencies with Regulatory Definitions

Performance Objective

Regulations governing the use of PCBs are found in 40 CFR 761, wherein "PCB Items" are defined as virtually any items that contain any PCBs, with no distinctions made as to PCB concentrations. There is no regulatory definition for the term "No PCBs," although transformers containing less than 50 ppm are defined as "Non-PCB" and are not subject to the regulatory requirements applicable to those with higher PCB concentrations. If the actual PCB concentration is unknown, however, the transformer must be assumed to be "PCB-Contaminated" and would be subject to the relevant regulatory requirements in the event of leaks, spills, or disposal. PCB documentation and recordkeeping activities should be consistent with the definitions and distinctions made within the PCB regulations.

Finding

M&H standards and practices for documenting and labeling PCB items are inconsistent with applicable 40 CFR 761 definitions.

Discussion

The Pantex Plant has a good PCB control program, as evidenced by M&H's current voluntary efforts to reconfirm and document the PCB content within all on-site electrical transformers. During this assessment, however, some discrepancies with regulatory definitions relating to PCBs in electrical equipment were noted that could affect the accuracy of the documentation efforts. M&H Standard Maintenance Instructions (SMI) Number 305 for PCBs incorrectly defines "PCB Items" as those having PCBs at a concentration of 50 ppm or more, and the Plant's PCB database identifies at least 10 transformers with quantifiable levels of PCBs below 50 ppm as marked or to be marked with a "No PCBs" label. In addition, several randomly selected transformers were observed not to have outside labels, despite the availability of test results documenting PCB levels below 50 ppm.

The most stringent requirements for markings, inspections, documentation, storage, spill control, and disposal are applicable to those items, such as transformers, that contain PCBs in concentrations of 500 parts per million (ppm) or greater. Such transformers are defined as "PCB Transformers." Electrical equipment, including transformers, containing PCB concentrations of 50 ppm or greater but

less than 500 ppm are defined as "PCB-Contaminated," and are not subject to marking and inspection requirements while in service in a totally enclosed manner (i.e., not leaking).

The Pantex Plant began removing PCBs from inplant service in 1977 and has had no PCB Transformers on-site since 1986. Currently there is only one PCB-Contaminated transformer in service, based on a PCB concentration of 91 ppm reported in September 1988. This transformer was observed to be marked with a yellow "PCB-Contaminated" label, although the regulations do not require that this label be affixed to the PCB item. M&H's July 1, 1989 PCB Report (for the 1988 calendar year) states that there are "no PCB items remaining in service." Since this report is required primarily for PCB items containing greater than 500 ppm PCBs, the report is correct as to PCB Transformers, but is semantically inaccurate according to the regulatory definition of the term "PCB Items", which makes no distinctions as to PCB concentrations. In addition, the use of a "No PCBs" label is inaccurate when there are quantifiable levels of PCBs below 50 ppm in transformers that the regulations would define as "Non-PCB." Application of "Non-PCB" labels to transformers known to qualify for that definition could help prevent unnecessarily invoking regulatory requirements in the event of spill, leak, or disposal of that equipment.

3.5.6 QUALITY ASSURANCE

3.5.6.1 Overview

The purpose of the Quality Assurance (QA) portion of the Pantex Plant Environmental Assessment is to: 1) evaluate the AAO and M&H procedures and practices for the application of QA measures to environmental data collection, management, and reporting; (2) identify problem areas that may contribute to inappropriate procedures or inadequate data; and 3) evaluate compliance with DOE Orders, Pantex Plant operations policies, and with acceptable practices for generating valid environmental data.

The Pantex Plant operates under formal QA programs for both the weapons-related and non-weapons activities. Overall plant QA is administered by the Operations Quality Manager in the Quality Division. The non-weapons QA program is established under Quality Standard 600, which further requires each operating division to establish its own specific QA program. The M&H Environment, Safety and Health (ES&H) Division QA program is implemented under its Operations Quality Plan (August 4, 1989), which sets up the ES&H QA program along ANSI/ASME Standard NQA-1 ("Quality Assurance Program Requirements for Nuclear Facilities") guidelines.

It is intended that all procedures related to environmental monitoring will be established as Operations and Inspections (O&I) Standards, which will make them controlled documents subject to formal plant-level review, revision, audit, and verification. Although the conversion to O&I Standards is in progress, the currently applicable procedures are classified as Internal Operating Procedures (IOPs), which are departmentally developed and do not receive the same level of review or QA control as will the O&I Standards.

Environmental sampling is conducted by ES&H staff. Analytical services are obtained predominantly from a contract laboratory for the Environmental Monitoring Program samples. Only limited environmentally-related analysis is performed on-site. That which is performed includes BOD and COD analysis of sewage treatment waters, and heavy metals analysis of some effluent waste streams. These analyses are performed in the Industrial Hygiene laboratory. Water sample analysis used to be performed at the 11-51 Development Laboratory, but their current environmentally-related analysis is limited to some PCB analyses used by the Preventive Maintenance Department for screening purposes.

Because of the limited amount of on-site environmental sample analysis performed, the Environmental Assessment focused on QA issues relative to sampling procedures and the protocols and policies under which the sampling is conducted. The Assessment resulted in four findings: two related to planning documentation requirements, one dealing with the sampling IOPs, and one concerning how the procedures were carried out in the field.

The Quality Assurance assessment was conducted generally as follows: tours of the overall plant area; observations of sampling activities; informational visits to onsite laboratories; interviews with sampling, laboratory, quality assurance, and environmental monitoring personnel; and review of on-site QA documents and reports. The findings were developed based on the observations and information from these activities, and on comparisons of that information with the applicable standards and guidance listed in Table 3.5.6-1.

Table 3.5.6-1. List of Applicable Quality Assurance Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Guidelines</u>	<u>Sections/Title</u>	<u>Authority</u>
NQA-1	Quality Assurance Program Requirements for Nuclear Facilities	ANSI/ASME
QAMS-005/80	Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans	EPA
OSWER Directive 9902.3	RCRA Corrective Action Plan (Interim Final)	EPA
DOE Order 5400.1	General Environmental Protection Program	DOE
DOE Order 5484.1	Environmental Protection, Safety, and Health Protection Information Reporting Requirements	DOE
DOE Order 5700.6B	Quality Assurance	DOE
Quality Standard 600	Operations Quality Program Manual	M&H
M&H Environment, Safety & Health	Operations Quality Plan	M&H
Clean Water Act	40 CFR 136	EPA
SW-846	Test Methods for Evaluating Solid Waste	EPA

3.5.6.2

Compliance Finding (CF)

■ QA/CF-1

Lack of Quality Assurance Project Plans

Performance Objective

DOE Order 5484.1 (2-24-81) states that "quality assurance with respect to sampling and analytical procedures, data processing, and reporting shall be an integral part" of the Environmental Monitoring Program. DOE Order 5700.6B (9-23-86) states that "quality assurance activities and the requirements for those activities shall be identified in program plans" and the "application of elements of appropriate, recognized standards is encouraged."

Finding

The Pantex Plant does not have a Quality Assurance Project Plan or similar document that specifically addresses the application of quality assurance policies and quality control measures to its environmental sampling and analysis projects.

Discussion

Quality Assurance within the M&H Environment, Safety, and Health Division is implemented under the ES&H "Operations Quality Plan for the Pantex Plant" (August 4, 1989). This document thoroughly describes the requirements and procedures for implementing ANSI/ASME Standard NQA-1 ("Quality Assurance Program Requirements for Nuclear Facilities") with respect to the activities performed by or within the ES&H Division. In its description of the NQA-1 basic requirement for quality assurance programs, the ES&H "Operations Quality Plan" identifies which of four "quality levels" are applicable to the various ES&H activities. Those activities identified as Quality Level I or II must have their quality control requirements addressed in a program-specific quality assurance plan. Environmental monitoring and compliance activities are categorized as level II and are, therefore, required to have program-specific quality assurance documentation.

The M&H ES&H Division anticipates that impending revisions to their applicable Internal Operating Procedures (primarily IOP 3405) and the upgrade of those procedures to Operations and Inspections Standards will bring them closer to the program-specific QA requirement. As

discussed in Finding Number QA/BMPF-2, however, both the current and revised sampling procedures are deficient in several technical and procedural aspects that would preclude their use in adequate QA project plans, and additional documentation on such matters including, but not limited to sampling design and rationale, analytical specifications, data validation, and data management has not been prepared (see also Finding Number QA/BMPF-1).

3.5.6.3 Best Management Practices Findings (BMPF)

■ QA/BMPF-1

Lack of a Written Environmental Monitoring Plan

Performance Objective

The development of an Environmental Monitoring Plan is an integral part of any monitoring program to help insure that data developed under the Plan cannot be challenged due to failure to meet the appropriate technical standards and administrative requirements of DOE and the regulatory agencies. Under DOE Order 5400.1 the Pantex Plant will be required to have an Environmental Monitoring Plan in place for its environmental monitoring activities by November 1991.

Finding

The Pantex Plant does not yet have in place an Environmental Monitoring Plan to formally direct and update its ongoing Environmental Monitoring Program.

Discussion

Although the Pantex Plant is within the plan implementation deadline specified in DOE Order 400.1, the fact remains that the Pantex Plant currently generates and reports environmental monitoring data that may be subject to challenge on the basis that the Pantex Plant has no sufficiently auditable or verifiable monitoring plan under which the data was produced. The currently available monitoring procedures found in the M&H Environmental Protection Department Internal Operating Procedure Number 3405 could serve as components of an overall monitoring plan. As discussed in Finding Number QA/BMPF-2, however, IOP 3405 is deficient in several aspects of its procedural

content, and it does not address the various program planning, implementation, and control issues that should be included in a program plan.

■ QA/BMPF-2

Inadequate Sampling Protocols

Performance Objective

Accepted industry practices call for the implementation of sampling protocols that give specific instructions on all aspects of environmental sampling from collection to analysis.

Finding

Pantex Plant sampling protocols for surface water, groundwater, air, soil, and biota do not meet current industry standards.

Discussion

M&H currently has general sampling protocols established in IOP 3405, which is presently being revised and reissued as O&I 3-1044. However, the procedures set forth in both the current IOP 3405 and draft O&I Standard 3-1044 either do not adequately address or do not provide any information on several critical sampling procedures and practices. Examples of protocols that should be included but are currently found to be inadequate or missing include:

- o Documentation procedures that initiate a paper trail for planning and historical purposes, including such information as: the types and locations of samples to be collected, parameters to be analyzed, holding times and required mode of shipment, sample preservation and containers, and any special sampling instructions for each unique sample or group of samples to be collected;
- o Logbook entry requirements for collecting information that describes field conditions at the time of sampling, such as: instrument readings, weather conditions, water level readings, well purging procedures and volumes, and other information that may ultimately aid in interpreting analytical results;

- o Labeling and packaging instructions to ensure full identification, preservation, and protection of each sample bottle collected and shipped;
- o Sample storage and shipping requirements that ensure that sample temperatures and holding times will not be exceeded and chain of custody will be maintained;
- o Decontamination procedures for sample containers and sampling equipment to ensure that the sample collected is not cross-contaminated with unrelated materials;
- o Well purging requirements for collecting groundwater samples;
- o Chain of custody procedures that are formally maintained from the start of sampling through the completion of analysis to provide a start-to-finish paper trail on each sample to verify sample integrity; and,
- o Procedures dealing with the use of off-site contract laboratories.

Failure to adequately address issues such as the above in the Pantex Plant sampling and analysis protocols could result in data that may be improperly documented and collected, lost, or otherwise invalidated for technical or administrative reasons. Some of the deficiencies in sample protocols as noted in this finding, were identified and reported by the AAO during an internal audit (QA-27).

■ QA/BMPF-3

Inadequate Sampling Techniques

Performance Objective

Surface water and groundwater sample holding times and preservation techniques for routine environmental samples that are not governed by other sampling-specific regulations, orders, or agreements should follow the requirements in 40 CFR 136.3. Other water sampling requirements are governed by best management practices of surface water and groundwater samplers.

Finding

Some groundwater and surface water sample preservation procedures are not followed as prescribed in 40 CFR 136.3, and labeling,

documentation, and chain of custody procedures are not in accordance with best management practices.

Discussion

The M&H sampling personnel collect water samples at both off-site and on-site locations for a variety of analyses. Surface water sampling techniques were reviewed at 4 locations and groundwater sampling techniques were reviewed for 7 locations. During the review process, groundwater samples were collected from wells for analysis of metals, VOC's, pesticides, inorganics, nutrients, and high explosives. Surface water samples were collected for VOC's, general water chemistry, organics, BOD, COD, and other parameters for off-site analysis. As a result of the sampling review process, several deficiencies were noted as follows:

- o For surface and groundwater sampling, the sampling personnel send samples to the analytical lab in ice chests containing a few blocks of "blue ice" with which to cool the samples. This amount of "blue ice" can not bring the temperature of the samples to 4°C, as specified in 40 CFR 136.3. After taking some samples and placing them in the ice chests, the samples may be placed in a refrigerator and cooled to 4°C prior to shipping in ice chests containing "blue ice". However, even this would not insure the samples would remain at 4°C during shipment;
- o During water sampling, there is no indication on the VOC vials to inform the sampler if they contain preservative. Since the standard practice of sample collection is to rinse the vials with sample water prior to sample collection, this action would remove any preservative that may be present, and the holding times and analytical results would be compromised;
- o During the sampling review, it was observed that samples are held in excess of analytical holding times. On October 11, VOC samples taken on October 5 were still in the sample storage refrigerator, with no information as to when they would be shipped to the laboratory. If unpreserved, these samples would have exceeded the 7-day maximum holding time for unpreserved VOC samples. Records for VOC sample number 890724005103 (collected July 24, 1989) showed that it arrived at the laboratory on August 16, 1989, exceeding the maximum holding time for preserved VOC samples of 14 days;

- o During ground and surface water sampling, chain of custody forms were not filled out in the field during sample collection;
- o For ground water sampling, log book entries contained only the date of the sampling with no description of sampling conditions, well conditions and water levels, or other events that may be pertinent to the sample; and
- o Groundwater sample containers are not completely labeled (e.g., cubitainer carrying boxes are labelled, but the cubitainers themselves are not). This could result in lost or misidentified samples in the laboratory.

The above examples of inadequate sampling techniques illustrate practices that could result in lost, erroneous, or invalid data. Some of these sampling inadequacies were noted by the AAO in a report from an internal audit (QA-2).

3.5.7 RADIATION

3.5.7.1 Overview

The purposes of the radiation portion of the Pantex Plant environmental assessment are to: 1) determine compliance with applicable Federal regulations and DOE Order requirements, and 2) evaluate various elements of the environmental monitoring program and the environmental health and safety program such as radioactive waste management, radioactive source control and accountability, radiological posting, dose assessment, emergency response, land use censuses, sample analysis frequency, and environmental monitoring reports.

The background radiation in the vicinity of the Pantex Plant is both natural and man-made. Specific sources include cosmic radiation, natural radioactive materials in the soil, and fallout from past worldwide atmospheric weapons detonations. The environmental monitoring program at the Pantex Plant evaluates air, water, soil, vegetation, and specific biota samples. Analyses of area samples are primarily performed for plutonium-239 (Pu-239), uranium-234 (U-234), uranium-238 (U-238), and tritium (H-3), since these isotopes are involved in the assembly of weapons at the Plant.

The general approach to the radiation assessment included interviews with M&H personnel, field observations of current practices, and a review of M&H safety standards and operating procedures. The overall assessment

of these programs at Pantex is that both the environmental monitoring program and the environmental health program have deficiencies which need to be addressed, but no major compliance issues are outstanding. It should be noted that major compliance findings are difficult to assess since the DOE Orders do not provide specific requirements in all areas (see Section 6.5.1).

The findings identified in the radiation discipline were primarily best management practices for improvements to the procedures and standards used to demonstrate compliance with DOE Orders and Federal regulations. The single compliance finding concerned the lack of fully trained replacement operators to run the ARAC computer model for emergency dose calculations and plume projections.

The regulations and requirements which were used in the radiation assessment process are identified in Table 3.5.7-1.

Table 3.5.7-1. List of Applicable Radiation Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Guidelines</u>	<u>Sections/Title</u>	<u>Authority</u>
DOE Order	5484.1 Environmental Protection, Safety and Health Protection Information Reporting Requirements	DOE
DOE Order	5400.XY Radiological Effluent Monitoring and Environmental Surveillance	DOE
10 CFR 60	Disposal of High-Level Wastes	NRC
40 CFR 191	Environmental Standards for Radioactive Wastes	EPA
DOE Order	5820.2A Radioactive Waste Management	DOE
10 CFR 61	Packaging, Labeling, and Shipping	NRC
DOE Order	5400.1 General Environmental Protection Plan	DOE
10 CFR 20	Radiological Controls	NRC
DOE Order	5400.XX Protection of the Public and the Environment	DOE
40 CFR 192	Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings	EPA
DOE Order	5500.3 Emergency Planning	DOE

3.5.7.2 Compliance Findings (CF)

■ RAD/CF-1

Inadequate Staffing Levels for the Position of Atmospheric Release Advisory Capability (ARAC) Operator

Performance Objective

The current nuclear industry practice is such that there are at least three fully trained people for each key position in the emergency response organization. DOE Order 5500.3 (RAD-18) requires emergency response training programs to provide qualified replacement personnel for emergency operations.

Finding

The emergency response capabilities of the Pantex Plant are limited by the lack of fully trained replacement operators to run the ARAC computer model in the event of an emergency in accordance with DOE Order 5500.3.

Discussion

The Pantex Plant Emergency Plan (RAD-5) addresses the site plan for emergency management and preparedness. This plan discusses the use of the ARAC computer model to calculate radiological doses in the event of a radioactive atmospheric release emergency. A field interview (I-RAD-32) revealed that only one operator is fully trained in the operation of the ARAC computer system. This is not in accordance with DOE Order 5500.3 which requires more than one trained operator to be available in an emergency situation.

The ARAC computer model is used to provide emergency radiological dose calculations and radioactive plume projections based on current meteorological data and source terms. These calculations and projections are critical to emergency response efforts. The practice of maintaining only one operator trained in the operation of the ARAC computer system does not meet the performance objective of maintaining fully trained replacement personnel. The absence of a trained operator for the ARAC computer system would severely limit the ability of the facility to react and respond to an emergency situation.

3.5.7.3 Best Management Practices Findings (BMPF)

■ RAD/BMPF-1

Inadequate Labeling of Radiological Waste

Performance Objective

In accordance with industry-wide practice, low-level waste should be characterized with sufficient accuracy to permit proper segregation, treatment, storage, and disposal. This characterization should ensure that, upon generation and after processing, the actual physical and chemical characteristics and major radionuclide content are recorded and known during all stages of the waste management process and clearly indicated on the waste containers.

Finding

Some radioactive waste stored in Zone 4 at the 4-19 igloo and the Conex trailers are not consistently and completely labeled in accordance with DOE Order 5820.2A which could affect the tracking, handling, storage, and disposal of the wastes.

Discussion

Radioactive wastes awaiting off-site shipment to NTS are stored in Zone 4 at the 4-19 igloo and the Conex trailers. Based on a field interview (I-RAD-31), the current Pantex Plant practice is to characterize, label, and package waste for shipment as it is generated. Field assessment at the 4-19 igloo and Conex storage trailers revealed some inconsistencies concerning the labeling of some of the wastes as noted below:

- o One barrel of radioactive waste in 4-19 igloo did not have an activity entered on the label;
- o One barrel of radioactive waste in 4-19 igloo did not have the units of activity entered on the label;
- o One barrel of radioactive waste in 4-19 igloo did not have any entries on the label;
- o Two loose plastic bags in 4-19 igloo are labelled only as "H-3 Waste" with no other entries;

- o Mixed radioactive wastes stored in Conex storage trailers (#1-#4) at Zone 4 are not labelled as radioactive; and
- o The entrances to the 4-19 igloo and the Conex storage trailers (#1-#4) are not posted with clearly readable "Caution: Radioactive Material" signs.

■ RAD/BMPF-2

Identification of Radioactive Check Sources

Performance Objective

Radioactive check sources of all radiation types should, at a minimum and in accordance with standard nuclear industry practices, be labeled with information which uniquely identifies the source itself and includes (if required) the radiation type, radiation quantity, assay/batch date, isotope, and serial number to prevent inadvertent mixing, loss and exposure, and give some degree of accountability to these sources.

Finding

At least one radioactive alpha check source at Pantex was not labeled, which results in no source control and accountability in accordance with standard nuclear industry practice.

Discussion

A field assessment (I-RAD-23) of health physics practices in Zone 12 included the observation of about 10 radioactive sources. The sources are used to check alarm set points and calibrations of various monitoring devices, some of which are located in the bays and cells. One of these sources (or 10% of those observed) had no identification at all; therefore there is no accountability of that source nor is there any indication of the source's strength. However, there are approximately 330 check sources on-site which were not observed; some of these may also not be labeled or otherwise identified. Pantex Safety Standard (RAD-6) for the control of radioactive material sources discusses the procurement, handling, and control of radioactive material sources. Although the Safety Standard does not specifically state a requirement to label all check sources, it implies that there is a mechanism to verify the control and accountability of all radioactive sources. The labeling of all radioactive sources is a best management practice which satisfies the performance objective.

The main reason for radioactive source control and accountability is to avoid unnecessary personnel exposure. Radioactive sources which are not labeled with any identification do not meet this objective. Unnecessary personnel exposure can occur if an unlabeled source of unknown strength is lost or misplaced.

■ RAD/BMPF-3

Lack of An Annual Land Use Census

Performance Objective

As a best management practice, environmental radiological monitoring programs should, in part, be evaluated and modified through the performance of an annual land use census.

Finding

No recent land use census has been made to help ensure that all dose assessment pathways which may be impacted by radioactive releases have been identified and updated.

Discussion

The Pantex Plant radiological monitoring program currently assesses only those pathways and locations which were developed at the program's inception in the mid 1970's. Those pathways and locations may now be significantly different and as a result, the pathways which the plant now uses to assess the site's potential radiological impact on the surrounding population may not be accurate.

A land use census provides information used to define and assess pathways such as the population surrounding the Pantex Plant, the distance and direction of the closest resident to the Pantex Plant, the land use within the influence of potential radioactive releases from the Pantex Plant and the quantity, location, and type of livestock and crops in the vicinity of the Pantex Plant. The Pantex Plant currently has no plans to conduct a land use census to assist in pathway development, dose calculation, and environmental monitoring as would be dictated by best management practices (I-RAD-2).

■ RAD/BMPF-4

Inadequate Air Sample Analysis

Performance Objective

In accordance with industry-wide practice, the analysis of air samples should be coordinated with the sample collection and should be conducted in a manner that provides the most representative and timely measurement of the radioactive atmospheric concentrations in and around the site. In addition, industry-wide practice is to perform gross alpha/gross beta screening on particulate filters which are to be further analyzed.

Finding

Weekly environmental high-volume air samples which are composited over a two month period, are not screened for gross alpha/gross beta, and therefore unplanned releases may not be detected in a timely manner.

Discussion

Pantex Internal Operating Procedure (IOP) #3405 entitled "Environmental Sampling Procedures - Air, Water, Soil, Vegetation and Biota" (RAD-4) discusses the air sampling criteria and the bimonthly shipment and compositing procedures for the collected weekly samples. Field interviews (I-RAD-2 and 3) verified the use of these procedures. The filters from the high volume and low volume samplers are collected on a weekly basis. The filters from the low volume samplers are screened for gross alpha/gross beta and discarded, while the filters from the high-volume sampler are not screened for gross alpha/gross beta. Instead, two months worth of high volume filters are composited and sent for further analysis. Although the weekly collection of the high volume air samples is adequate, the practice of not screening the samples at the time of collection is inappropriate since an important reason for operating an environmental monitoring program is to document the effects of facility operations on the surrounding communities. The Pantex Plant's practice of not screening the eight weekly high volume air samples at the time of collection does not meet the industry wide objective of timely measurements of the sample.

■ RAD/BMPF-5

Posting of Contaminated Firing Sites

Performance Objective

An area which is radiologically contaminated should be posted with a "Caution: Radioactive Material" or "Caution: Contamination Area" sign in accordance with accepted industry practices in order to prevent the spread of contamination to other areas or personnel.

Finding

Firing sites contaminated with depleted U-238 are not posted as contaminated areas or as areas containing radioactive material.

Discussion

The Pantex Plant Site Environmental Report For Calendar Year 1988 (RAD-1) provides a summary of U-238 concentrations in soil from plant site, offsite, and control locations. The average concentration of U-238 at a location in Firing Site 10 is 76 times higher than the average concentration at the control location. In addition, this site averaged 529×10^{-7} microcuries per gram of U-238. The standard of the Formerly Utilized Site Remedial Action Program (FUSRAP), which is the DOE guideline of residual radioactivity for decontaminating sites in this program, is 420×10^{-7} microcuries per gram of U-238. This number is presented for comparison purposes since the site is not part of that program. Firing Sites 4 and 5 also contain elevated levels of U-238 in soil as identified in The Pantex Waste Management Site Plan (RAD-12).

A main reason for posting any contaminated area is to prevent the spread of contamination to other areas and personnel. The practice of not posting a contaminated firing site does not meet this objective and is inconsistent with posting practices in other site areas such as bays and cells in Zone 12. It should be noted that although these U-238 concentrations are not significant, they indicate radioactive material dispersed into the environment.

■ RAD/BMPF-6

Pantex Annual Environmental Monitoring Report Inadequacies

Performance Objective

DOE Order 5484.1, Environmental Protection, Safety, and Health Protection Information Reporting Requirements (RAD-8) describes items which should be included in the annual monitoring report. Such items include summaries of the environmental sampling data collected by the site, both routine and special studies, and the results of any Federal, state, or local environmental surveys conducted to assess Pantex emissions, and discussions of any site sampling which was discontinued.

Finding

The annual Pantex Environmental Monitoring Report does not include pertinent environmental monitoring information of the site in accordance with the guidance of DOE Order 5484.1.

Discussion

Chapter III of DOE Order 5484.1 contains guidance for the format and content of the annual monitoring report. Although the annual monitoring report for the Pantex Plant does summarize most of the radioactive and nonradioactive environmental monitoring data collected by the site, the following items are not included in the 1988 monitoring report:

- o Field investigation studies in support of the inactive waste site environmental remediation programs conducted in February 1988 at the Buildings 12-35 and 16-1 gasoline leak release sites, and from June to September 1988 at the two gasoline leak release sites and the former chemical burn pit located at the Burning Grounds, were not discussed in the 1988 Annual Environmental Monitoring Report;
- o The discontinuation of water sampling in the vicinity of the tailwater pit next to the old treatment facility in Zone 13 without explanation;
- o The State of Texas environmental monitoring program data which parallels and is designed as a check on the Pantex Plant program is not presented in the monitoring report; and
- o The results of the Pantex Plant environmental thermoluminescent dosimetry (TLD) readings and gross alpha/gross beta analysis of low volume particulate air samples are not reported in the annual monitoring report.

The omission of the information listed above reduces the completeness and effectiveness of the monitoring report.

■ RAD/BMPF-7

Improper Lining of Radiological Waste Trash Containers

Performance Objective

Pantex Safety Standard for the collection of contaminated waste materials (RAD-13) provides guidance for the collection and removal of radioactive waste. Special radioactive waste trash containers are located within radiological work areas such as bays and cells. These containers are specially labeled and should also be lined with plastic to contain the waste in accordance with accepted industry standards.

Finding

Two of the 13 observed radiological waste trash containers in Zone 12 were not lined with plastic, thereby increasing the potential for the spread of contamination.

Discussion

A field assessment inside Zone 12 led to identifying two radiological waste containers that were improperly lined with plastic (I-RAD-23). One bay contained a waste container which had a "balled up" plastic liner, and another bay contained a waste container which had no plastic liner. Although only 2 of approximately 13 bays and cells had problems, there may potentially be more since most bays and cells were not entered and observed. Both observed containers as well as the radiological waste trash collection personnel could become contaminated. This practice does not meet the objective of preventing the spread of contamination during waste handling operations.

3.5.8 INACTIVE WASTE SITES

3.5.8.1 Overview

The purposes of the Inactive Waste Sites (IWS) portion of the Pantex Plant environmental assessment are to evaluate: 1) AAO and M&H management of inactive waste sites located at the Plant; 2) their management and conduct

of studies to respond to the cleanup of these sites; 3) adherence to applicable laws and DOE Orders dealing with inactive waste sites, such as the Comprehensive Emergency Response, Compensation and Liability Act (CERCLA or Superfund), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and RCRA Corrective Action provisions; and 4) adherence to the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), which is a stand-alone title of SARA (Title III).

The inactive wastes sites at the Pantex Plant are presently being investigated through the AL Environmental Restoration (ER) Program. This program was initially established in 1984 as the Comprehensive Environmental Assessment and Response Program (CEARP). It was generally patterned after the CERCLA National Contingency Plan (NCP) process, which takes a phased approach of initial discovery (preliminary assessments), remedial investigations/feasibility studies, and remedial action design, implementation, and follow-up. Since then, the program has been modified to follow either the NCP or RCRA corrective action process, as applicable. The result of the initial discovery at the Pantex Plant under CEARP was produced in June 1986 (IWS-54). More than 45 inactive waste sites were identified that possibly could have adverse impacts on the environment. These sites were evaluated for risk using the Hazard Ranking System. None of the sites scored greater than 28.5, the threshold for inclusion on the National Priorities or Superfund List (NPL). The Pantex Plant is presently not proposed for or on the NPL.

Remedial investigations have been initiated through the AL ER program on some of the high priority inactive sites. Presently, studies are being conducted on two gasoline spill sites and on the former chemical burn pit area. These sites received the second highest score in a preliminary prioritization of DOE Defense Production-wide environmental problems. In addition, previously the former Cooling Tower and the High Priority Reconnaissance sites (potentially contaminated soil around buildings) were studied. However, the Pantex Plant has recently received a proposed RCRA Section 3008(h) Corrective Action Consent Order. This order, once negotiated and implemented, will result in the cleanup of inactive waste sites under the RCRA Corrective Action process; it is discussed in more detail in Section 3.5.4.1.

The Pantex Plant contains extremely hazardous substances in excess of threshold planning quantities, and is therefore subject to the emergency planning requirements of EPCRA. In addition, the Pantex Plant meets the requirements for toxic chemical release reporting.

**Table 3.5.8-1. List of Applicable Inactive Waste Site
Regulations/Requirements/Guidelines**

<u>Regulations/ Requirements/ Guidelines</u>	<u>Section/Title</u>	<u>Authority</u>
CERCLA/SARA	Section 103 - Notices, Penalties	EPA
CERCLA/SARA	Section 120 - Federal Facilities	EPA
RCRA	Section 3008(h) - Interim Status Corrective Action Orders	
40 CFR 300	National Contingency Plan (proposed)	EPA
40 CFR 302	Designation, Reportable Quantities, and Notification	EPA
40 CFR 355	Emergency Planning and Notification	EPA
40 CFR 370	Hazardous Chemical Reporting: Community Right-to-Know	EPA
40 CFR 372	Toxic Chemical Release Reporting	EPA
40 CFR 373	Reporting Hazardous Substance Activity When Transferring Federal Real Property (proposed)	EPA
DOE Order 5400.4	CERCLA Requirements	DOE
DOE Order 5484.1	Environmental Protection, Safety, and Health Protection Information Reporting Requirements	DOE
DOE Order 5500.2A	Emergency Notification, Reporting, and Response Levels	DOE

Inactive waste site compliance findings deal mainly with lack of conformance to certain applicable EPCRA reporting requirements. Best management practices involve lack of adequate local oversight of and support to the environmental restoration process.

The general approach to the IWS assessment included interviews with AAO and M&H staff, review of EPCRA and environmental restoration documents and records, and tours of the Pantex Plant. The information collected from these activities was evaluated with respect to Federal and state regulations and DOE Orders, as identified in Table 3.5.8-1.

AAO Order 5484.1

AAO Environmental
Protection, Safety, and
Health Protection
Information Reporting
Requirements

DOE

Section 6

Texas Hazard
Communication Act

Texas

3.5.8.2 Compliance Findings (CF)

■ IWS/CF-1

Underreporting of Chemical Releases and Inventories

Performance Objective

40 CFR 372 implements Section 313 of EPCRA. This regulation requires applicable facilities, such as the Pantex Plant, to report on EPA Form R emissions of toxic chemicals that exceed certain threshold amounts.

40 CFR 370, the implementing regulation for Sections 311 and 312 of EPCRA, requires applicable facilities, such as the Pantex Plant, to report inventories of hazardous chemicals and extremely hazardous substances that exceed threshold amounts to the state and local emergency planning commissions and the fire department with jurisdiction over the facility. Section 6 of the Texas Hazard Communication Act requires the use of the Texas Tier Two Form for submittal to the State.

Finding

AAO has underreported both the release of acetone into the environment in its 1987 and 1988 toxic chemical release report (EPA Form R) and the storage of toluene on-site in its 1988 Texas Tier Two hazardous chemical inventory form, and is therefore not implementing the requirements of 40 CFR 372, 40 CFR 370, and Section 6 of the Texas Hazard Communication Act.

Discussion

AAO has submitted EPA Form Rs for 1987 and 1988 (IWS-12 and IWS-13). This form requires information on amounts released, treatment methods, and treatment efficiencies for toxic chemicals that exceed 10,000 pounds of use during the year. For one of the compounds AAO reported, acetone, the 1987 and 1988 EPA Form Rs indicate that the chemical is thermally treated with 99 percent removal efficiency. In actuality, most of the acetone reported to be used (23,500 pounds in 1987 and 20,000 pounds in 1988) is evaporated (or "Other Air Emission Treatment" for the purposes of Form R) at the Burning Ground. Instructions for Form R state that treatment by evaporation should have a corresponding treatment efficiency of zero percent. Thus, whereas the forms that AAO submitted indicated that only 1 percent of the acetone (235 pounds in 1987 and 200 pounds in 1988) was eventually released to the atmosphere, in actuality nearly 100 percent (23,500 and 20,000 pounds in 1987 and 1988, respectively) was released through evaporation.

AAO has also submitted Texas Tier Two Forms (IWS-11). These forms require information on hazard type, nature of storage, location, and order of magnitude range of quantities of hazardous chemicals and extremely hazardous substances stored throughout the site above certain threshold amounts. Although the site estimated an average amount of 25,000 pounds of toluene stored on-site during 1988, they only reported an average amount in the range of 1,000 to 9,999 pounds in the 1988 Texas Tier Two Form.

■ IWS/CF-2

Inadequate Toxic Chemical Release Documentation

Performance Objective

40 CFR 372, which implements Section 313 of EPCRA, requires facilities such as the Pantex Plant to annually report releases of toxic chemicals used in excess of 10,000 pounds per year. In addition, records must be maintained at the facility for 3 years that document all supporting material for the annual release report. These include calculations or bases of estimates of quantities released and quantities used and documentation of reported waste treatment methods and treatment efficiencies.

Finding

Documentation supporting toxic chemical release reporting for the Pantex Plant for 1987 and 1988 has not been fully developed and maintained in accordance with 40 CFR 372.

Discussion

AAO has submitted EPA Form Rs for 1987 and 1988 (IWS-12 and IWS-13), which provide information on releases of toxic chemicals used at Pantex in excess of 10,000 pounds, as described in Finding IWS/CF-1. However, the documentation of the values entered onto the EPA Form Rs for 1987 and 1988 were not fully developed in accordance with the requirements of 40 CFR 372. All major site operations were polled to determine toxic chemical use and releases as well as treatment methods and efficiency. In many cases, the responses did not have the calculations or bases for estimates used in determining the values provided, particularly for quantities of toxic chemicals used and released and for treatment efficiencies.

Other inadequacies in the available documentation are that certain sources were not considered, such as volatile organics (particularly toluene) in paints (see Finding AIR/BMPF-1) and chlorine used at the water and wastewater treatment plants. Although these compounds may not exceed the 10,000 pound use threshold for reporting, they are stored at the Plant in quantities exceeding 10,000 pounds. Thus, they initially could be considered by EPA inspectors as requiring reporting, and therefore their use and release amounts should be documented.

Also, EPCRA reports and available documentation are not properly maintained. Organization of files is important since there is a requirement in 40 CFR 372 that records must be available for EPA inspection. Records are located in various places in Building 12-100 rather than in one consolidated file, are not organized, and are difficult to access.

■ IWS/CF-3

Lack of Hazardous Chemical List Updates

Performance Objective

40 CFR 370 implements Section 311 of EPCRA. It requires facilities, such as the Pantex Plant, to submit material safety data sheets (MSDSs)

of hazardous chemicals and extremely hazardous substances in excess of threshold quantities or, as an alternative, lists of these materials to the state emergency planning commission (SEPC), the local emergency planning committee (LEPC), and the fire department. This is a one-time reporting requirement, which was to be met by October 17, 1987. Additionally, after October 17, 1987, MSDSs or corresponding lists must be submitted within 3 months after hazardous chemicals become present on-site in excess of threshold amounts.

Finding

AAO has not submitted updated lists of hazardous chemicals and extremely hazardous substances to the SEPC, LEPC, and the fire department within 3 months of these materials becoming present on-site in excess of thresholds, as required in 40 CFR 370.

Discussion

AAO submitted lists of hazardous chemicals and extremely hazardous substances on October 14, 1987. These lists were submitted to the SEPC and LEPC (IWS-7) but not the fire department (see Finding IWS/CF-4). Since the initial 1987 hazardous chemical list submission, no assessments have been made to determine whether new chemicals have come on-site or whether the inventory of chemicals on-site have increased to the point of exceeding threshold amounts such that supplemental reporting must be made.

However, a hazardous chemical inventory list for 1988 indicates that several materials not listed on the initial October 14, 1987, submittal were on the Pantex Plant site in 1988 in quantities in excess of threshold amounts. These chemicals were hexane, isopropanol, ethylene glycol, methyl ethyl ketone, and trichloroethylene. A revision to the original list indicating that these chemicals were on-site in excess of threshold amounts, has not been submitted.

■ IWS/CF-4

Incomplete Distribution of Emergency Planning and Community Right-to-Know Act (EPCRA) Reports

Performance Objective

40 CFR 370 implements Sections 311 and 312 of EPCRA (SARA Title III). It requires applicable facilities, such as the Pantex Plant, to submit

a list and Tier I/Tier II inventory of hazardous chemicals present at the facility in excess of threshold amounts to the LEPC, SEPC, and the fire department with jurisdiction over the facility.

Finding

AAO has not sent a list of hazardous chemicals or the EPA Tier I form to the local fire department, as required in 40 CFR 370.

Discussion

AAO has prepared a list of hazardous chemicals and Tier I forms. Both were sent to the SEPC and the LEPC, as required by regulation (IWS-7, IWS-8, IWS-10, IWS-11). However, the Pantex Plant Fire Department, which has jurisdiction over the site, was not sent the list of hazardous chemicals or the Tier I forms. Fire Department personnel indicated, upon review of these documents during the Tiger Team assessment, that the information within the list and forms would be helpful and is not contained in any other of their records (I-IWS-35).

■ IWS/CF-5

Inadequate Community Relations Activities

Performance Objective

DOE Order 5400.4, CERCLA Requirements, states that DOE shall respond to releases or potentially imminent releases of hazardous substances (e.g., from inactive waste sites) in accordance with CERCLA and the National Contingency Plan (NCP), regardless of whether the facility is on the National Priorities List. Section 40 CFR 300.67 of the NCP, in turn, requires specified community relations activities. In addition, the Field Office Management Plan for the AL Environmental Restoration (ER) Program (IWS-18) assigns to area offices and site contractors the responsibility of conducting community relations activities. The Task 1, Stage 2 remedial investigation/feasibility study (RI/FS) work plan for environmental restoration activities ongoing at the Pantex Plant (IWS-15 and IWS-16) states that a community relations plan is to be prepared and implemented by AAO and M&H.

Finding

AAO and M&H have not prepared and implemented a community relations plan for environmental restoration activities in accordance with DOE Order 5400.4, 40 CFR 300.67, AL ER procedures, and the RI/FS work plan presently being implemented.

Discussion

The Pantex Plant is not on the National Priorities List, but has inactive waste sites for which it is conducting remedial activities through the AL ER Program. An example is the ongoing Task 1 Stage 2 RI at the former chemical burn pit and two areas of past gasoline leaks. A community relations plan has not been prepared and implemented to date for these remedial activities. AAO has, however, sent copies of previously prepared RI/FS reports and work plans to the Amarillo Public Library.

3.5.8.3 Best Management Practices Findings (BMPF)

■ IWS/BMPF-1

Lack of AAO Environmental Restoration (ER) Oversight

Performance Objective

AAO should have greater oversight of ER activities to allow for more efficient administrative, budgetary, and technical management.

Finding

AAO does not have sufficient oversight of ER activities to ensure efficient administrative, budgetary, and technical performance of the Pantex Plant ER program.

Discussion

The cleanup of inactive waste sites at the Pantex Plant is presently being managed through the AL ER Program and is being implemented by the Los Alamos National Laboratory (LANL) ER Program Technical Support Office (TSO). The TSO, in turn, has a subcontractor that conducts most of the ER work. Funds for this program at the Pantex Plant are provided from the Pantex Plant's budget. M&H and AAO provide site support during field activities (for example, office space

and security) and input to work plans, and they review documents (remedial investigation work plans and reports). However, most of the ER project design, field implementation, data analysis, and report production are conducted by the TSO subcontractor (I-IWS-13, 18, and 34).

As a result of this organization, several administrative inefficiencies result. Review comments from M&H and AAO are routed through AL to the TSO and then to the TSO subcontractor. Meetings to discuss progress and future activities also involve the same five groups. If problems arise during the studies, AAO must make inquiries through AL to the TSO and the TSO subcontractor. This has happened recently with incidents involving an unlicensed driller overseeing well installations, a stuck drive casing for a well, and bentonite contamination of a well (IWS-46, 47, 48, 49, 50, and 51). Similarly, the information that AAO gains regarding ER through its interactions with EPA Region VI and the Texas Water Commission must be conveyed through this chain.

In addition to administrative difficulties, AAO also has little budgetary control of the ER program even though Pantex Plant ER line item funds are used. Cost estimates for individual project stages such as the conduct of a remedial investigation or preparation of a remedial investigation report or work plan are developed between the TSO and its subcontractor (I-IWS-13, 18, and 34). AAO receives a monthly progress report, usually 1 to 2 months after the close of the reporting period, which summarizes the percent complete, estimated budget, and actual expenditures for each project stage. However, costs are not broken down by specific task (e.g., drilling, laboratory analysis). The site can request more detailed budget information but has not done so. Nonetheless, the site has little control and recourse with regard to budget overruns. As examples, the Task 1, Stage 1 Remedial Investigation and Task 1, Stage 1 Remedial Investigation Report and Plan, which are both complete, overran the budgets by 77 percent (\$35,500) and 372 percent (\$301,000), respectively (IWS-19).

To cover these costs, other tasks which were to be initiated during the year were put on hold or rescheduled into the future. In addition, a large percentage of the Pantex Plant ER budget is spent on program administration and overheads. For fiscal year 1989 through July, of the \$1,022,100 expended on the Pantex Plant ER program, \$251,900 (24.6 percent) were spent on TSO management, and \$87,500 (8.6 percent) were spent on ER general program support (IWS-19).

With regard to technical implementation, during field activities there is generally no TSO or AL presence to ensure that the work plan is being properly implemented and that field upsets, such as improper management of drilling and sampling wastes and having an unlicensed driller, are avoided. The AAO neither has the authority nor the resources under the ER program scheme to undertake this responsibility. In addition, AAO only receives draft and final reports and is not the repository for raw data. Thus, they cannot readily assure the validity of the data and conclusions or have the data readily available for any inquiries by the public and regulatory agencies.

AAO has been working towards assuming more direct responsibility for environmental restoration activities. As part of this, they have been making arrangements with the U.S. Army Corps of Engineers to undertake on-site environmental restoration studies.

■ IWS/BMPF-2

Lack of Timely DOE HQ and AL Approval of AAO ER Activities

Performance Objective

An April 27, 1989, memorandum from the Secretary of Energy entitled Policy on Future Environmental Compliance Agreements (IWS-37) states that field offices may proceed with negotiations on environmental compliance agreements as long as Field Office-prepared negotiating strategies are preapproved by the appropriate Headquarters office. Any proposed agreements must be reviewed by the Secretary's office before commitments are made. DOE Headquarters and AL should provide timely support to AAO in the approval of negotiating strategies and proposed agreements.

Finding

AL did not submit to DOE HQ and DOE HQ did not approve an AAO-developed negotiating strategy for a RCRA Section 3008(h) Corrective Action Order on Consent in a timely manner and, as a result, DOE risks issuance of an EPA unilateral enforcement order.

Discussion

Since January 1989, AAO and AL have been aware that EPA Region VI would be drafting a RCRA Section 3008(h) Corrective Action Order on Consent which would establish a framework to investigate and

remediate potentially contaminated inactive hazardous waste release sites at the Pantex Plant (I-IWS-13, IWS-27). On July 24, 1989, in anticipation of the imminent issuance of the consent order and with the knowledge that EPA desired a signed order in place within 60 days of issuance, AAO requested from AL that preparation of a negotiating strategy for DOE HQ preapproval be initiated (IWS-28). AL concurred on August 3, 1989 (IWS-29), and on August 14, 1989, AAO submitted a draft negotiating strategy for AL review and submittal to DOE HQ (IWS-30).

AL submitted AAO's negotiating strategy and request for approval to DOE HQ on September 8, 1989 (IWS-31). Thus, it took AL 24 days to review and approve AAO's three-page negotiating strategy. Coincidentally, the draft consent order (IWS-38) was received by AAO from EPA on the same day as AL forwarded the negotiating strategy to DOE HQ. This draft order requested that AAO review and provide comments to EPA and the Texas Water Commission (TWC) no later than 20 days after receipt. On September 26, 1989, AAO indicated to EPA that they had not yet received approval to negotiate from DOE HQ and would not be able to provide comments within the 20-day period (IWS-32).

AL, AAO, and M&H met with EPA and TWC on October 5, 1989, and EPA confirmed that if the 60-day period for negotiation and final acceptance was not met, the situation would be automatically referred to EPA Headquarters and a unilateral consent order, without the benefit of negotiation, could be issued. However, an extension could be granted if signing was imminent. AAO transmitted this message to AL in a correspondence on October 6, 1989 (IWS-34), and AL informally transmitted it to DOE HQ. Approval by HQ was finally issued on October 12, 1989 (IWS-35 and 36), 34 days after the initial request, leaving a 26-day period for negotiation, DOE HQ review and approval, and final signing.

■ IWS/BMPF-3

Lack of Input from Regulatory Agencies on ER Activities

Performance Objective

Agencies regulating Pantex Plant ER activities should provide comments on proposed and draft ER activities to ensure that these activities are proceeding in a manner acceptable to them, and that they are protective of the environment and public health and welfare. This

input is required for RCRA interim status or permitted sites taking corrective action under RCRA or for National Priorities Listed sites undergoing CERCLA cleanup.

Finding

ER work plans have been written and remedial investigation reports have been developed for the Pantex Plant without adequate and timely input from Federal and State environmental regulatory agencies, although comments from them have been solicited.

Discussion

AAO has been proceeding with investigations of the Pantex Plant's inactive waste sites through the AL ER Program (see Finding IWS/BMPF-1). This program uses the CERCLA/National Contingency Plan (NCP) process for cleanup, which was developed and is generally required for facilities on the National Priorities List (NPL). Although Pantex Plant is not on the NPL, the NCP approach is used in accordance with DOE Order 5400.4.

As part of the NCP process, regional EPA and State reviews are required on remedial investigation/feasibility study (RI/FS) work plans and reports. The purposes of these reviews are to ensure that remedial activities are adhering to the requirements of the law and are protective of the public health and welfare and the environment. AAO has provided RI plans and reports to the EPA Region VI and TWC requesting review comments in 30 days (IWS-21 and 22), but has not received responses. As an example, in response to an RI plan submitted in June 1988, EPA Region VI indicated that, due to work load, they were concentrating on NPL sites and, therefore, did not respond with any comments (IWS-20).

On June 16, 1989, AAO submitted to EPA Region VI and TWC another set of ER documents, the Task 1, Stage 1 RI Report and the Task 1, Stage 2 Work Plan, requesting comments in 30 days (IWS-23 and 724). Although comments were never received from TWC, more than 3 months later, on September 21, 1989, EPA Region VI responded that they had decided not to comment on the work plan at that time (IWS-26). Although EPA Region VI stated that they did not want to impede progress on the cleanup of past releases, they did not want to approve work plans on a piece-meal basis. In addition, any corrective action could conflict with the proposed 3008(h) corrective action consent order.

However, in the intervening three months, AAO and AL began implementation of the Task 1, Stage 2 Work Plan at Pantex. This task involved the study of liquid releases at two gasoline spill areas and the former chemical burn pit area. These areas received the second highest score from a DOE HQ preliminary prioritization of environmental problems throughout the DOE Defense Programs facilities. Thus AAO and AL decided that the study of these sites was a high priority and should begin as soon as possible regardless of the impending proposed consent order or the lack of regulatory agency comments (I-IWS-34).

■ IWS/BMPF-4

Incomplete Spill Reporting Procedure

Performance Objective

40 CFR 355 implements Section 304 of EPCRA. It requires that spills of hazardous substances in excess of reportable quantities that go beyond the facility boundary be reported to the local and state emergency planning committees. DOE Orders 5484.1 and 5500.2A require that spills of hazardous substances in excess of reportable quantities be reported to the DOE Emergency Operations Center (EOC). AAO Order 5484.1 requires that the site contractor determine whether spills of hazardous substances are in excess of reportable quantities and, if so, to notify AAO. AAO is then responsible for notifying all governmental organizations, including AL which then notifies the DOE EOC.

Finding

Spill reporting procedures, which are documented in the Pantex Plant Spill Prevention, Control, and Countermeasures (SPCC) Plan, do not fully describe all the necessary procedures and contacts in the event of a reportable quantity spill, as described in 40 CFR 355, and DOE Orders 5484.1 and 5500.2A.

Discussion

The SPCC Plan (IWS-1) is the governing document at the Pantex Plant with regard to spill response. Within the SPCC Plan is a Notification Action Summary, which describes notification procedures in the event of a spill. Although this summary contains several of the contacts that need to be made, including the National Response Center after a CERCLA-reportable spill and the Texas Emergency Response Center, there are no descriptions of the procedures for determining reportable

quantities and for reporting EPCRA reportable quantity spills, and of the chain of contacts for notifying the DOE EOC (M&H to AAO to AL to DOE EOC).

3.5.9 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

3.5.9.1 Overview

The purpose of the National Environmental Policy Act (NEPA) portion of the environmental assessment of the Pantex Plant was to: 1) evaluate the AAO and M&H Pantex Plant NEPA management structure and NEPA review processes; 2) identify inappropriate and inadequate NEPA procedures and documentation; and 3) evaluate compliance with the NEPA, Council on Environmental Quality (CEQ) regulations, and the DOE NEPA Guidelines and Order. Table 3.5.9-1 lists applicable regulations and/or requirements used to evaluate NEPA compliance.

The NEPA review process for proposed actions at the Pantex Plant is initiated by M&H. For certain larger actions (major General Plant Projects, line-item actions), M&H provides Action Description Memoranda (ADMs) to AAO. Once AAO has reviewed and approved the ADMs, AAO forwards them to Albuquerque Operations Office for a determination of the level of NEPA documentation required. The AL NEPA Supplemental Order governs NEPA procedures at AL and its field offices, including AAO.

NEPA compliance findings deal with inappropriate procedures used by AL in making NEPA determinations and incorrect directions in the AL NEPA Supplemental Order. Best management practices concern the need to update the AL NEPA Supplemental Order and the lack of a central filing system or database at AAO to track NEPA compliance.

The scope of the NEPA assessment of the Pantex Plant included discussions with the AAO and M&H staffs responsible for NEPA compliance, site tours, and discussions with plant managers, engineers, and budget analysts. The Pantex Site environmental impact statement (EIS) was reviewed for adequacy in relation to its continued use as a reference document from which to tier other NEPA documents. The use of categorical exclusions, memoranda-to-file (MTFs), and ADMs was evaluated for consistency with the DOE Headquarters NEPA Guidelines and Order.

Table 3.5.9-1. List of Applicable National Environmental Policy Act (NEPA) Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Guidelines</u>	<u>Title/Section</u>	<u>Authority</u>
Public Law 91-190 (January 1, 1970) as amended	National Environmental Policy Act (NEPA)	U.S. Congress, Council on Environmental Quality (CEQ)
40 CFR 1500-1508	Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act	Council on Environmental Quality (CEQ)
DOE Order 5440.1C (April 9, 1985)	National Environmental Policy Act	Department of Energy
AL 5440.1B (November 12, 1982)	Implementation of the National Environmental Policy Act (NEPA)	Department of Energy, Albuquerque Operations Office
DOE Notice 5400.4 (August 2, 1988)	Integration of Environmental Com- pliance Processes (CERCLA RI/FS and NEPA)	Department of Energy
52 FR 47662-47670 (December 15, 1987)	Department of Energy Compliance with the National Environmental Policy Act (NEPA); Amendments to the DOE NEPA Guidelines	Department of Energy
N/A	DOE Environmental Compliance Guide (1981)	Department of Energy
N/A	NEPA Guidance Related to Memoranda-to-File	Department of Energy

and Categorical
Exclusions (March 25,
1988)

3.5.9.2. Compliance Findings (CF)

■ NEPA/CF-1

Inappropriate Use of NEPA Determinations Process by the Albuquerque Operations Office

Performance Objective

Section D of the DOE NEPA Guidelines specifies 50 categorical exclusions and 23 actions requiring environmental assessments (EAs) and environmental impact statements (EISs). The Responsible Supervisory Official (RSO) must consider the full range of possible exclusions and actions requiring an EA or EIS listed in Section D of the Guidelines, as specified in the DOE Order 5440.1C.

Finding

The NEPA determination and review process by AL precludes the full range of NEPA review categories listed in the DOE NEPA Guidelines (N-26), as specified in the DOE Order 5440.1C (N-25).

Discussion

This finding is based on review of all AL NEPA determinations and supporting Action Description Memorandum in the AAO files (N-33 through N-110).

AL had been using a form for NEPA review and determinations that only includes three categories: "clearly insignificant," "substantially the same" and "it is beyond the delegated authority of the RSO." This scope of determinations clearly does not allow for a full considerations of NEPA review, as specified in the performance objective.

AL began using a new form (N-11) in August 1989 (I-N-29) that has not as yet been applied to a Pantex Plant project. The form, which now refers to a "categorical exclusion listed in Section D of the DOE NEPA Guidelines," is an improvement, but two problems still remain. The form should also refer to EAs and EISs listed in Section D and should direct that the specific categorical exclusion, EA, or EIS selected from Section D is identified.

Unsupported Albuquerque Operations Office NEPA Determinations

Performance Objective

Under the DOE NEPA Guidelines and the DOE NEPA Order 5440.1C, an action may be categorically excluded from NEPA documentation requirements if the action is "substantially the same as other actions for which the environmental effects have already been assessed in a NEPA document and determined by DOE to be clearly insignificant and where such assessment is currently valid." Under the Guidelines and Order, an action may also be exempted from NEPA documentation if a memorandum is prepared stating that impacts from the action will be "clearly insignificant" and explaining the basis for that determination.

Finding

AL does not provide sufficient documentation to support its NEPA determinations that actions are "clearly insignificant" or "substantially the same as other actions...." as required by the DOE NEPA Guidelines (N-26) and DOE NEPA Order (N-25).

Discussion

This finding is based on review of the Pantex Plant EIS (N-16) and all AL memoranda and supporting Action Description Memoranda (ADMs) in the AAO files (N-33 through N-110).

AL has invoked the categorical exclusion for actions that are "substantially the same as other actions" for 13 proposed actions and, in so doing, had to rely on the 1983 Pantex Plant EIS (N-16) as previous NEPA documentation. However, eleven of the 13 actions were not named in the EIS (N-33, N-45, N-47, N-49, N-51, N-62, N-64, N-67, N-71, N-78 and N-88), one action named in the EIS was rescope after loss of initial funding (N-35), and one action was only briefly described in the EIS (N-43), insufficient to support use of this categorical exclusion.

Additionally, the impacts of individual plant projects are not specified in the EIS. Therefore, it is not possible to assess whether the impacts of replacement or upgrading projects or projects not contemplated at the time of the EIS, when added to impacts from other operations of the

Pantex Plant, would cause total impacts to exceed those bounded by the EIS. Insufficient information on impacts was provided.

The criteria of the categorical exclusion for actions "substantially the same as other actions" cannot be met for those actions to which AL has applied this exclusion. For specific discussion, see a related finding, NEPA/CF-3: Inappropriate NEPA Categorical Exclusion of the High Explosive Machining Facility (HEMF).

With regard to the determination that impacts are "clearly insignificant," AL provided no information to support that determination for three actions (N-23, N-39, and N-53). Further, in 21 other NEPA determinations, AL has covered several proposed actions in one decision memorandum, stating that the actions were either "clearly insignificant" or "substantially the same as other actions" but not stating which determination applied to which action (N-41, N-69, N-80 through N-87, N-90 through N-100). Insufficient information was provided.

■ NEPA/CF-3

Inappropriate NEPA Categorical Exclusion of the High Explosive Machining Facility (HEMF)

Performance Objective

Under the DOE NEPA Guidelines and the DOE NEPA Order 5440.1C, an action may be categorically excluded from NEPA documentation requirements if the action is "substantially the same as other actions for which the environmental effects have already been assessed in a NEPA document and determined by DOE to be clearly insignificant and where such assessment is currently valid."

Finding

AL use of a categorical exclusion under the DOE NEPA Guidelines (N-26) and DOE NEPA Order (N-25) for the proposed High Explosives Machining Facility (HEMF) is not supported in the AL documentation.

Discussion

This finding is based on a review of the 1983 site EIS (N-16), the HEMF Project Management Plan (N-31), the HEMF Project Plan and Charter (N-30), AL memoranda describing the NEPA determinations

(N-27 and 28, N-64), and Action Description Memoranda (N-29 and N-65).

AL has categorically excluded the HEMF on the basis that the action was "substantially the same as other actions." The AL NEPA determination for the HEMF, provided in an AL memorandum (N-64), was based on the observation that "the proposed project is a replacement facility and will consolidate the existing machining facilities. The action will not introduce any new environmental impacts, and the impacts are within the scope of the discussion contained in the Pantex EIS."

The proposed HEMF provides for the design and construction of a new production explosives machining facility at the Pantex Plant and the demolition of the existing machining facilities. The HEMF site is located in Zone 12-south production area of the plant, inside the perimeter intrusion detection system but outside the designated material access area. Wastewater treatment at the proposed HEMF would collect HE residues for subsequent burning, possibly resulting in an increase in hydrogen fluoride (HF) emissions, which may require monitoring and changes in the burn procedure to avoid exceeding Texas Air Control Board standards. Decontamination and demolition of the seven existing buildings that presently carry out the HE machining functions will involve removal and disposal of asbestos and building materials contaminated with HE, which could include TNT.

There is, however, essentially no consideration of the proposed HEMF in the 1983 EIS (N-16). There is no specific mention of the HEMF, and the only allusion to the facility is possibly in the discussion of the new fabrication complex on page 2-10. This discussion does not show the location of the proposed HEMF, does not identify buildings that would be demolished following construction of the HEMF, and does not address decontamination and decommissioning procedures for HE-contaminated materials and asbestos.

The EIS addresses the types of environmental concerns associated with the proposed HEMF in only a cursory fashion. For example, HF emissions are only briefly mentioned in the EIS (p. 4-8: "Future burning of high explosives that release hydrogen fluoride may result in a limited measurable impact."), but no attempt was made to quantify emissions from particular facilities or the subsequent impacts. The elimination of wastewater discharges, with accompanying increases in solid waste, was not proposed in the EIS. The relative contribution of impacts from the HEMF to impacts of site operations are not discussed.

Because the EIS does not cover impacts of siting, recycling wastewater from HEMF, the increased burning of HE residues, and decontamination and decommissioning, the EIS cannot be claimed to encompass the proposed HEMF. Criteria for the categorical exclusion used in the NEPA determination are not satisfied.

Other categorical exclusions in Section D of DOE's NEPA Guidelines (N-26) are also not applicable to the HEMF. A Memorandum-to-File based on the "clearly insignificant" criterion is also similarly inappropriate because at least two potential issues (HF emissions and decontamination of existing buildings) will require analysis to determine their significance. See related finding: NEPA/CF-2 - Unsupported Albuquerque Operations Office NEPA Determinations.

■ NEPA/CF-4

Inadequate Albuquerque Operations Office NEPA Directions

Performance Objective

DOE Order 5440.1C was written to provide direction regarding NEPA reviews and determinations. NEPA Supplemental Order AL 5440.1B is the implementing order for (AL), including AAO.

Finding

AL NEPA Supplemental Order AL5440.1B is incorrectly implementing DOE Order 5440.1C. Also, the AL Order is within itself incomplete and unclear and may foster inadequate NEPA reviews and determinations.

Discussion

This finding is based upon interviews (I-N-1 through I-N-3, and I-N-9) and review of the AL NEPA Supplemental Order (N-14), two AL memoranda (N-11 and N-12) and AL NEPA determinations and supporting Action Description Memoranda (ADMs) (N-33 through N-110).

For discussion purposes, the incomplete and unclear AL implementation of DOE Order 5440.1C is developed in section (a) and the incorrect nature of AL NEPA Supplemental Order AL 5440.1B is discussed in (b) below.

(a) Incomplete and unclear directions for AAO:

The AL NEPA Supplemental Order (N-14) directs Area Managers "to assure that actions such as construction projects, research activities, routine contractor operations, and budget submissions under their jurisdiction are conducted in compliance with NEPA..." (in Section 5.b.(2)) and "to initiate preparation of an Action Description Memorandum for planned actions under their jurisdiction" (in Section 5.b.(5)).

However, when the preceding directions are compared with directions in a later section of the Order, it is unclear how Area Managers should proceed. Section 5.b.(8) directs Area Managers to prepare ADMs specifically for "line items as part of the annual budget process" but does not direct preparation of an ADM (or any other information, such as a checklist) for other than line-item actions. As a result, unclear direction is provided to managers as to how they should proceed.

Also, as noted above, there is no direction to prepare an ADM, or any environmental information, for other than line-item actions. AL has recognized this lack of NEPA determinations and reviews for AAO actions. In a memorandum forwarding the results of the November 1988 AL appraisal of the Pantex facility contractor (N-12), AL found that "Appropriate NEPA compliance reviews have not been given to proposed actions other than line-items and General Plant Project(s) (GPP), as required by AL Order 5440.1B."

However, AL went on to state that "The proposed actions that are determined by Plant officials not to need an ADM do not have any supporting documentation to indicate a NEPA review was performed and a decision had been made." The AL memorandum further made reference to "...NEPA compliance decisions that are made at the Plant." The memorandum did not recognize the need to forward environmental information for NEPA determinations to the AL-RSO to assure the RSO responsibility for determinations is carried out. The memorandum did not rectify the problem. In contrast, the memorandum provided deferral of RSO responsibility to the operating contractor, resulting in a continued lack of NEPA reviews for some project actions.

(b) Incorrect directions within AL:

Section 5.a. of the AL NEPA Order (N-14) states that the AL Director, Operational Safety Division, has responsibility for making NEPA determinations in accordance with the DOE NEPA Order. Therefore, this Director is the RSO.

In Section 5.c. of the AL Order, Directors of three other Divisions are directed to request an ADM from Area Managers for "each project for which funds are being requested" but to then furnish the RSO with "budget submission data sheets with attached environmental documents for line item projects, major General Plant Projects, and other proposed projects or activities which could have a potential significant effect on the quality of the human environment."

These directions in 5.c. incorrectly direct AL staff to screen ADMs (on the basis of cost of a proposed action or the lack of potential significant impact) before forwarding the ADMs to the RSO for a NEPA determination. As a result, DOE actions may be carried forward which lack NEPA determinations and review.

A change stated in an AL memorandum (N-12) requires all NEPA documents to be submitted directly to the Director of the Environment and Health Division (EHD), who would "approve these documents that are within the scope of the AL approval authority." This statement confirms the Director as RSO with delegated NEPA authority, and establishes such a change in paperwork channels to correct the situation where AL staff do not forward ADMs to the RSO for a NEPA determination.

However, two problems remain to be corrected. One is that the change will not be officially effective until incorporated into the AL NEPA Order. A second problem is that NEPA determinations are currently inappropriately signed by the Chief of a Branch in EHD, not the RSO designated in the December 1987 memorandum (for example, see N-33, N-35, and N-37).

See related finding: NEPA/BMPF-1 - Outdated Albuquerque Operations Office NEPA Supplemental Order.

3.5.9.3

Best Management Practices Findings (BMPF)

■ NEPA/BMPF-1

Outdated Albuquerque Operations Office NEPA Supplemental Order

Performance Objective

As a best management practice, AL Orders should reflect current DOE Headquarters and AL procedures. Additionally, AL NEPA procedures should be effected through revisions in the AL NEPA Supplemental Order (AL5440.1B).

Finding

AL NEPA Supplemental Order AL5440.1B (N-14) has not been updated to reflect the revised DOE NEPA Order 5440.1C (N-25) and the AL NEPA procedures discussed in an AL memorandum (N-12).

Discussion

This finding is based on a review of NEPA Supplemental Order AL5440.1B (N-14), discussion with AAO staff (I-N-9), and review of the AL December 23, 1987 memorandum concerning revised AL procedures (N-12).

The revised DOE NEPA Order (N-25) was issued on April 9, 1985. However, the latest update in the AL NEPA Supplemental Order (N-14) was November 12, 1982 and, therefore, does not reflect the current DOE Headquarters NEPA procedures.

An AL memorandum dated December 23, 1987 (NEPA-12) stated that the AL NEPA Supplemental Order was being revised to incorporate changes in AL paperwork channels discussed in the memorandum and to reflect experience and guidance accumulated since the date of the last revision of the AL Supplement. However, no such revision has yet been issued, and there was no indication in the AL memorandum that the revision would reflect the revised DOE NEPA Order 5440.1C.

See related finding: NEPA/CF-4 - Inadequate Albuquerque Operations Office NEPA Directions.

■ NEPA/BMPF-2

Inadequate Amarillo Area Office NEPA Records

Performance Objective

As a best management practice, adequate NEPA records should be maintained by AAO to track NEPA project review activities and assure compliance with NEPA for all site projects.

Finding

AAO lacks a central filing system, or database, to monitor information concerning the NEPA compliance status of all current and proposed site projects.

Discussion

This finding is based on interviews with AAO and M&H staff (interviews I-N-1 through 4; 20 through 28), a review of NEPA documentation in AAO and M&H files, and searches through lists of construction projects and budget proposals (N-1 through N-10) in an attempt to prepare a definitive list of site projects and their NEPA reviews. There remains some uncertainty that the developed list prepared by the Tiger Team (N-22) includes all site projects undertaken or proposed since the October 1983 Environmental Impact Statement (N-16), and that all existing NEPA documentation is shown.

The AAO does not have a database to track project name changes. New site projects are often proposed for several fiscal years before receiving funding, and a new or slightly different project title may be assigned every year. A unique project number is not assigned until the project is funded. Even after it receives a unique number, the number is often not used and the name of the project may continue to change. For example, Follow-On-To-Lance, Lance-Follow-On, and Tactical-Follow-On-Missile are all the same project.

There is uncertainty among the AAO and M&H staffs concerning NEPA review for projects with multiple names and nicknames. This uncertainty may result from the many projects that were given NEPA consideration by staff no longer with AAO and from the practice of referring to component parts of a larger project as separate projects. For example, the Metrology Health Physics Calibration Facility is a part of the Tactical Air to Surface Missile program, not a separate project. Other projects, such as the Firing Site Restoration FS 4 & 3, have been combined with other line item projects.

Some projects may have had more than one NEPA review. If an Action Description Memorandum is revised, an additional Memorandum

dum-To-File is often issued. For example, the Anti-Submarine Warfare/Standoff Weapon Program (N-86 and 93), Weapons Assembly Bays Replacement (N-80 and 81), Follow-On-To-Lance (N-66 and 67), Fire Protection Upgrading (N-55 and 56), and Small ICBM Support (N-77 and 78) all have two Memoranda-To-File.

Some projects may not have had a NEPA review. There may be no information available, for example, with project/budget authorization records that documents a NEPA review. Thus, it is unclear whether projects such as the Classified Waste Paper Incinerator, Inert Assembly & Test Facility, or Medical Decontamination Facility have received NEPA review.

M&H has recently instituted a Preliminary Hazard Analysis program that is designed to systematically evaluate the hazards of even the smallest projects and store the results in a computerized database. The forms used in this hazards evaluation procedure contain items pertaining to environmental protection (e.g., use of pesticides or other chemicals, waste generation, earth work) and are periodically reviewed by a staff member in M&H's Risk Management Department. Although this comprehensive system has considerable value for flagging environmental concerns associated with projects of all sizes, a specific NEPA component is not included and hazard determinations do not receive input from AAO. Use of this system to track NEPA review activities has not been considered.

3.5.10 CULTURAL AND NATURAL RESOURCES

3.5.10.1 Overview

The purposes of the Cultural and Natural Resources (CNR) portion of the Pantex Plant environmental assessment are to evaluate: 1) AAO and M&H management and assessment of the Pantex Plant site's cultural and natural resources, and 2) adherence to the general requirements of cultural and natural resource protection acts and orders other than NEPA (Section 3.5.9).

The Pantex Plant consists of 16,000 acres of land located on the High Plains Prairie; the vegetation is dominated by grasses. The site also contains three playa lakes, numbered 1, 2, and 3 on Federally-owned land and an additional playa (4) on adjacent land leased from Texas Tech University. All industrial wastewater point source discharges from Pantex Plant operations are directed into ditches which terminate in Playas 1 or 2. Sanitary discharges from Pantex Plant buildings are discharged into a sewage lagoon and then Playa 1. Stormwater runoff flows into all four

playas. These four playa lakes may be classified as wetlands since, based on Tiger Team observations, they appear to meet the three U.S. Army Corps of Engineers criteria; that is, they support hydrophytic vegetation, contain hydric soils, and are periodically inundated. However, a wetlands delineation in the field has not been performed and documented. There are no known threatened or endangered species on the site, nor are there critical habitats for these species.

There are 42 prehistoric sites and three pre-World War II farmsteads known to be on the site. One historic site is on the uplands, and all other sites are in or near the four playa basins. No Indians identify Carson County, Texas, as homeland or as religiously significant.

The one CNR finding deals with the lack of wetlands review concurrent with the NEPA process for proposed actions at the Pantex Plant.

The general approach to the CNR assessment included interviews with AAO personnel, review of the site's 1983 EIS (CNR-1) and numerous Action Decision Memoranda, and tours of the site playas. The information collected from these activities was evaluated with respect to Federal laws and Executive Orders as identified in Table 3.5.10-1.

Table 3.5.10-1. List of Applicable Cultural and Natural Resources
Regulations/Requirements/Guidelines

<u>Regulations/ Requirements/ Authority</u>	<u>Section/Title</u>	<u>Authority</u>
49 USC 1431	Noise Control Act	Various
42 USC 1701 et seg.	Federal Land Policy Management Act	Department of Interior
16 USC 2901 et seg.	Fish and Wildlife Coordination Act	U.S. Fish and Wildlife Service
16 USC 461 et seg.	Historic Sites, Buildings, and Antiquities Act	Department of Interior, National Park Service
7 USC 4201-4209	Farmland Protection Policy Act	Department of Agriculture
16 USC 1531-1544	Endangered Species Act	Department of Interior
42 USC 1996	The American Indian Religious Freedom Act	Department of Interior
16 USC 470	Archaeological Resources Protec- tion Act	Department of Interior, State Historic Preservation Office
33 USC 401-413	Rivers and Harbors Act	U.S. Army Corps Engineers
Executive Order 11990	Protection of Wetlands	Various
Executive Order 11988	Floodplain Management	Various
16 USC 470	National Historic Preservation Act	Department of Interior, State Historic Pres- ervation Offices

16 USC 431-433	The Antiquities Act of 1906	Department of Interior, Agriculture
16 USC 703-712	Migratory Bird Treaty Act	U.S. Fish and Wildlife Service
16 USC 668-668(d)	Bald and Golden Eagle Protection Act	U.S. Fish and Wildlife Service

3.5.10.2 Compliance Findings (CF)

■ CNR/CF-1

Lack of Wetlands Delineation and Environmental Review

Performance Objective

Executive Order 11990 (Protection of Wetlands; May 24, 1977) requires Federal agencies to avoid to the extent possible the destruction and modification of wetlands, and to avoid direct support of wetlands development wherever there is a practicable alternative. Agencies must determine whether wetlands are present which may be affected by an action, assess the impacts of the action on such wetlands, and consider alternatives to the action.

DOE's policy and procedures for complying with the Executive Order can be found in 10 CFR 1022, "Compliance with Floodplains/Wetlands Environmental Review Requirements". This regulation specifies that, concurrent with its review of proposed actions and management of Federal lands in determining NEPA requirements, DOE is required to determine the applicability of wetlands protection requirements contained within 10 CFR 1022. If the requirements are applicable, then a wetlands assessment must be conducted and public review must take place.

Finding

AAO has not performed a wetlands delineation and may be implementing projects and managing lands in a manner that potentially affects wetlands (Playas 1, 2, 3, and 4) without consideration of wetlands protection and enhancement, as set forth in 10 CFR 1022.

Discussion

Based on Tiger Team observations, the on-site playas appear to be wetlands according to the U.S. Army Corps of Engineers three criteria for wetlands (CNR-13). Those criteria are periodic inundation, hydric soils, and hydrophytic vegetation. However, the site has not performed a field delineation to determine whether the playas indeed meet the criteria and can therefore be classified as wetlands. This determination is essential for site environmental analyses such as environmental assessments, permitting, and wetlands environmental reviews, as described in the following paragraphs.

The hydrology and water quality of Playas 1, 2, and 3 on the Pantex Plant property have been affected by discharges of industrial wastewater from past and existing Pantex Plant projects (see Finding SW/CF-1). The playas may also be affected in the future by industrial discharges from proposed projects. Based on a review of 33 Pantex Plant Action Description Memoranda (ADMs) as well as the 1983 Pantex Plant Environmental Impact Statement (CNR-1), 11 of the proposed projects described in the ADMs (CNR-2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12) included industrial wastewater discharges to the playas. If the playas are determined to be wetlands, as described above, these projects would be considered wetland actions because they could affect the wetlands. As a result, wetland protection requirements, as described in 10 CFR 1022, would be applicable. However, the required wetlands assessments and subsequent public review, have not been conducted.

There are also ongoing land management activities at the Pantex Plant which affect the playas and which could require wetlands review. Under a lease agreement with Texas Tech University, DOE allows cattle grazing and watering directly in Playas 1, 2, and 3; withdrawal of irrigation water directly from Playa 1; and stormwater and irrigation return runoff which may carry fertilizers and pesticides to Playas 1, 2, 3, and 4.

In addition, continued DOE responsibilities to manage and control runoff from the Firing Site area to the northeast are carried out through a program to maintain a pump operation on the tailwater pit (near building 13-45). This operation collects water from the Firing Site watershed on the north side of the site and returns it to the Playa 1 watershed. There is a potential for depleted uranium and other non-radioactive contaminants to be present in that runoff. This operation is a potential "wetland action" under 10 CFR 1022, and, assuming the playas are wetlands, has not undergone appropriate wetlands review.

3.5.10.3 Best Management Practice Findings (BMPF)

There are no best management practice findings for cultural and natural resources at the Pantex Plant.

3.5.11 SOILS, SEDIMENT, AND BIOTA

3.5.11.1 Overview

The purposes of the Soils, Sediment, and Biota portion of the Pantex Plant environmental assessment are to evaluate: 1) environmental monitoring programs related to these media; 2) chemical and radiological contamination of these media; 3) management of these media as resources; and 4) adherence to monitoring and contamination guidelines and standards established in DOE Orders and other guidelines.

The soils at the Pantex Plant are predominated by the Pullman series, which is characterized as a uniform, deep, moderately fine-textured, fertile, slowly permeable silty clay loam. Also in evidence at the Pantex Plant are soils of the Randall and Ulysses series. The Randall series forms the sediments of the on-site playas. It is a dark grey, very poorly-drained, deep, clayey soil. The Ulysses series consists of well-drained, youthful soils that are calcareous and loamy.

The Pantex Plant is located within the High Plains, which is classified as mixed prairie. It originally was characterized by bluestems, wild rye, and other bunchgrasses. However, most of this native vegetation has been overgrazed, allowing less desirable grasses, forbs, and shrubs to dominate. Much of the Pantex Plant is used for agricultural purposes by land lease arrangements with Texas Tech University. Grass areas are used for cattle grazing, while other areas are planted in wheat and sorghum. Fauna at the site include rabbits, rodents, lizards, turtles, snakes, and a variety of birds including waterfowl, raptors, and songbirds.

As part of the annual environmental monitoring program, the Pantex Plant samples and analyzes soils and vegetation from on-site and off-site locations. Most on-site locations are clustered around the Burning Grounds and Firing Sites. Both media are monitored for radionuclides, and soils are also measured for beryllium. Jackrabbits, collected from on-site locations, are analyzed for radionuclides.

Sediment and soils have also been sampled and analyzed as part of special studies. Sediments from the playas and ditches and soils at various inactive waste units were sampled during the DOE Environmental Survey. In addition, soils have been sampled in the vicinity of two formerly leaking

gasoline tanks or lines and the former chemical burn pit area as part of the AL Environmental Restoration Program.

The soils, sediment, and biota assessment was conducted in association with other disciplines. In particular, soils were investigated as part of the radiation, groundwater, and inactive waste sites assessments; sediment as part of the surface water assessment; and biota as part of the radiation and cultural and natural resources assessment. Thus, the general approach to assessing these media; applicable regulations, requirements, and guidelines; and any associated findings may be found in Sections 3.5.2 (Surface Water), 3.5.3 (Groundwater), 3.5.7 (Radiation), 3.5.8 (Inactive Waste Sites), and 3.5.10 (Cultural and Natural Resources).

3.6 OTHER ISSUES

An important hazardous waste management issue at Pantex Plant is the current negotiation between AAO and EPA of a draft interim status correction action order issued by EPA under RCRA 3008(h) authority. The order addresses the investigation and remediation of a number of contaminated areas including some that resulted from process discharges that occurred as recently as 1988. These discharges, which have ceased, contained concentrations of toxic and ignitable listed hazardous constituents. EPA has identified and currently intends to regulate these areas of contamination as solid waste management units (SWMUs) through a negotiated final order. As a result, the Pantex Plant is in compliance at this time with the RCRA requirements applicable to these units, and therefore, no findings have been developed on this issue.

If EPA changes its intent to regulate contaminated areas as SWMUs, and it can be shown that the past discharges contained hazardous constituents in the form of hazardous wastes, EPA also has the option of regulating the areas of contamination as inactive RCRA hazardous waste management units (HWMUs) instead of SWMUs. The HWMUs would be required to upgrade to minimum technology standards (and other RCRA requirements listed in 40 CFR 265) or be closed in accordance with 40 CFR Part 264, Subpart G, closure standards.

It should be noted that both RCRA closure and SWMU corrective action would require an investigation to characterize the extent of contamination and remediation of any contaminated areas, although the SWMU corrective action process is somewhat more flexible with less restrictive requirements.

Although it has been established (through the Environmental Survey Sampling and Analysis Document and the Pantex Plant's own waste stream characterization study) that past discharges have been contaminated with hazardous constituents, the Tiger Team only identified one past discharge (and no current discharges) documented to contain hazardous wastes (WM-11, WM-12, WM-13). The confirmed hazardous waste discharge is the past discharge from Building 12-41, Paint Bay, into which hazardous waste (spent methyl ethyl

ketone solvents) were poured (WM-10). (This was established in the 1986 Environmental Survey Preliminary Report of the Pantex Plant.) Therefore, any areas of contamination that resulted from Building 12-41 discharges are vulnerable to identification and regulation as HWMUs.

The reason that no finding has been developed on this issue is that, while EPA has the authority to regulate any areas of contamination from Building 12-41 as either SWMUs or HWMUs, the areas cannot be regulated as both. The EPA has indicated an intent to exercise its authority to regulate these areas of contamination, as well as all areas of contamination resulting from unconfirmed potential hazardous waste discharges, as SWMUs and not HWMUs.

4.0 SAFETY AND HEALTH ASSESSMENT

4.0 SAFETY AND HEALTH ASSESSMENT

4.1 PURPOSE

The purpose of the Safety and Health Team is to assess the scope and effectiveness of health and safety programs at the Pantex Plant. The assessment includes a review of the current overall status of safety and health activities and provides a benchmark for measuring past and future progress. The results also help identify topics of special interest which are worthy of more indepth investigation.

4.2 SCOPE

The scope of this assessment is to evaluate selectively facilities and activities being conducted at the Pantex Plant with the exception of the Albuquerque Operations Office (AL) Pantex Courier Section. The site management and operations contractor, Mason & Hanger - Silas Mason Co. Inc. (M&H), and the DOE Amarillo Area Office (AAO) were elements of the review, as were the interactions between them, AL and DOE/Headquarters (HQ).

The Pantex Plant was the subject of a Technical Safety Appraisal (TSA) by HQ Office of Environment, Safety and Health in June 1987. A follow-up visit was performed in April 1989. The Safety and Health Team patterned its agenda upon the scope and findings of this previous appraisal. Only a limited amount of on-site surveillance was conducted during this assessment. Appendices L and M respectively provide the site's action plan in response to the TSA and the results of the follow-up visit.

Topics receiving primary, although limited assessment, in the Tiger Team effort are organization and administration, technical support, facility safety review, operations, maintenance, training and certification, facility design and engineering, emergency preparedness, security/safety interface, and radiation protection. The review of organization and administration is limited to those specific aspects directly affecting safety and health. Reduced emphasis was placed in the area of fire protection and personnel protection so as to not duplicate the efforts of the concurrent OSHA review.

4.3 APPROACH

The Safety and Health Team's assessment focused on identifying substantive findings of performance which indicated noncompliance, potential for significant improvement, or noteworthy practices relative to DOE Orders and nuclear industry standards.

The five member Safety and Health Team conducted a broad, two week review with indepth sampling of limited areas. The review will serve as a screening device for identifying areas needing focused investigations. DOE Orders and performance objectives from the "Technical Safety Appraisal Reference Manual, Appendix A, July 1989" served as standards for the evaluation. Information was gathered through direct observation of operations, interviews with appropriate site personnel, and reviews of documentation. The data were validated and exchanged in frequent interactions with members of the team and DOE and contractor personnel from the plant. The findings and their supporting basis are documented in the report. Appendix B contains the names and biographical sketches of the team's members.

4.4 SAFETY AND HEALTH ASSESSMENT SUMMARY

The team found no conditions or situations which appeared to pose a clear and present danger to safety and health. On the other hand, it was clear that the Radiation Safety Department would be unable to respond effectively to emergencies involving a release of radioactive material.

Other significant findings involve an imbalance between work requirements and staff required to fulfill them, widespread inconsistencies in safety documentation, lack of strict adherence to procedures, and extensive noncompliance in radiation protection areas.

Table 4.4-1 is a list of the team's findings. The details on these and other findings follow. Some facets of these compliance shortcomings have been previously identified in the 1987 TSA.

Table 4.4-1 Safety and Health Assessment Team Findings

<u>Number</u>	<u>Findings</u>
S/CF-1	Imbalance of resources for safety and health technical support
S/CF-2	Inconsistency in safety specifications
S/CF-3	Untimely formalization of modified operating procedures
S/CF-4	Replacement components in safety systems are not recorded
S/CF-5	Maintenance procedure does not satisfy surveillance requirement
S/CF-6	Asbestos training program has deficiencies
S/CF-7	Earthquake threat to system critical to safety
S/CF-8	Deficiencies remain in emergency plan
S/CF-9	Deficiencies in off-site emergency medical facility
S/CF-10	Radiation protection staff unable to fulfill mission
S/CF-11	Radiation protection audits lack sufficient independence and rigor
S/CF-12	Inadequate training program for radiation protection technicians
S/CF-13	Inability to comply with DOE radiation protection for occupational workers order requirements in the future
S/BMPF-1	Reviews of operating experience lack rigor
S/BMPF-2	Incomplete awareness by operators of facility status
S/NP-1	Protective coverings enhance safety/security interface

4.5 SAFETY AND HEALTH ASSESSMENT FINDINGS AND NOTEWORTHY PRACTICES

4.5.1 ORGANIZATION AND ADMINISTRATION, TECHNICAL SUPPORT AND FACILITY SAFETY REVIEWS

4.5.1.1 Overview

The Safety and Health Team reviewed several aspects of organization and administration, technical support, and facility safety review at the Pantex Plant. The review encompassed the respective roles of M&H and the AAO. Consistent with the team's overall approach, the status of concerns identified in earlier TSA was determined.

The team was unable to detect any significant enhancement of overall Safety and Health responsibility and authority within the M&H organization since its last major reorganization in January 3, 1989, and the previous TSA. Just the reverse may have occurred as there appears to be a dilution of experienced health physicist capability in the Radiation Safety Department.

The indepth review of technical support revealed a significant mismatch between the resources available at the Pantex Plant (both M&H and AAO) and those needed to respond adequately to all federal requirements applicable to facilities and operations at the site. Furthermore, the information gathered suggests that this situation is likely to persist into the foreseeable future.

The indepth review of safety reporting systems revealed that multiple, independent mechanisms are available to enable timely identification and resolution of safety concerns. The primary mechanism, the Central Health and Safety Committee, functions broadly and regularly. There are at least five other mechanisms (e.g., biweekly supervisor's meetings, Safety Hotline, DOE 3790.1A, DOE 5483.1A, Safety Staff meetings) which serve to surface safety concerns. There are also specialized committees to review and evaluate specific subjects such as nuclear criticality, nuclear explosives, and pressure vessels. The team's review of operating experiences revealed two incidents for which the follow-up was untimely or superficial, suggesting that a more detailed review may be appropriate at a later date.

4.5.1.2 Compliance Findings (CF)

■ S/CF-1

Imbalance of resources for safety and health technical support

Performance Objective

The administration of technical support functions should ensure effective implementation and control of technical support activities. (DOE 5480.5)

Finding

The technical staff members currently available at the Pantex Plant are fewer than those needed to satisfy DOE orders related to safety and health. Evidence suggests that this imbalance may persist for the foreseeable future. The situation appears particularly acute in radiation protection.

Discussion

Specific examples which support the finding of a current mismatch include:

- o DOE has issued new or revised orders since January 1987 which impose additional requirements for safety and health technical support without relaxing any prior requirements. Examples include DOE 5480.7, DOE 5480.11, DOE 5480.15, DOE 5481.1B, and DOE 5482.1B. See Finding S/CF-10 and S/CF-13. (S-1)
- o The position of Manager of the Environment, Safety and Health Division (ES&H) has been occupied on an acting basis since April 1989.
- o The ES&H Division is more than 10% understaffed based on the FY 1990 ceiling.
- o AAO has requested 8 additional authorized professional positions responsible for safety and health. AL has expressed its support for this request. (I-S-1 and I-S-3)
- o DOE 5481.1B requires Safety Analysis Reports (SAR) for 67 facilities at Pantex. Among the documentation for these 67 facilities, there is a backlog of approximately 35 facilities for which currently approved SARs need updating in order to satisfy DOE 5481.1B. Another 32 facilities have some form of safety analysis which must be converted into a formal SAR

(S-3). Priorities for updating were developed between M&H, AAO, and AL in consideration of qualitative ranking of risk hazard, the existence of exemptions from DOE Orders, and the intended mission and life of each facility. See Section 4.5.3.1.

- o Technicians in Buildings 12-24 and 12-63 are conducting high explosive (HE) operations using approved, written procedures which are extensively modified by penciled-in changes. The stated reason for the "temporary" nature of the procedures was a shortage of staff resources to apply toward keeping Operations and Inspection Standards fully formalized and current. See Finding S/CF-3.

Specific examples which suggest that this imbalance is likely to persist include:

- o DOE/HQ has, under consideration, several new orders which impose additional requirements for technical support (e.g., accidental releases of nonnuclear hazardous materials, probabilistic risk assessments, safety reporting systems).
- o M&H has experienced difficulty in being competitive for new qualified technical support personnel (wage scale and location).
- o M&H has few qualified staff from its other corporate operations to help alleviate the shortage at Pantex Plant.

This finding has been known to the staffs at M&H and AAO since late 1987. M&H is attempting to acquire additional in-house staff and has contracted on-site technical support to alleviate the situation. M&H has a competitive procurement underway to obtain additional on-site technical support contractor services on a task order basis over the next five years. The procured support is designed to help M&H perform independent reviews mandated by DOE 5481.1B. The technical support provided by this contract is intended to supplement the authorized full staff level in the Environment, Safety and Health Division; it is not just a stop-gap measure to compensate for current vacancies. Fourteen organizations have submitted bids which M&H is now evaluating. The new contract is scheduled for award in December 1989. The effectiveness of this measure is uncertain in health physics activities because of the necessity for a constant and continuous individual relationship with in-plant operations. Other DOE facilities and the commercial nuclear industry, are simultaneously competing for similar technical support resources having appropriate security clearances.

■ S/CF-2

Inconsistency in safety specifications

Performance Objective

The Technical Specifications/Operational Safety Requirements are to be consistent with the current facility configuration, operations and Safety Analysis Report. (DOE 5481.1B)

Finding

A spot check of the Operational Safety Requirements in a single Final Safety Analysis Report (FSAR) indicated that they were inconsistent with the as-built configuration of the facility.

Discussion

The FSAR for the "High Explosive Subassembly Facility, Building 12-104, September 1988, (S-11) limiting conditions for operation (LCO) and surveillance requirements" specifies that LCOs and surveillance requirements for the Beta Radiation Alarm System are the same as for the Alpha Radiation Alarm System. The facility has been designed, however, to have the Alpha Radiation Alarm System shutdown the heating, ventilating and air conditioning (HVAC) system and the exhaust system. The Beta Radiation Alarm System has been designed to shutdown the HVAC system and keep the exhaust system energized. (I-S-6 through I-S-8)

- o "Preventive Maintenance Work Order 680-1300, Rt. RAMS Beta (Tritium)", (S-4) includes surveillance requirements to check for shutdown of air handling units and start up of exhaust fans. This reflects the as-built configuration of the facility, which differs from that assumed in the FSAR. (I-S-7)

4.5.1.3 Best Management Practices Finding (BMPF)

■ S/BMFP-1

Reviews of operating experience lack rigor

Performance Objective

Operating experiences should be evaluated, and appropriate actions should be taken to improve safety and reliability.

Finding

Though mechanisms exist and are used to review and evaluate operating experience, reviews of incidents are sometimes untimely and incomplete. Generally, reviews of incidents which involve no significant injury, damage, or hazardous material release are not searched for root causes nor are they viewed as possible precursors to more serious events.

Discussion

Reviews of two specific incidents exemplify this finding:

- o Safety File No. 1045.89(004) - IHE Machining Incident (S-28). In January 1989 a technician encountered a shut down of the cutting machine. Rather than shut down the operation as directed by Building 12-24 Operating and Inspection Standard 7-5024, (S-8), the technician repeatedly tried to complete the operation. On one attempt, he shifted from computerized control to manual, causing damage to the part and the machine (I-S-29). The team discovered that this incident was without a formal investigation closeout as of October 6, 1989 (I-S-30). Furthermore the personnel in the Safety Department responsible for investigating the event could recall no consideration of two important implications of the incident, namely: why did the technician repeatedly attempt restart in the face of a procedure to the contrary and, what would be the consequences of this event had the machined part been conventional HE rather than IHE? (I-S-27)
- o Unusual Occurrence Report No. MHAAO-88-5-12-84 - Accidental Activation of Deluge System (S-29). In November 1988, an instrument mechanic working under the authorization of a Maintenance Repair Order caused water from a hot water line to squirt onto a nearby control panel for fire protection equipment. Water entered the panel causing a short circuit and the inadvertent deluge of five assembly bays. Workers and exposed weapons parts were in the bays at the time. The subsequent investigation report is quite thorough, but it fails to address several potentially important issues, namely: why was the technician permitted to conduct maintenance while workers and exposed weapons were in the affected bays, and are there similar unsuspected arrangements around the plant where environmental or systems interactions might have adverse consequences? (I-S-28)

Additionally, once incidents are closed, they are not routinely evaluated to establish trends in operating experience.

For the above incidents, M&H did perform an investigation and informed AAO of the situation. The principal deficiency was in the depth of the inquiry, thus this

finding is categorized as a Best Management Practice Finding rather than a Compliance Finding.

4.5.2 OPERATIONS, MAINTENANCE, TRAINING AND CERTIFICATION

4.5.2.1 Overview

The Safety and Health Team's review of operations, maintenance, and training and certification found no conditions which pose an immediate threat to personnel. The team's assessment focused on the policy and procedures governing operations at the Pantex Plant. It appears that many policies and procedures, including many developed since 1987, fail to encompass the full scope of requirements for which they are intended. This is reflected in the compliance findings in this section. In other instances it appears that development of policy and procedures was controlled to meet minimum acceptable criteria, but have not incorporated good practices of the nuclear industry. This is reflected in the best management practice findings in this section.

4.5.2.2 Compliance Findings (CF)

■ S/CF-3

Untimely formalization of modified operating procedures

Performance Objective

Temporary changes to procedures, if used, are controlled to ensure the following: appropriate review and authorization prior to use; user awareness of applicable temporary changes; timely cancellation or incorporation into permanent procedures. (DOE 5480.4)

Finding

Changes to operating procedures are not processed into permanent procedures in a timely fashion.

Discussion

M&H General Office Standard, Index no. 016, Section 3.b.(5)(a) (S-7) states: "The Operations and Inspection Standards section will normally distribute the revised page(s) within five (5) working days and, where possible, will incorporate any routine change requests approved prior to the receipt of the emergency change request."

Of the six procedures the team sampled, four had been changed and approved by emergency means. Two of the four did not have the changes incorporated in a timely fashion, as illustrated by the following: (S-5 through S-8)

- o A technician in Building 12-24 was machining HE in accordance with an approved, written procedure which was extensively modified by penciled changes. The original procedure (88-204, HE Cap, A machining-W-88) was dated March 17, 1989. The approved, penciled-in changes were effective June 10, 1989. The observation by the team was on October 4, 1989.
- o A technician in Building 12-63 was pressing a component in accordance with an approved, written procedure which had been modified by red, penciled-in changes. The original unmarked procedure (88-0122, Isostatic Component Pressing Yoke, Issue F) was dated March 10, 1989. The approved penciled-in changes were effective August 7, 1989. The observation by the team was on October 5, 1989.

■ S/CF-4

Replacement components in safety systems are not recorded

Performance Objective

Maintenance history should be used to support maintenance activities and optimize equipment performance. The standard for nuclear quality assurance NQA-1 defines the appropriate requirements. (DOE 5700.6B)

Finding

The Maintenance Repair Order (MRO) system does not retain detailed records of components installed during the repair of safety related systems or equipment.

Discussion

NQA-1 (S-9), paragraph 8S-1, specifies requirements for the identification and traceability of items installed in safety related systems.

- o The team reviewed 24 MROs through which maintenance was performed on critical safety systems. In all cases the detail of the record was less than that required by NQA-1. For example, MROs for Radiation Area Monitors contain no references to manufacturer or part number for replacement parts.

To help alleviate the problem, M&H issued on October 6, 1989 a directive designating maintenance tasks requiring more than 20 hours into the MRO job order system (S-10). This will encourage more detailed planning and more stringent record keeping. However, the directive does not specifically address work on critical systems, nor does it suggest that maintenance requiring fewer than 20 hours to perform may have important safety implications. (I-S-9)

■ S/CF-5

Maintenance procedure does not satisfy surveillance requirement

Performance Objective

Equipment performance testing and monitoring should be performed to assure that equipment and system performance is within established safety parameters and limits. (DOE 5481.1B)

Finding

Maintenance procedures do not satisfy the surveillance requirement stated in an approved Final Safety Analysis Report (FSAR).

Discussion

A spot check of maintenance procedures for Building 12-104 indicated a lack of agreement with FSAR requirements. (I-S-10)

- o The FSAR for the High Explosive Subassembly Facility, Building 12-104, September 1988, (S-11) requires that the HVAC system interlock be functionally tested.
- o Preventive Maintenance Work Order 680-1299, "Rt. RAMS Alpha", April 1987, (S-12) does not specify that the HVAC and exhaust fan interlock should be functionally tested.

■ S/CF-6

Asbestos training program has deficiencies

Performance Objective

Work places should be free of uncontrolled physical hazards and be in compliance with prescribed occupational safety standards. Facility personnel should be

adequately informed of chemical, physical, and biological stresses that may be encountered in their work environment. (DOE 5483.1A)

Finding

Industrial hygiene activities related to asbestos awareness, training and documentation do not comply fully with the requirements of OSHA 1910.1001 as required by DOE Order 5483.1A.

Discussion

Three specific examples which support the finding include:

- o The computerized training log shows "past due" dates for asbestos training for individuals who are directly involved with handling of asbestos. OSHA requires that this type of training be completed annually. (S-16)
- o M&H was unable to furnish evidence that the mandatory medical questionnaires, required by OSHA, have been completed and are on record. (S-16)
- o There are no posted signs or educational programs to advise the work force that are involved in day to day operations in areas that contain asbestos.

The requirements of this finding have been known by M&H since FY 1989. Staffing losses, through change of duties and a resignation, has impacted the industrial hygiene organization reducing the ability to implement an effective industrial hygiene program. M&H elevated the industrial hygiene program from a "Section" to the "Industrial Hygiene Department". M&H has recently hired a new employee to support the requirements of the new department and specifically, the asbestos program. See Finding S/CF-1. (S-13, S-14, S-15, I-S-11 and I-S-12)

4.5.2.3 Best Management Practices Finding (BMPF)

■ S/BMFP-2

Lack of awareness of facility system status by operations personnel

Performance Objective

Operations/utilities personnel should know the status of systems and equipment under their control and ensure that systems and equipment are controlled in a manner that supports safe and reliable operations.

Finding

Operations and utilities personnel are frequently unaware of facility status due to deficiencies in logkeeping, monitoring, facility status control, placement of tags (other than danger tags) and the absence of check sheets to verify that equipment is functioning properly.

Discussion

There is no formal mechanism for notifying utilities/operations personnel as to what equipment has been taken out of service. M&H standards do not require an independent verification of component status on critical systems other than electrical; nor is there authorization for tagging by senior shift personnel. This is contrary to M&H Standard Maintenance Instructions, File 104, Revision dated September 14, 1989. (S-30)

Specific examples include the following:

- o Personnel from the Utilities Department charged with monitoring the operational equipment do not make scheduled rounds or use check sheets to monitor operation or to trend possible deficiencies. (I-S-31)
- o A control room and panel for an HE pressing operation in Building 12-63 had:
 - three instances of temporary instruction to the operator on the process or policy.
 - two instances of temporary labeling on fire system pull rings. These were tape signs indicating which bay(s) are serviced by which actuation system.
- o On October 6, 1989, the boiler house Log 124 did not indicate an awareness of plant conditions outside the building which could affect boiler operation. For example, the isolation of the main steam line at 12-33, 12-84 and 12-86 on April 25, 1989 was not logged. (I-S-32)
- o Personnel from the Utilities Department are not always informed when equipment is isolated. Those personnel assert that the lockout/tagout of utilities equipment would be recorded in their log only if utilities personnel were present at the time of the lockout/tagout. They also indicate that it is accepted practice for utilities supervisors to physically remove locks from locked out equipment if the craft personnel (e.g. electricians, welders etc.) at work on the equipment are unavailable to do

so. There is no formal mechanism for notifying the crafts personnel when this occurs. (I-S-33)

- o M&H Standard Maintenance Instruction File 104, (S-30) Revision dated September 14, 1989, instructs craft personnel to ensure that equipment is safe to maintain. Lockout/tagout information is kept on an uncontrolled sheet of notebook paper taped to the door of the craft supervisor's office. There are no requirements for retention of this, nor is there a standard format for logging this information.

This finding would have normally been a compliance finding but it was designated as a best management practice finding because no hazardous condition was observed and no omission involved a system that was designated as a safety system.

4.5.3 FACILITY DESIGN AND ENGINEERING

4.5.3.1 Overview

The team reviewed the design of three selected facilities for their conformance to DOE 6430.1A and their FSAR. The FSARs were used as a starting point for identifying design requirements and operational safety requirements. Limiting conditions for operation and surveillance requirements are included in the operational safety requirements.

The team used three general performance standards:

1. Facility design criteria were identified, including criteria associated with safety, health, natural phenomena, and environmental factors.
2. The facility design process should include analysis, review, and acceptance tests intended to ensure that the design is capable of achieving the design objectives and criteria. Facility modifications are submitted to the design control process, and as-built records are maintained.
3. The as-built facility should meet or exceed all design criteria and should meet current environmental, "as low as reasonably achievable" (ALARA), and safety criteria.

At the Pantex Plant there are 32 facilities having approved FSARs and 35 more facilities having some form of safety analysis but no approved FSAR. Of these 67 facilities, the team selected three for its review, each was representative of a different time era at the site; one of World War II vintage, one during AEC oversight and one of recent construction.

Building	Function	FSAR
12-17	HE pressing	No
12-58	Weapons and Weapons Components Staging Bay	Yes
12-104	HE Subassembly	Yes

The overall findings from reviewing this small sample are that generally the facilities do not satisfy the performance standards and that a systematic review of these facilities may be in order.

4.5.3.2 Compliance Findings (CF)

■ S/CF-7

Earthquake threat to system critical to safety

Performance Objective

The adequacy of safety class systems, components and structures to withstand a seismic event shall be verified. (DOE 6430.1A)

Finding

The ability of at least one system critical to safety i.e., the Uninterruptible Power Supply (UPS) to withstand a seismic event was not verified.

Discussion

The specific example is as follows:

- o The FSAR for the High Explosive Subassembly Facility, Building 12-104, September 1988, (S-11) specifies that the UPS System is a system critical to safety. The FSAR also includes seismic design criteria.
- o The team inspected Electrical Equipment Room No. 2 in Building 12-104. External and internal inspection of the UPS cabinet showed that it is not bolted to the concrete pad. The UPS batteries are not bolted down, but are held in place in the battery rack below the center of gravity by a support angle iron approximately 1.5 inches high.

- o The starting battery for the diesel generator is in Building 12-104 P1. The battery holder is not bolted to the concrete pad. (I-S-13)
- o The team inspected Electrical Equipment Room No. 1 in Building 12-104. The mounting of batteries and electrical cabinets was similar to that in Room No. 2. Although the equipment in Room No. 1 is not critical to safety, a Best Management Practice would be to anchor this equipment. The same comment applies to all similar electrical equipment at the site. Experience in the nuclear power industry shows that anchoring electrical equipment significantly enhances its ability to survive seismic events.

4.5.4 EMERGENCY PREPAREDNESS AND SECURITY/SAFETY INTERFACE

4.5.4.1 Overview

Inspection of the Pantex Emergency Operations Center, the emergency response plan and its supporting documentation showed no significant change since the Technical Safety Appraisal in June 1987. An open finding from that appraisal, regarding appropriate emergency response to toxic hazards, has been reiterated in the current assessment since there appears to be no reason for its lack of resolution. A new finding involving the off-site emergency medical facility identifies a condition that could release radioactively contaminated water into the public sewer system.

The practice of protecting certain components which contain radioactive material against the potential accidental discharge of security force weapons is noteworthy.

4.5.4.2 Compliance Findings (CF)

■ S/CF-8

Deficiencies remain in emergency plans

Performance Objective

Emergency assessment and notification procedures should enable the emergency response organization to correctly classify emergencies, assess consequences, notify emergency response personnel, and recommend appropriate actions. (DOE 5500.3)

Finding

The implementing procedures for the Pantex Emergency Plan (S-17) have not been updated to reflect the appropriate emergency response to a toxic hazards

incident nor has the linkage between published emergency response levels and credible facility hazards been made in the emergency plan.

Discussion

Specific examples which support the findings include:

- o The Pantex Emergency Plan was revised to provide the Emergency Response Levels (ERL) per DOE 5500.2A. However, the supporting Emergency Preparedness Procedures (EPP Series) implementation documents lacked a corresponding update. In particular they lacked details regarding the response to toxic hazards.
- o Credible toxic hazards associated with specific facilities or accidents have not been linked to the ERLs.

Deficiencies associated with emergency preparedness were identified in 1987 by the AAO Safety Health and Emergency Preparedness Survey 87-1 and confirmed by the DOE ES&H Technical Safety Appraisal of June 1987 and its associated follow-up in April 1989. M&H has contracted for technical support to help correct these deficiencies by the end of 1989. Retraining in the use of the revised procedures will be scheduled as part of routine retraining rather than on an expedited basis. (I-S-14)

■ S/CF-9

Deficiencies in off-site emergency medical facility

Performance Objective

Resources are allocated to accomplish assigned tasks for both routine and emergency duties. (DOE 5500.3)

Finding

The off-site emergency medical facility does not appear to conform to the contractual arrangements between the hospital and the Atomic Energy Commission [Contract AT (29-2)-2858] (S-18). It is questionable whether the obligations under the contract have been fulfilled.

Discussion

Specific examples which support the findings are:

- o Article II, Statement of Work, A.4.6, states "The Commission will furnish qualified health-physics personnel, as necessary" Due to the lack of health physicists on the M&H staff to provide radiation protection expertise, it is unlikely that one would be sent to the hospital during a possible serious nuclear emergency at the Pantex Plant that required off-site medical support. See Findings S.CF-1 and S/CF-10.
- o Article II, Statement of Work, B.4 of the contract describes allowable hospital costs. Paragraph B.7 indicates " the Commission will establish and fund for an Emergency Radiation Treatment Facility in the space...", and B.7.e states, "Provision shall be made for preventing contaminated water from being drained into the existing sewer system from the two sinks." An inspection of the sinks in the emergency treatment and patient staging area, and in the emergency surgery room did not reveal an alternate holding tank system to prevent contaminated water from being discharged into the public sewer system.
(I-S-15)
- o Additional provisions in the contract such as; explosion-proof electrical outlets, strippable paint on all indoor wall surfaces and conductive flooring in emergency surgery room were not confirmed by the inspection.
- o There is no evidence that the DOE has ever audited the actual status of medical response capability versus the commitments in its contract.

4.5.4.3 Noteworthy Practices (NP)

■ S/NP-1

Protective coverings enhance safety/security interface

Performance Objective

Security/safeguards improvements and modifications should not create or increase hazards that would impede the safe, reliable operation of the facility, in normal, abnormal or emergency situations.

Finding

Protective coverings are used to protect certain assemblies containing radioactive material from ballistic discharge.

Discussion

A Pantex Plant safety study identified assemblies containing radioactive material that were vulnerable to a projectile resulting from the accidental or deliberate firing of security force armament. Considered in the study were assemblies that were a source of energy sufficient to scatter associated radioactive material. Field tests confirmed the results of the study.

The study resulted in procedural changes for the security force and the development and use of protective armor coverings for assemblies of concern. (I-S-34)

4.5.5 RADIATION PROTECTION, PERSONNEL PROTECTION, AND FIRE PROTECTION

4.5.5.1 Overview

The team concentrated its assessment on Radiation Protection. The findings reflect a general inadequacy of the radiation protection program as evidenced by extensive noncompliance with DOE 5480.11. Furthermore, there is little likelihood that this situation can be corrected anytime in the near future. This situation has been known to M&H, AAO and AL for several years but little has been achieved to correct it (S-23). See Finding S/CF-1. An interim resolution of this concern was provided by AAO action while the Tiger team was on-site. See Appendix N. In addition AL has initiated a study team action to review this concern indepth and report to the AL manager.

The team performed a limited review of fire protection. The review showed that findings from the June 1987 Technical Safety Appraisal have been closed or are on schedule for their resolution. The OSHA team performed an audit on the NFPA 101 Life Safety Code in the fire protection area and on personnel protection. The OSHA findings are reported elsewhere.

4.5.5.2 Compliance Findings (CF)

- S/CF-10
Radiation protection staff unable to fulfill mission

Performance Objective

Procedures, controls and documentation should ensure worker protection from radiation exposure. (DOE 5480.11)

Finding

AL, AAO and M&H are not fully complying with DOE 5480.11. The size and practices of the radiation protection staff are particularly deficient.

Discussion

- o The results of many surveys are without documentation. It is the practice for many production surveys to be conducted by staff other than trained Radiation Protection Technicians (RPT) of the Radiation Safety Department. (S-22)
- o Of those radiation surveys taken by RPTs, the data are not trended for the purpose of identifying potential problems.
- o There is currently only one professional health physicist assigned to assembly, disassembly and fabrication operations. He both oversees operations personnel and supervises radiological protection technicians in these areas.
- o Only three RPTs are functionally assigned to production operations and are responsible for ensuring the radiation protection program for about 400 to 500 radiation workers. (S-20 and S-21)
- o There is no written approval of new and revised operating procedures by staff of the Radiation Safety Department, including those procedures involving radiation safety issues per MC 706 Decontamination B-28, 28-9012, Issue Q. (S-19)
- o Prior to June 1989, no protective clothing was required for the B-28 program disassembly operations. Swipes were made of weapons to assure they were contamination free, but no records exist regarding possible contamination of the workers. (I-S-16 through I-S-20)
- o AAO prepared and submitted an action plan with six draft exemptions that stated that Pantex could not achieve compliance with the order in calendar year 1989. From January to June 1989, three draft plans and five formal memos were prepared identifying problems with the implementation of the order.

■ S/CF-11

Radiation protection audits lack sufficient independence and rigor

Performance Objective

Site management should ensure effective implementation and control of radiological protection activities within its facilities. (DOE 5482.1B and 5480.11)

Finding

M&H appears to lack sufficient independence to conduct internal audits of the radiation safety program.

Discussion

Examples supporting this finding:

- o The only technically trained radiation protection staff (i.e. health physicists) outside of the Radiation Safety Department are still part of the Environmental, Safety and Health (ES&H) Division. This lack of resources to support the organizational structure does not allow the independence required by DOE 5482.1B.
- o The ES&H Division has only one individual responsible for conducting Quality Assurance/Quality Control (QA/QC) audits of radiation protection programs required by DOE 5480.11. DOE granted the necessary security clearance for that individual in June 1989. Until that time, the audits performed by that individual were accomplished without the benefit of ever having seen the plant operations first-hand nor having reviewed classified information relevant to the operations under audit (I-S-21).
- o Radiation Safety personnel within the ES&H Division lack clear understanding of their responsibilities. In particular, staff in the Radiation Safety and Risk Management Departments have different, and sometimes conflicting, priorities.

M&H, through its implementation plan for compliance with 5480.11, has requested additional staff for radiation protection. Whether such action will eliminate this finding cannot be determined at this time. See Finding S/CF-13.

■ S/CF-12

Inadequate training program for radiation protection technicians

Performance Objective

The radiological protection personnel training and qualification program should develop and improve the knowledge and skills necessary to perform assigned job functions. (DOE 5480.11)

Finding

The training program for radiation protection technicians (RPT) is not fully adequate.

Discussion

Requirements and guidance for personnel training and qualification are provided in DOE 5480.5, DOE 5480.11, ANSI/ANS3.1, (S-24) ANSIN13.6, (S-25), ANL-88-26, (S-26), and NCRP 84, (S-21). DOE requires that all occupational workers in DOE facilities receive, as a minimum, orientation in radiation safety. The level of training shall be commensurate with the employees work assignment. The training program shall promote an awareness of the risks involved and a level of proficiency consistent with the assigned task.

Examples supporting the finding include:

- o M&H has no formal documented training or retraining program for its RPTs. DOE 5480.11 requires RPT retraining every 2 years. (I-S-22)
- o The records documenting the technical content of training provided to RPTs (including classroom and applied training) do not assure that RPT's possess the knowledge of radiation safety fundamentals required by 5480.11 [para. 9.0.(3)]
- o Several M&H staff responsible for radiation safety are relatively new employees and either lack or just recently received security clearances. This has contributed to the inability to provide professional observation, training and guidance to the RPTs.
- o A review of the investigation reports on the May 17, 1989 tritium release revealed a lack of specific tritium training for the response team and for general contamination control procedures for site personnel.

This finding has been known to the staffs at M&H, AAO, AL and HQ since June 1985 (DOE/EH-0005). M&H has requested authorization in January 1989, to hire one additional person to help alleviate this problem.

■ S/CF-13

Inability to comply with DOE radiation protection Order requirements for occupational workers in the future

Performance Objective

Implementation of DOE 5480.11 by January 1, 1990

Finding

It is unlikely that the Pantex Plant will be able to achieve full compliance with DOE Order 5480.11 by January 1, 1990, or anytime soon thereafter.

Discussion

DOE Order 5480.11, Radiation Protection for Occupational Workers, was effective as of December 21, 1988, with full compliance mandated by January 1, 1990. In accordance with formal DOE/HQ guidance, M&H developed an implementation plan that addressed the technical approach, cost and schedule for achieving compliance at the Pantex Plant. The implementation plan identified technical and administrative approaches for achieving compliance that would be significantly different from current practices and would pose significant impacts on cost, schedule, manpower, and production. AL submitted the initial implementation plan to DOE/HQ on March 9, 1989.

Reasons why timely implementation of the order is unlikely:

- o The draft implementation plan M&H submitted on March 3, 1989 contains requests for 33 to 35 full time equivalent personnel and \$22 to \$25 million capital funds. A further request on May 24, 1989, detailing six exemption requests plus further details on equipment costs was submitted. Some exemption requests asked for extension to five years past January 1, 1990. To date, neither AL or HQ has provided formal comments to AAO and M&H regarding the adequacy and appropriateness of their implementation plan.
- o The competition for qualified new staff, particularly those with security clearances, is intense and getting even more severe.

Even though the order was not released until December 1988, the requirements identified in this finding would have been known to most responsible and conscientious health physicians and their managers within the DOE community by at least early 1988. Since then, the net staffing in the M&H Radiation

Safety Department has actually decreased. Currently M&H has three RPTs on its roles and has requested authorization to hire 20 more in its draft DOE 5480.11 implementation plan. A total of 23 RPTs is consistent with recommendations of the plutonium and uranium manuals of good practices. (S-20 and S-21) Both manuals recommend one RPT for each 20 radiation workers as well as one or more professional health physicists. These recommended ratios do not include administrative or supervisory staff. Even if M&H is successful in recruiting new staff, security and training requirements make meaningful relief in the near future unlikely. (I-S-23 through I-S-26)

Associated with this finding is a best management practice that would provide a "pre-employment" or "new employee" base line for radiological exposure due to site activities. Some DOE sites require whole body counts and bioassays of new employees with possible duties involving direct or accidental radiation exposure. This baseline data also assures the contractor that he has not employed an individual with excessive exposure due to past activities or conditions. A whole body counter housed in a low background counting room was requested by M&H in their implementation plan to DOE order 5480.11, January 26, 1989.

5.0 OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

5.0 OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

5.1 INTRODUCTION

In private industry, the health and safety of workers is protected, in part, by periodic workplace inspections by the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA). Under the 1970 Act that established OSHA, most U.S. Department of Energy (DOE) facilities are exempted from OSHA inspections. That Act, however, requires DOE to enforce all standards comparable to, or more severe than, OSHA regulations at its facilities. Accordingly, DOE policy is to achieve or exceed compliance with OSHA regulations at all DOE facilities. To assist in meeting this goal, an agreement was reached between DOE and OSHA under which OSHA compliance officers would inspect some facilities at DOE installations to identify violations of OSHA standards related to nonradiological topics. Included are such topics as electrical safety, construction safety, hazard identification and communication, and control of equipment during maintenance to prevent inadvertent operation. OSHA regulations fill several volumes of the Code of Federal Regulations and contain standards and requirements for safety and health for worker activities that range from the most traditional forms of manual labor to the most modern technological skills.

5.2 PURPOSE

The purpose of OSHA participation in this assessment was to assist DOE in the evaluation of contractor responsibilities for occupational safety and health at the Pantex Plant. OSHA has not made previous inspections of Pantex or other DOE contractor facilities because the Atomic Energy Act and the Occupational Safety and Health Act preclude OSHA enforcement in these facilities. However, DOE Order No. 5483.1A states that contractors of government owned contractor operated (GOCO) DOE facilities shall comply with all OSHA standards. At the request of DOE, The Secretary of Labor agreed to provide OSHA personnel as consultants for the purpose of performing a compliance-type evaluation of the Pantex facility. DOE and OSHA entered into an agreement specifying the role and performance of the OSHA assessment team.

5.3 SCOPE

The role of the OSHA Assessment Team was to identify occupational safety and health hazards (excluding radiological hazards) observed at the Pantex plant. Due to the large size of the facility, a walkthrough of all areas of the plant was not feasible within the time allotted for the inspection. At the time of this assessment, the Pantex operation, managed for DOE by Mason & Hanger - Silas Mason Co. Inc., included approximately 100 working buildings (with a total of over 323 buildings) built on a 16,000 acre site, 2500 employees and 8 construction subcontractors.

Walkthroughs were conducted in areas prioritized by DOE with concurrence by OSHA as representative of various process streams, hazards and operations. A list of these areas is included in Tables I and II.

However, it should be noted that the two Sandia Laboratories' buildings located at Pantex were not part of the OSHA team's assessment. Also, most of the major processing areas could not be fully inspected because they were not in operation or were not fully operational due to extensive retrofits, the presence of outside contractors (during which time all activities in the area cease), a lack of work, etc.. This included the Synthesis Facility (Building 12-36), the Pressing Operations (Buildings 11-20 and 12-17), etc..

While the physical facilities in these buildings were inspected and hazards resulting in violations of OSHA standards were noted when apparent, the hazards associated with actual processing could not be properly evaluated due to lack of activity. Similarly, any hazards presented by installation of new equipment, which were not yet in operation, could not be determined.

In addition to the physical inspections of the facilities, a review of the effectiveness of Mason & Hanger's industrial safety and health program was performed based on the OSHA assessment team's observations in the areas that were inspected. This is an element of OSHA's normal inspection protocol as set forth in the agency's Field Operations Manual . In January of 1989, OSHA published voluntary guidelines in the Federal Register (54 FR 3904-3916) outlining the major elements of an effective safety and health program which OSHA compliance officers utilize in their evaluation of employers' programs. It should be noted that these guidelines are not mandatory, but the development and implementation of an effective safety and health program, containing systematic management policies and practices, is fundamental to reduction of work related injuries and illnesses along with their attendant economic costs.

5.4 APPROACH

OSHA representatives utilized standard OSHA inspection practices in the performance of this assessment. This included provisions for an opening conference, union representation, and walkthrough inspection. The inspection team was composed of specialists in three areas: construction safety, general industry safety, and industrial hygiene. Team members documented hazards by means of observations, exposure measurements, review of records, and employee interviews.

Contractor representatives always accompanied OSHA team members on the walkthroughs. Members of Mason & Hanger's safety department accompanied the construction/industrial safety team member, while members of Mason & Hanger's industrial hygiene department accompanied the industrial hygiene team members. Individual department and/or worksite supervisors then joined the OSHA assessment team when a walkthrough of their areas was being conducted.

Representatives of The Metal Trades Council - the employees' recognized collective bargaining unit - also accompanied OSHA assessment team members on the walkthroughs at various times during this assessment. In addition, DOE employees, from either the Amarillo Area Office or Washington, D.C. headquarters office, accompanied OSHA team members at various times in order to gain a better understanding of how OSHA compliance officers conduct walkthroughs.

OSHA walkthrough inspections differ depending on the discipline involved. Construction walkthroughs are made by particular job site where the general contractor and all sub-contractors are inspected. Construction activity at the Pantex facility, which was very limited during the assessment visit, was all included in the OSHA team's inspection. Industrial safety walkthroughs are done on a building and/or area basis where all activities and facilities are inspected. Industrial hygiene walkthroughs involve a survey of work areas where potential chemical and physical hazards exist, including monitoring of employee exposures either by short-term screening or fullshift personal sampling.

During the course of the OSHA assessment, three (3) personal short-term, ceiling samples were taken for chromic acid and screening samples were taken for noise. The OSHA assessment team attempted to conduct additional air monitoring, but was unable to do so for a variety of reasons; i.e. they attempted to sample when employees were spray painting with leaded paints, however, prior to being able to do so, Pantex discontinued the use of those paints. All OSHA air samples were duplicated with side-by-side sampling conducted by Pantex, and these samples were analyzed by the Pantex laboratory. OSHA's samples were sent to OSHA's Analytical Laboratory in Salt Lake City, Utah for analysis. Employee breathing zone sampling results are contained in Table III.

Normally, OSHA compliance officers utilize their own equipment for documentation of hazards; however, Mason & Hanger's equipment (with the exception of some electrical testing equipment) and photographers were used by the OSHA assessment team due to radiological and security concerns. Prior to use, team members evaluated each piece of equipment to assure it was functioning as intended and properly calibrated. Photography support was made available whenever an OSHA team member requested this assistance for documentation of hazards. Mason & Hanger provided escorts, who were equipped with cameras, for the OSHA team members. The escorts would take a photograph whenever an OSHA team member requested this assistance. Over 110 photographs were taken to aid in documentation of the hazards discovered by the OSHA team during the course of this assessment.

In addition, OSHA inspections are almost always conducted without providing advance notice to the employer. The Department of Energy advised Pantex management that OSHA would be participating as part of the Tiger Team approximately four weeks prior to the beginning of the on-site evaluation. During this period, Pantex personnel expended considerable effort in an attempt to clean up the facility and eliminate hazards. Specific areas included general

housekeeping and labeling of containers. Furthermore, OSHA team members were routinely required to inform Pantex personnel as to which buildings would be visited the following day. When those buildings were inspected, generally, either no activity or minimal activity was taking place.

Violations of OSHA standards were written and classified in accordance with OSHA's Field Operations Manual using OSHA forms, except that penalty calculations were not made. Since OSHA does not have enforcement authority on DOE contractor sites, citations were not issued and penalties were not assessed. Apparent violations of OSHA standards and obligations of the OS&H Act, as well as other safety and health hazards, were communicated to contractor representatives at time of finding during the walkthroughs. Those violations which required additional research for verification were communicated when finalized.

At DOE's request, apparent violations of OSHA standards found during this assessment were classified by the OSHA team members as to type. A "serious" violation is defined by OSHA as one in which there is substantial probability that death or serious physical harm could result, and the employer knew or could have known of the hazard. OSHA defines a "willful" violation as one in which an employer either knew that a condition constituted a violation, or was aware that a hazardous condition existed and made no reasonable effort to correct it. An "other-than-serious" violation is defined by OSHA as one where the accident or illness that would most likely result from the hazardous condition would probably not cause death or serious physical harm, but would have a direct and immediate relationship to the safety and health of employees.

Mason & Hanger's Safety and Industrial Hygiene Departments manually tracked the violations identified by the OSHA team members, and initiated corrective action. They attempted to develop a database similar to one developed during another Tiger Team inspection conducted at the Y-12 facility, but were unable to fully do so. However, a version of that database was used by the DOE Tiger Team to compile all violations in OSHA citation format (see Appendix F of this report). Pantex management took considerable efforts in immediately correcting numerous hazards identified by the OSHA assessment team members at the time they were discovered. In these cases, OSHA team members verified that abatement of these hazards was properly accomplished.

Inspection activities were supplemented with a series of discussions with Mason & Hanger safety and industrial hygiene department personnel on a variety of safety and health topics. The purpose of these discussions was to help Mason & Hanger personnel understand the requirements contained in various OSHA standards and to provide clarifications where necessary. Issues discussed included: hazard communication, asbestos, emergency response teams, machine safeguarding, and confined space entry. Copies of OSHA literature on these subjects, where available, were also provided to aid in further clarification.

5.5 OSHA FINDINGS

The OSHA assessment team has identified a number of findings as presented in Appendix G. From those findings OSHA has identified the following major findings:

- o Pantex' injury and illness recordkeeping system was inadequate in that numerous recordable cases were not recorded. This prevented management from having a realistic oversight of the effectiveness of the Pantex safety and health program. In addition, any goals which would be established for improving the effectiveness of the safety and health program would be tainted by reliance on highly inaccurate data.
- o The Pantex Safety and Industrial Hygiene Departments spend a large percentage of their available man hours either preparing for, assisting with, or responding to the numerous and varied audits they are subjected to. This situation results in decreasing the potential effectiveness of the departments by taking them away from where they are needed - in the workplace.
- o Written safety and health procedures are generally adequate, however, a number of traditional safety hazards are not covered by any written programs and some written programs either have deficiencies or are inadequately implemented. This is evidenced by lack of written procedures for machine safeguarding and walking and working surfaces. In addition deficiencies in the asbestos program and inadequate implementation of the lockout and hazard communication programs prevent Pantex from being in total compliance with OSHA regulations.
- o The numbers and types of OSHA violations noted during the course of the assessment are significant in that they point to the areas where Pantex' written safety and health programs contain deficiencies. In general, lack of formal implemented policies for, or deficiencies in, particular safety or health matters resulted in these areas being overlooked by those responsible for maintaining safety and health in the workplace.

TABLE I. General Industry Activities Evaluated at Pantex

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
11-1	Emergency Generator Housing	normally unoccupied	X	
11-5	Physical Properties Testing	4	X	X
11-14	Inert Machining	2 (mostly inactive)	X	X
11-15	HE Conditioning	inactive	X	X
11-15A	Pressing	inactive	X	X
11-17	Chemistry Laboratory	9	X	X
11-20	Pressing, Machining, Testing	10	X	X
11-22	Particle Characterization Laboratory	2	X	X
11-24	Inert Storage	normally unoccupied	X	X
11-30	Electronic Maintenance	3	X	X
11-34	Acid Storage	normally unoccupied		X
11-36	Synthesis	4	X	X
11-39	Flammable Liquid Storage	normally unoccupied	X	X
11-42	Service Magazine	normally unoccupied	X	
11-43	Boiler House	normally unoccupied	X	X

TABLE I. (Cont'd.)

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
11-48	Shop & Battery Charging	7	X	
11-50	HE Machining	14	X	X
11-51	Weapons Material Analytical Lab	6	X	X
12-1A	Laundry	7	X	X
12-2	Medical Department	7	X	X
12-4	Boiler House	2	X	X
12-5	Warehouse, Shops, Offices	100	X	X
12-5A	Warehouse	normally unoccupied	X	X
12-5B	35 Account Warehouse	6	X	X
12-5C	Shops & Offices	10	X	X
12-5G4	Lumber Shed	normally unoccupied	X	X
12-8	Chem Lab Annex	2	X	X
12-9	Inert Parts Fabrication & Offices	7	X	X
12-9A	Inert Machining	3	X	X
12-10	Dry Air Bottling	3	X	X
12-16	Plastics Shop	6	X	X
12-17	HE Pressing & Loading	13	X	X
12-18	Battery Charging	1	X	
12-19	Formulation Development	7	X	X

TABLE I. (Cont'd.)

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
12-21	X Ray Physical Testing	2	X	
12-24N	Explosive Machining	24	X	X
12-24S	Assembly/Disassembly	4	X	X
12-24A	Training Area	normally unoccupied	X	X
12-24E	Equipment Room	normally unoccupied	X	X
12-25	Flammable Liquid Storage	1		X
12-26	Assembly/Tooling Warehouse	20	X	X
12-32	HE Subassembly	6	X	X
12-34	Flammable Liquid Storage	normally unoccupied	X	
12-35	Maintenance	38	X	
12-38	Solvent Storage	normally unoccupied		X
12-39	Fire Department	16	X	X
12-39A	Fire Department Annex	3	X	
12-41	Spray Painting	5		X
12-41A	Preparation Area	6		X
12-45	Paint Storage	normally unoccupied		X
12-47	Paint Storage	normally unoccupied		X
12-49	Maintenance Shop	14	X	X

TABLE I. (Cont'd.)

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
12-50	Separation Testing	6	X	X
12-52	Metrology Laboratory	5	X	X
12-52A	Metrology Laboratory	4	X	X
12-52B	Metrology Laboratory	7	X	X
12-52C	Metrology Laboratory	4	X	X
12-59	Chemistry Laboratory	13	X	X
12-60	Dynamic Balancing	6		X
12-62	PETN Processing	2 (mostly inactive)	X	X
12-63	Pressing	2 (mostly inactive)	X	X
12-64	Assembly Bay (2 bays)	12	X	X
12-66	Production Component Warehouse	3		X
12-67	Oil and Gas Storage	normally unoccupied	X	X
12-68	Tool & Die Shop	33	X	X
12-70	Cafeteria	21	X	
12-73	HE Decontamination	2	X	
12-75	Security Command Center	45	X	
12-75A	Changehouse	6	X	
12-76A	Fuel Storage Complex	normally unoccupied		X
12-81	Battery Charging	1	X	X

TABLE I. (Cont'd.)

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
12-93	Faint Storage Shed	normally unoccupied		X
12-98	Assembly Cells (2 cells)	12	X	X
12-109	Mechanical Equipment	normally unoccupied	X	X
12-110	Paint Shop	8	X	X
12-111	Carpenter Shop	10	X	X
12-112	Electronic Security Maintenance	11	X	X
13-47	Waste Water Treatment	1		X
15-12	Water Treatment	1		X
15-13	Water Treatment	1		X
16-1	Vehicle Maintenance	74	X	X
16-4	Abrasive Blast and Paint Booth	1	X	X
16-5	Flammable Liquid Storage	normally unoccupied	X	X
16-7	Firing Range	10 (200 potential)	X	X
16-13	Steam Plant (under construction)	unoccupied (only contractor employees)	X	
FS-24	Firing Site	5		X
Other Employees Affected				
	- Fire Brigade Members	12	X	X
	- Those Potentially Affected by the Weapons Program which was the Subject of the Union's Complaint	>100	X	X

TABLE 1. (Cont'd.)

<u>Building</u> <u>Number</u>	<u>Operations</u>	<u>Nominal</u> <u>Number of</u> <u>Employees</u>	<u>Industrial</u> <u>Safety</u>	<u>Industrial</u> <u>Hygiene</u>
Other Employees Affected (continued)				
	- Emergency Response Team Members	150		X
	Total	1142		

TABLE II. Construction Activities at the Pantex Plant

Contractor	Employees	Trade
1. Construction Services	6	Roofing Contractor
2. Duke Electric Company	3	Electrical Contractor
3. Performance Conctruction, Inc.	2	Sheet Metal
4. Foley Company	15	General Contractor
5. Jack C. Thomas & Sons, Inc.	5	Painting Contractor
6. Young Insulation	5	Insulation Contractor
7. Hallmark Builders	4	Roofing Contractor
8. L.A. Fuller	2	Concrete Contractor
Total - 8	Total - 41	

TABLE III. Air Monitoring Results at the Pantex Plant

<u>Building Number</u>	<u>Operation</u>	<u>Contaminant</u>	<u>OSHA PEL</u>	<u>Employee Exposure</u>	<u>PEL Exceeded</u>
12-41	Grinding nose cones	chromium	0.5mg/M3	0.007mg/M3	No
12-41	Grinding nose cones	chromium	0.5mg/M3	0.0mg/M3	No
12-41	Alodining	chromic acid	0.1mg/M3	0.008mg/M3	No

6.0 MANAGEMENT AND ORGANIZATION ASSESSMENT

6.0 MANAGEMENT AND ORGANIZATION ASSESSMENT

6.1 PURPOSE

The purpose of the Management and Organization (M & O) Assessment Team's evaluation was to assess the adequacy of the organization, management systems and activities, as they relate to environmental, safety and health (ES&H) issues, at the DOE Amarillo Area Office (AAO) and the Operating Contractor, Mason & Hanger-Silas Mason Co., Inc. (M&H), Pantex Plant. The objective was to provide an accurate assessment of the adequacy of DOE and site contractor ES&H management programs, to identify management deficiencies and findings and to establish the probable root causes for these management deficiencies and findings, as well as for the findings identified by the Environmental and Safety and Health teams. The establishment of root causes is intended to assist AAO and M&H management in taking the appropriate corrective actions and in formulating policies and procedures to prevent a recurrence of similar problems, in the future.

The results of the management assessment will also be used to provide the Secretary of Energy with information on the adequacy of DOE and contractor ES&H management programs, the probable root causes of any identified deficiencies, and the vulnerability of the Pantex Plant to possible future problems should the identified probable root causes not be corrected.

6.2 SCOPE

The scope of the M & O Assessment Team's evaluation encompassed the review of the AAO and M&H management of ES&H functions including (1) organizational structures and management functions, (2) the appropriateness and effectiveness of the staffing levels and qualifications of employees with ES&H responsibilities, (3) the resources available for ES&H activities, (4) the appraisal systems available for internal and external criticism, (5) the systems available for planning, direction, performance measurement and oversight of the ES&H program and the identification of deficiencies and prompt resolution thereof, (6) the existence and effectiveness of communications channels and (7) the promulgation of a positive ES&H culture at the Pantex Plant.

The evaluation involved discussions with AAO and M&H management and staff and selected management and staff at the Albuquerque Operations Office (AL) and the review of selected documents related to AAO, M&H, AL and DOE Headquarters (DOE) activities and responsibilities, as well as Tiger Team ES&H documents including the "Technical Safety Appraisal Reference Manual"; "Performance Objectives and Criteria for Management Appraisals, DOE"; "Draft Environmental Protection Audit Criteria for Environmental Compliance Program Management (DOE/EH-20)"; and the "Draft Tiger Team Inspection Plans -- Safety Assessment Team."

6.3 APPROACH

The M&O assessment at the Pantex Plant was conducted in accordance with the Draft Tiger Team Guidance Manual dated September, 1989, the site plan for the M&O Assessment Team and the best management judgment of the team members.

The M&O assessment team interviewed a number of AAO and M&H management staff including the Area Office Manager and Deputy Manager, the M&H Vice-President and Plant Manager, Assistant Plant Manager for Support and a number of AAO Branch Chiefs and Division/Departmental Managers at M&H. They also interviewed several people outside of the Pantex Plant to verify/confirm findings and observations noted during earlier interviews. These included representatives of the Traveler's Insurance Company who are involved with the Worker Compensation Program at M&H and the Administrator of the St. Anthony's Hospital which is part of the Emergency Radiation Treatment Program for the Pantex Plant. The M&O assessment team also followed-up on a hotline inquiry and interviewed a M&H employee who is involved in litigation against M&H and others. In all, the M&O assessment team conducted over 50 interviews and reviewed part or all of over 140 documents ranging in topics from HQ, Albuquerque Operations Office (AL) and AAO orders; non-weapons quality assurance (QA) site plans; AAO staffing and budget information; to M&H policy and planning documents.

Based on these personal interviews and document reviews, the M&O Assessment Team identified management deficiencies in the areas of (a) organization and administration, (b) communication of ES&H objectives, (c) resources, (d) ES&H assessment and (e) DOE oversight.

In organization and administration, the M&O assessment team evaluated the management processes utilized by DOE in managing M&H activities to create a proactive system to resolve ES&H issues. The assessment included analysis of DOE policies and directives, planning functions, the delegation of "stop work" authority, non-weapons QA and Workers Compensation programs in both AAO and M&H.

Communications of ES&H objectives were evaluated on the basis of how effectively the ES&H culture had been communicated within AAO and M&H staffs. This included an analysis of position descriptions, functional statements, the Cost Plus Award Fee evaluation criteria and the involvement of DOE and M&H management in disseminating/promoting the ES&H culture.

Resources were evaluated to determine if personnel and funding were adequate to accomplish the total mission of the Pantex Plant. This involved the review of staffing levels and qualifications, budget requests for staff and funds, training, recruitment programs

and the planning processes in place to identify resource requirements in the near-term and long range.

ES&H assessment activities were evaluated by reviewing the systems in place to identify ES&H deficiencies and to assure that these deficiencies were tracked, evaluated, analyzed and corrected in a timely and effective manner.

The DOE oversight function was evaluated at both the AAO and AL to determine how much oversight of M&H activities was provided by DOE organizations and to ascertain the perceived value of that oversight. This included the number and frequency of plant/site visits by AAO and AL, the level of program knowledge imparted during these oversight activities and the timeliness of responses to inquiries and action plans submitted by M&H in response to ES&H reviews, or to requests for any other type of assistance and guidance.

The M&O Assessment Team analyzed the results of the evaluations and developed a number of findings which are presented in detail in Section 6.5. This analysis consisted of the team's considered best judgments based on their professional experience regarding the organizational structure, personnel mix and other resources and authorities of the AAO and M&H staffs to meet their responsibilities.

6.4 MANAGEMENT ASSESSMENT SUMMARY

The M&O Assessment Team identified 13 findings during the course of their review. None of the findings were considered to be significant enough to cause an interruption of any Pantex Plant activities.

The six key findings were related to management practices, staffing/resource deficiencies and policy issues that were influenced by AAO, AL and DOE and will require a serious effort by each of these organizational elements to resolve the identified deficiencies.

Table 6.4-1 is a listing of the findings identified by the M&O assessment team.

Table 6.4-1 Management and Organization Assessment
Team Findings

<u>Number</u>	<u>Findings</u>
M/CF-1	Operations (Non-Weapons) Quality Assurance Program Not Adequately Implemented.
M/BMPF-1	DOE ES&H Management/Policy Directive Shortcomings.
M/BMPF-2	Lack Of An Integrated Planning System That Ties To The Budget Process.
M/BMPF-3	Reactive Management Practices.
M/BMPF-4	Workers Compensation Program Deficiencies.
M/BMPF-5	Stop Work Authority Is Not Clearly Delineated Nor Appropriately Disseminated.
M/BMPF-6	ES&H Culture Has Not Fully Permeated The AAO and M&H Organization.
M/BMPF-7	Cost Plus Award Fee (CPAF) Initiatives And Milestones (Evaluation Standards).
M/BMPF-8	Attainment Of ES&H Goals And Objectives Is Not Adequately Reflected In Employee Performance Appraisal Plans.
M/BMPF-9	Technical Qualification of M&H ES&H Division Professional Staff.
M/BMPF-10	Technical Expertise of AAO Staff.
M/BMPF-11	Enhance Tracking And Reporting of Corrective Actions.
M/BMPF-12	ES&H Technical Guidance and Assistance From AL.

6.5 MANAGEMENT ASSESSMENT FINDINGS AND NOTEWORTHY PRACTICES

6.5.1 ORGANIZATION AND ADMINISTRATION

6.5.1.1 Overview

The assessment, by the M&O Assessment Team, of AAO and M&H was conducted through a number of management and staff interviews and document reviews. The organization and administration portion of the assessment resulted in six (6) findings, three of these six findings are considered key findings.

The first key finding involves the DOE practice of issuing directives to guide the specific work practices of DOE and its contractors. The M&O assessment team found that this directive system has evolved to become so voluminous and cumbersome, that it has now become counterproductive. The directives were found to be duplicative, misleading and incorrect. Such a system, gone awry, leaves many misguided activities and organizations in its wake.

The second key finding was the reactive posture of the AAO and M&H. These organizations spend significant work time reacting, leaving little time to be proactive. After responding to innumerable oversight and audit requirements, literally no productive time is available. All together, a very detrimental effect from over direction.

The third key finding was the lack of an ES&H integrated program planning system that ties to the budget process. Without such a planning process which integrates program plans and allows for prioritization along program lines, the budget preparation is driven by the target dollars provided.

The remaining three (3) findings were considered significant, but not key. These findings involved mishandling of systems guiding the workers compensation program (injured workers), the quality assurance program for non-weapons activities, and the lack of identification and dissemination of stop work authority - both through position descriptions and in workforce communiques.

■ M/CF-1

Operations (Non-Weapons) Quality Assurance Program Not Adequately Implemented.

Performance Objective

To insure that all non-weapons activities at Pantex Plant are accorded a level of quality attention commensurate with their importance to safety, health, environmental protection, continuity of operations, performance, reliability and national security. (AAO Order 5700.6B, Paragraph 1 - Document M-91)

Finding

M&H has not been timely in developing quality assurance plans for its non-weapons activities as required by the AAO order. These plans are necessary to document applicable quality assurance requirements, establish responsibilities for accomplishing the requirements, identify procedures to be used and address the program phases during which the requirements will be applied.

Discussion

M&H's Operations Quality Assurance Department was established in February 1988 and is responsible for administering their non-weapons quality assurance program. During interviews with personnel from both the AAO and M&H, the team was advised that an effective non-weapons quality assurance program had not been developed and implemented by M&H. (I-M-1, 14 and 21) A review of correspondence relative to this program revealed numerous instances in which AAO had surfaced this issue and sought to obtain information on the status of corrective actions from M&H. (Document M-101)

In analyzing this problem area, an item of particular significance was the lack of quality assurance plans. While M&H has identified a total of 51 required plans (the plans cover 106 activities), only 4 have been approved by applicable M&H division managers and formally transmitted to AAO. An additional 12 plans are undergoing review by the Operations Quality Assurance Department and 35 plans have yet to be completed. (Document M-137) M&H has identified milestone dates for the completion of all quality assurance plans by June 30, 1990.

However, based on the previous history of M&H's program, it is questionable whether these target dates will be met.

The absence of quality assurance plans precludes the performance of audits which are necessary to ensure that applicable requirements are complied with. As of August 2, 1989, M&H had performed only one audit to measure the effectiveness of their operations quality assurance program. (Document M-138) The lack of quality assurance audit coverage will continue in the future unless M&H ensures that remaining plans are developed and approved in a timely manner.

The slow progress in implementing an operations quality assurance program can be attributed, in part, to the cultural and historical importance placed on quality assurance in the weapons area. M&H management has had considerable experience in conducting its weapons quality assurance program. Conversely, the application of ANSI/ASME NQA-1 standards to the non-weapons program is relatively new. M&H has acknowledged that management did not recognize the impact, complexity and time which would be required to establish and implement an operations quality program which meets NQA-1 standards. (Document M-101) In addition, personnel had not obtained adequate training to fully understand NQA-1 requirements. (Document M-101) As a result, timely and consistent program guidance had not been developed which would enable the non-weapons quality assurance program to be effectively carried out.

6.5.1.3 Best Management Practices Findings (BMPF)

■ M/BMPF-1

DOE ES&H Management/Policy Directive Shortcomings

Performance Objective

To establish clear, concise, and responsive directives to DOE officials to assist them in fulfilling their responsibilities in the ES&H area of program operations.

Finding

The DOE ES&H directive system contributes to an ineffective system of policy direction.

Discussion

SEN-11-89 (M-52), dated September 5, 1989, "Setting the New DOE Course", describes senior DOE field and headquarters officials' responsibilities to include ensuring "...that their contractors comply with operational, environmental, safety, health and security standards established by law, regulation or Departmental policy,...". This statement forms the basis for the performance objective of this finding.

The directive system addresses the ES&H program through DOE 5480.1B (M-79) dated September 23, 1986, AL 5480.1B (M-80) dated February 19, 1987, and AAO 5480.1B (M-81) dated August 16, 1988. The directive system addresses the ES&H reporting requirements through DOE 5484.1 (M-31) dated February 24, 1981, AL 5484.1 (M-87) dated August 23, 1982, and AAO 5484.1 (M-88) dated December 6, 1988. The directive system addresses the ES&H appraisal program through DOE 5482.1B (M-83) dated September 23, 1986, AL 5482.1A (M-84) dated April 30, 1984, and AAO 5482.1B (M-85) dated December 6, 1988.

The General Environmental Protection Program is communicated through DOE 5400.1 (M-77) dated November 9, 1988. Follow-on AL and AAO directives have not yet been issued.

The National Environmental Policy Act (NEPA) is communicated through DOE 5440.1C (M-94) dated April 9, 1985 and implemented through AL 5440.1B (M-95) dated November 12, 1982.

The M&O assessment team observed that through this myriad of directives, many areas are duplicated between directives. However, none of these directives are worded exactly the same, leaving room for interpretation and emphasis. The following serve as representative examples:

- o DOE 5480.1B "Policy" requires line management to be responsible for effective ES&H performance in their programs. AL 5480.1B "Policy" has no such requirement.

- o DOE 5480.1B "Policy" requires reduction of ES&H risks when consistent with the DOE's mission and when supported by appropriate cost/benefit analysis. AL 5480.1B "Policy" has no such requirement.
- o DOE 5484.1 contains "Scope" and "Policy and Objectives". AL 5484.1 contains no "Scope" or "Policy and Objectives".
- o AL 5484.1, dated August 23, 1982, indicates it supplements DOE 5484.1, dated February 24, 1981. AAO 5484.1, dated December 6, 1988, indicates it implements the requirements and procedures for reporting information having ES&H significance. No cancellation was shown when AAO 5484.1 was issued. This leads the reader to believe that nearly eight (8) years elapsed before reporting information having ES&H significance was required of M&H.
- o DOE 5482.1B dated September 23, 1986, establishes the appraisal program for ES&H activities. However, in the last 3 years, AL has not revised their existing appraisal program order AL 5482.1A dated April 30, 1984, to reflect any changes required by DOE 5482.1B.
- o AAO 5482.1B dated December 6, 1988, "...supplements DOE and AL Orders 5482.1B..." AL 5482.1B does not exist. It also complements requirements of AAO internal audits. No cancellation of other policy was shown when AAO 5482.1B was issued. This leads the reader to believe that AL 5482.1B exists. It does not.
- o DOE 5400.1 dated November 9, 1988, lists a "Supersession" of a portion of DOE 5480.1A dated August 13, 1981. DOE 5480.1A was cancelled by DOE 5480.1B, September 23, 1986. In effect, DOE 5400.1 cancelled part of a non-existing order. As indicated earlier, AL 5400.1 or AAO 5400.1 have not been formulated as of this date.

The AAO ES&H and Emergency Preparedness Management Branch, with eight (8) full-time professionals, has seventy-five (75) orders guiding its operation (M-33). The need for such direction would appear to be questionable and could have a debilitating effect on staff morale and initiative.

Our interviews with the AAO and M&H staffs strongly suggest that the directive system should be reworked to provide a more "friendly" system. (I-M-1, I-M-2, I-M-3, I-M-7, I-M-12, I-M-16, I-M-18, I-M-19, I-M-13 and I-M-43) However, AAO is preparing implementation plans as required under the Order, and is meeting all required milestones established in HQ guidance.

■ M/BMPF-2

Lack of an integrated planning system that ties to the budget process.

Performance Objective

To assure compliance with Secretary of Energy Notice No. 11 (SEN-11) dated 9/5/89 which states in part: We will ... "establish a coordinated planning, programming and budget capability that can integrate horizontally across the entire range of DOE programs ..."

Finding

There is no integrated ES&H program planning process in DOE.

Discussion

The Five Year Environmental Restoration and Waste Management Plan (Five Year Plan) covers environmental restoration, corrective actions and hazardous waste management activities. The Long Range Environmental Protection Plan required by DOE 5400.1, covers non-hazardous waste management and compliance in addition to the items covered in the Five Year Plan. AL also has a five year ES&H plan that covers safety and health activities as well as items covered in the other two plans. Some information is duplicative among the three plans and is required in different formats and levels of detail by each plan. In addition, the three plans are administered by two Assistant Managers in AL. As a result, AAO and H&H must be responsive to requests for the same information in different forms from the different offices. This is not productive nor effective utilization of resources and contributes to the reactive mode exhibited by AAO and M&H staff.

Each of these plans interfaces with the budget process in a different fashion. Without a planning process which integrates program plans and allows for prioritization across program lines, the budget preparation is driven by the target dollars provided. This also places the AAO and M&H in a reactive position.

AL is developing a comprehensive budget process (ALBURT) which conceptually will provide a basis for prioritizing the total requirements in each program area, comparing priorities among program areas and identifying risks connected with varying budget targets. The DOE should consider developing an integrated planning system that more closely relates to the budget process in response to SEN-11'.

■ M/BMPF-3

Reactive Management Practices

Performance Objective

Create a proactive approach to ES&H management. DOE 5400.1, "General Environmental Protection Program" states in part: "address potential environmental problems before they pose a threat to the quality of the environment or the public welfare."

Finding

The management of AAO and M&H are operating in a reactive mode, with their professional staffs spending as much as 80-90% of their time reacting to a variety of internal and external reports and review findings with minimal amounts of time available for day-to-day surveillance of plant activities.

Discussion

In the past two years, M&H has been subjected to a minimum of 50 reviews, appraisals or audits in the ES&H area alone - 6 from DOE, 15 from AL, 12 from AAO, 5 from M&H Corporate and 12 from the State and EPA (Document M-30). These reviews have resulted in over 350 recommendations (with 3 reports not yet received) to be tracked and responded to. This coupled with an ever increasing number of reporting requirements has resulted in a situation where the staff of the AAO ES&H Branch spend less than 20% of their time in the plant on day-to-day activities. Likewise, the staff of M&H is in a reactive mode to requests for information from DOE and others.

Interviews were conducted with managers and staff from both M&H and AAO (I-M-1,2,5,13, and 18). Without exception, they confirmed that less than 20% of their time is spent on proactive activities, i.e., on activities that would permit them to address problems before they pose a threat to the public. Staff from the AAO Operations Branch are able to spend only 10% of their time in the plant to observe day-to-day activities. The AAO Quality Assurance staff is the only AAO staff spending any significant time in the plant on a daily basis. Although they are willing to accept some responsibility for ES&H (specifically safety and health areas) both staffs admit to having very little training in ES&H. They are primarily concerned with the process and not in the facilities or the surrounding areas. From their perspective, environmental concerns are the responsibility of the ES&H Branch. The staff from the ES&H Branch is able to spend approximately 15% of its time in proactive surveillance of day-to-day activities.

The value of a DOE in-plant presence on a day-to-day basis is not disputed. However, balance between routine surveillance activity and a compliance audit approach needs to be established within whatever resources are available. At present, the AAO schedules between 15 and 20 different formal audits per year in the various ES&H areas - AL approximately 10. Each of these requires preparation time and response time for both M&H and the AAO. A consolidated review process by AAO and AL approach, similar to a Safety Analysis Report team review, would tremendously reduce the time spent on this formal process and allow for more day-to-day surveillance activities where preventive efforts would be more proactive in improving ES&H compliance. DOE should also give consideration to combining their reviews with the staff from AL thereby eliminating some additional duplication as well. The present operational mode of the AAO should be reviewed with respect to AL 1120, (Document M-46) which provides in part "The Area Managers have the following primary responsibilities: ... Administer the M&O contract for the Manager, AL. Monitor, evaluate and report on the M&O contractor's performance. Provide on-site presence, overview and day-to-day surveillance in areas of primary assignment." It is also the policy of DOE (DOE 5400.1) to "...address potential environmental problems before they pose a threat to the quality of the environment or the public welfare...". In order to address something before it becomes a threat, it must be discovered through a proactive approach on a day-to-day basis rather than through an after-the-fact audit which can only reveal something that has already been a threat for a period of time.

■ M/BMPF-4

Workers Compensation Program Deficiencies

Performance Objective

Establish a more economical and effective system of injury loss management and employee communication related to the M&H Workers Compensation program.

Finding

M&H workers compensation losses have increased by over 400% since 1982, indicating a lack of proactive management of the system, and possibly increasing lost workdays and lowering employee morale (M-143).

Discussion

M&H does not have a proactive system for handling workers compensation losses which should involve personnel, production, legal, medical, safety and finance. Injured employee communication is not thorough (leaves injured workers and co-workers with unanswered questions). (M-144, I-M-25) Return to work (e.g. light duty or fewer hours) is not actively encouraged. Such lack of system management and communication results in a costly system, lowers employee morale, and could cause more accidents.

Travelers Insurance Company underwrites the M&H workers compensation, auto and general liability policies and, in accordance with the policies, is not paid to assume the M&H risks. However, active claim service from Travelers is paid for and should be required by M&H. (I-M-41 and I-M-25) M&H should require complete and timely on-site investigating, coordinating and reporting of doctor/lawyer visits, and recommending/settling cases. Risk management information should be required from Travelers. Travelers, as a well respected nationwide insurer, has considerable other resources that should be utilized by M&H.

The National Safety Council (NSC) has prepared a "Safety and Health Audit Report" (M-69) that was based on a study completed October 5, 1988. A proposed action plan to implement the recommendations resulting from the NSC's report was prepared by M&H staff. (M-140) The M&O assessment team believes that the National Safety Council's report and the M&H proposed action plan are a move in the right direction.

■ M/BMPF-5

Stop Work Authority is Not Clearly Delineated, Nor Appropriately Disseminated

Performance Objective

To specifically identify and notify those employees who possess the delegated authority to stop work for ES&H compliance reasons. (Document M-79, 80 and 81)

Finding

The authority for either AAO or M&H employees, below the levels of the Office of the Manager, AAO Manager and M&H Plant Manager, to stop work for ES&H reasons at the Pantex Plant is not appropriately documented or disseminated.

Discussion

The DOE, AL and AAO Orders (Document M-79, 80 and 81) which delegate stop work authority, do not go below the level of the Office of the Manager, AAO and M&H Plant Manager. Below that level the delegation system does not function effectively.

The safe, healthful and environmentally sound operation of the Pantex Plant requires written, widely disseminated policy statements identifying those individuals within both the AAO and M&H who possess the delegated authority to stop work for ES&H reasons.

Within the AAO, numerous management and staff level employees (I-M's 1, 2, 3, 5, 6 and 7) indicated that they had stop work authority. However, when asked to provide documentation, only one individual could do so. That individual's position description (Document M-58) does give him stop work authority, however the M&O Assessment Team was not able to locate any other AAO documents that delegated stop work authority to that person or anyone else below the level of the AAO Manager, or his deputy. This situation raises the possibility of stop work orders either not being given or not being followed, with the potential for detrimental results to employees, the general public and the environment.

In order for effective DOE oversight to be performed, and valid ES&H concerns to be met, the Federal officials with daily oversight responsibilities, for example, AAO Branch Chiefs, must have delegated authority to direct the M&O contractor to: ... "Take necessary management actions, including curtailment or suspension of operations when necessary, to preclude undue ES&H risk"... (Document M-81)

As regards M&H, stop work authority has been delegated to the M&O contractor by AAO Order 5480.1B, AAO Environment Safety and Health Program, dated August 16, 1988. (Document M-81) However, within M&H, the team was unable to locate, nor was M&H able to provide, any specific documentation which clearly and unequivocally redelegates stop work authority. M&H did provide a package of documents (Document M-141) which generally address management and supervisory responsibilities to "operate safely", "take active and aggressive leadership in the implementation and enforcement of the Company's Safety Policy and Programs" and "...take other action necessary to ensure the safety of their employees." Evidence was also provided of directives and communications which inform individual employees that they are not required to perform tasks which they believe to be unsafe.

While the existence of the above referenced material is indicative of M&H support for safe and environmentally sound operations, it does not adequately inform any specific individual (manager or supervisor) of his or her authority to stop government work for ES&H reasons, nor does it adequately communicate this authority to employees.

6.5.2 COMMUNICATION OF ES&H OBJECTIVES

6.5.2.1 Overview

In assessing the communication of ES&H objectives, the M&O Assessment Team initially familiarized themselves with the DOE, AL, and AAO Orders applicable to this area. In addition to the policy guidance contained in these orders, team members also examined organizational, personnel, procedural and appraisal documentation to develop an overview as to the manner in which ES&H policy guidance had been assimilated and implemented in the day-to-day operational activities of line and staff organizations. While the review of documentation was a key component of the assessment process, an equally important element was the interviewing of managers and staff from AAO and M&H. Through these interviews, team members were able to obtain the perceptions of key personnel who are actually responsible for

the implementation of ES&H policy requirements. Accordingly, these interviews addressed not only the effectiveness of the manner in which ES&H objectives were conveyed, but also how well the communications were understood.

As has been repeatedly emphasized in numerous DOE pronouncements, compliance with ES&H requirements is a primary Departmental objective. In assessing how well this objective had been communicated, the team developed three Best Management Practices Findings. Two of these findings, "ES&H Culture Has Not Fully Permeated the AAO and M&H Organizations" and "CPAF Initiatives and Milestones (Evaluation Standards)", are key findings. The remaining finding, "Attainment of ES&H Goals and Objectives is Not Adequately Reflected in Employee Performance Appraisal Plans", is not considered a key finding, but nevertheless is an important deficiency area.

With regard to the ES&H culture, the team found that AAO and M&H personnel were aware of the importance of ES&H responsibilities. However, this awareness was not evidenced in procedural requirements and activities performed by line organizations. The second finding involved the subjective nature of CPAF evaluation standards. Nebulous standards now being utilized impede the effective communication of expected ES&H performance levels to M&H. Similarly, the evaluation of actual performance at the completion of rating periods was adversely affected. The team's last finding in the communications area was that ES&H goals and objectives were not adequately reflected in employees' performance appraisals. The performance appraisal process is an established means of ensuring that employees are fully cognizant of expected performance.

6.5.2.3 Best Management Practices Findings (BMPF)

■ M/BMPF-6

ES&H Culture Has Not Fully Permeated the AAO and M&H Organizations.

Performance Objective

Require line management to be responsible for effective Environment, Safety and Health performance in their respective programs (DOE Order 5480.1B, Paragraph 7.F. - Document M-79).

Finding

AAO and M&H managers and staff understand the importance of ES&H responsibilities; however, this awareness is not fully reflected in procedural requirements and activities performed by line organizations.

Discussion

Safety and health requirements have historically been an integral responsibility of line management at the Pantex Plant, but the assumption of environmental responsibilities is a relatively recent occurrence. AAO and M&H have not adequately assimilated these environmental responsibilities into the operational culture of their respective line organizations. For example, M&H's "Organization Responsibilities and Authorities" Manual (Document M-3) is replete with references to line management's safety responsibilities. There are very few environmental responsibilities identified for line management. M&H's "Safety Policy, Programs and Organization" Manual (Document M-141) does not mention environment in its title even though environmental policy statements and responsibilities are identified therein. While this omission may appear minor, it does impart a perception that environmental concerns are not of the same relative importance as safety issues.

Interviews with AAO and M&H personnel also indicated that the ES&H culture change has not been fully realized. For example, both managers and staff indicated that line organizations did not have the personnel or expertise to adequately address all ES&H requirements. Further, some personnel felt that the ES&H staff organizations had responsibility for ES&H issues or that line management had to totally rely on those ES&H staff organizations for guidance (I-M-1, 2, 6, 9, 10, 11 and 25). Also, line organizations were not familiar with applicable ES&H orders and/or had not received sufficient ES&H training (I-M-2, 4, 5, 6, 10, 19, 21 and 28). Documentation identifying ES&H training courses completed by AAO and M&H personnel revealed that the majority of training was safety or health related (M-123 and 124).

■ M/BMPF-7

CPAF Initiatives and Milestones (Evaluation Standards)

Performance Objective

To assure that "...every attempt will be made to elicit enough information to introduce as much specificity and objectivity into the evaluation process as possible." (Page 3, Albuquerque Operations Office Handbook for Award Fee Performance Evaluation and Review Process - Document M-76)

Finding

The Performance Evaluation Plan (Initiatives and Milestones) (M-76), which is used to evaluate the performance of M&H is too subjective and does not provide sufficient specificity to objectively assign a rating to determine the fee to be awarded the contractor.

Discussion

In order to be objective, standards should be reasonable, attainable, and measurable. The standards that have been developed for the evaluation of M&H do not meet this criteria. For example:

"Effectiveness" of; (1) internal oversight programs to ensure compliance with State and Federal statutes and regulations, (2) responses to external oversight programs, and (3) communication of safety objectives to the plant population, are all judgments. Without specific criteria as to what that judgment is to be based on, it is insufficient to evaluate performance.

"To ensure" would imply that M&H would guarantee to be in complete compliance. If they were remiss in any compliance activity, they would not be performing in an acceptable manner. Thus an "Outstanding" rating could not be achieved because perfection is the expected performance. Even though this standard is measurable it is neither reasonable nor attainable, and thus, only subjective in application.

The CPAF process includes the development of standards (Initiatives and Milestones) to be used in evaluating the performance of the contractor. This is to be done through consultation with the contractor. As stated in the Award Fee handbook, "The definitive provisions of the Award Fee Plan and the Performance Evaluation Plan should be developed in consultation with the contractor in order to facilitate a common understanding of intent prior to the contract negotiations and the implementation of the CPAF concept." However, the handbook does not provide instructions concerning the development of the performance

evaluation plan. This is not the case at the Pantex Plant where the standards are submitted to M&H, essentially unilaterally, without significant consultation which would incorporate objectivity into the rating process.

Managers interviewed in M&H, the AAO, and AL agree with the conclusion that the initiatives and milestones are subjective and do not provide an objective standard against which to evaluate the performance of M&H (I-M-1, 2, 5, 13, 18, 19, 41, 42, 45, 46, 47 and 48). It should be noted, however, that the remainder of the process is very well designed and effective in providing the decision maker with input from all levels of the organization. With equal emphasis given to the development of the standards, including sufficient input from M&H to facilitate their acceptance, the process would be improved. With due caution taken to assure that the process is flexible enough to be responsive to changes in priorities and unforeseen occurrences, the development of objective standards and the continuation of the evaluation process would provide the incentive for M&H to excel in the management of the Pantex Plant.

■ M/BMPF-8

Attainment of ES&H Goals and Objectives is Not Adequately Reflected in Employee Performance Appraisal Plans.

Performance Objective

To include the attainment of ES&H goals in each employee's performance appraisal objectives.

Finding

A review of several representative employee performance appraisal plans for both AAO and M&H managerial, supervisory and professional staff employees indicates that a large majority of these plans make no reference to ES&H objectives, or may do so in such a general way as to be of little or no value as a performance measurement tool.

Discussion

The achievement of DOE's ES&H goals require that AAO and M&H employee appraisal objectives include these goals. Within the AAO, a total of 14 performance appraisal plans were reviewed. The reviewed

plans included all branch chief positions, except the Administrative Branch, four professional staff positions in the ES&H and Emergency Preparedness Management Branch, and at least one professional staff position in each of the remaining four branches. Seven of the plans, including the AAO line organizations, had no mention of ES&H goals and two contained only a minor passing reference to public health and safety. All five of the plans that made some significant reference to ES&H goals shared a common weakness in that the goals were so generally stated as to be essentially not measurable. None of the plans made reference to ES&H as a line management function either in the sense of recognizing its implementation as an internal goal or a contractor oversight and evaluation objective.

A total of ten M&H performance appraisal plans were reviewed at various organizational levels from managerial and supervisory down to and including the professional staff level. The reviewed plans in the line organizations, with the exception of some in the Assembly Division, contained no mention of ES&H goals or objectives.

Within the M&H ES&H Division, the reviewed plans did contain ES&H objectives. However, the plans typically lacked measurable specificity. In no instance did they make reference to a goal of educating or assisting line managers in recognizing that ES&H functions are line management responsibilities.

6.5.3 RESOURCES

6.5.3.1 Overview

An assessment was made to determine the ability of AAO and M&H to recruit and retain employees technically qualified to carry out current ES&H program requirements and objectives. In so doing, the M&O assessment team interviewed AAO and M&H management, AAO ES&H staff employees and reviewed records containing qualifications, recruitment and turnover data. Interviews were also conducted with the Director and staff of the AL Personnel and Industrial Relations Division responsible for personnel support to AAO. The assessment resulted in two reportable findings. One of those findings, involving the technical qualifications of the M&H ES&H Division professional staff, was considered to be a key finding.

Recruitment and retention difficulties have made it necessary to staff AAO oversight positions with employees who have educational and experience backgrounds frequently unrelated or marginally related to the specialized technical work they were hired to oversee. In other cases, it has been necessary to fill key surveillance positions with entrance level trainees, or

other employees at less than the full performance level. The result has been a level of technical and interdisciplinary skills that is continuously short of what is needed to meet ES&H program requirements. In some cases, this has resulted in surveillance of contractor activities in which the employee had insufficient expertise to assess the performance of the contractor's technical activities.

An additional issue to the limited technical expertise of AAO to oversee contractor ES&H activities, is the issue of a limited number of M&H staff who are professionally qualified to make technical assessments of ES&H issues involving such areas as design adequacy of new facilities and processes.

6.5.3.3 Best Management Practices Findings (BMPF)

■ M/BMPF-9

Technical Qualifications of M&H ES&H Division Professional Staff.

Performance Objective

To have the M&O contractor's ES&H functions performed by fully qualified, technically competent personnel.

Finding

Some M&H, ES&H Division professional staff members do not possess the academic background consistent with the responsibilities of the positions they occupy.

Discussion

The fifty-seven member professional staff of the M&H ES&H compliance and oversight division, has, only two certified safety professionals as of October 18, 1989. (Document M-148)

Of the seven individuals in positions titled Senior Health Physicist-Industrial Hygienist, only three hold degrees in health or nuclear physics. (See also Appendix N: Pantex Tiger Team: Interim Finding Concerning Health Physics Program)

There are no degreed fire protection engineers.

Seventeen individuals in the M&H ES&H Division occupy positions titled: Senior Area Safety Engineer, Senior Safety Engineer and Safety Engineer. None of those individuals hold degrees in Safety Engineering or in any engineering discipline. Seven of them hold no college degrees. It is recognized that the M&H, ES&H Division personnel have extensive practical experience and in-plant knowledge. However, total reliance (as in the case of all 17 of the safety professionals) on "learning by doing" as compared to the external input and theoretical comprehension gained in a professional engineering curriculum leaves the organization highly susceptible to an unintended but ingrained, "we've always done it that way" mentality.

With the current staffing level of professionally qualified technical staff, there can be only limited assurance that the expertise necessary to assess the engineering adequacy of facility designs and industrial processes exists. Such engineering reviews are extremely critical from an ES&H standpoint and M&H is being relied upon for knowledgeable reviews and assessments of the technical adequacy of designs and specifications of facilities, structures, and processes. When employees performing these critical reviews do not possess a full measure of directly relevant technical expertise, the potential for error is unacceptably high.

■ M/BMPF-10

Technical Expertise of AAO Staff

Performance Objective

The policy promulgated by DOE 5400.1 is to assure that AAO staff oversight is performed by personnel with sufficient ES&H skills to carry out AAO responsibilities for administering the M&H operating contract, and for implementing DOE and AL ES&H policies and technical direction.

Finding

Some AAO staff personnel do not possess the specialized technical skill consistent with the level of expertise necessary to adequately assess and oversee the technical ES&H activities and operations of the contractor.

Discussion

AAO has difficulty in recruiting and retaining employees with sufficient technical skills and experience to carry out the level of oversight

required. The difficulties frequently stem from geographical considerations and salary limitations imposed by federal pay scales for professional level occupations. AAO management believes that many qualified people are distracted from AAO because of perceptions that the area office is at a lower organizational level than AL, and is therefore limiting in career and grade level opportunity. (I-M-1, I-M-2, I-M-4, I-M-46, I-M-51, I-M-53, I-M-54 and I-M-56)

As a result of its recruitment difficulties, AAO has often had to hire entrance level trainees or professionals at grades that were less than the full performance level of the position described. Considerable time was required to complete the in-house or on-the-job training necessary to achieve this level. Accordingly, there have been periods when the full mix of technical and interdisciplinary expertise needed to meet program requirements needed to meet program requirements were not present. (Document M-33)

The effect of AAO's recruitment difficulties is a reliance on a staff, not all of whom possess sufficient depth of technical expertise to fully understand and adequately monitor the contractor's technical performance. Contractor personnel must spend considerable time and resources in justifying or adjusting management actions that do not address the technical complexities of the work involved. (I-M-28, I-M-34 and I-M-51)

6.5.4 ES&H ASSESSMENT

6.5.4.1 Overview

The M&O assessment team has one finding in this category, a Best Management Practices Finding which addresses the need to enhance the tracking and reporting of corrective actions resulting from ES&H appraisals. Although not considered significant, the deficiency nevertheless demonstrates that improvements in the tracking process are necessary.

The team examined AAO Order 5482.1B which provides guidance on the format and types of data which are required for reporting purposes. We also examined and evaluated the adequacy of quarterly status reports which specifically contain information on corrective actions in progress and/or completed. Finally, we interviewed AAO and M&H personnel who are responsible for maintaining the tracking system and/or reviewing status reports. While the tracking system had produced reports which fully

complied with the requirements of AAO Order 5482.1B, the team concluded that enhancements to the process could be realized.

The current tracking system is maintained on a personal computer and utilizes a word processing application. This application is not sufficient to provide management with statistical data, trend analysis, or summary information. In light of the extensive amount of information associated with ES&H appraisal activity, effective management oversight and monitoring capabilities are adversely affected. The following section provides further details on this finding.

6.5.4.3 Best Management Practices Finding (BMPF)

■ M/BMPF-11

Enhance Tracking And Reporting of Corrective Actions

Performance Objective

To provide follow-up action on findings which are noted in AL originated functional appraisals, DOE originated appraisals, survey and audits, and appraisals or inspection by Federal/State regulatory agencies. (AAO Order 5482.1B, Paragraph 3 - Document M-85)

Finding

The current system used to track corrective actions for recommendations contained in ES&H appraisals does not provide management with sufficient quantitative and qualitative information to effectively monitor the resolution of reported deficiencies.

Discussion

The quarterly status reports produced by the system do not contain statistical data, trend analyses or summary information which should be available to managers in order to fully comprehend the extensive amount of information associated with corrective actions and thereby ensure that resolution efforts are commensurate with established goals and available resources.

M&H's Technical Services Staff produces quarterly status reports on corrective actions which result from recommendations contained in ES&H appraisals. The reports are forwarded to AAO who in turn provides them to AL. While these reports fully address the format and

content requirements contained in AAO Order 5482.1B, additional enhancements to the reporting process would be beneficial in order to more effectively track corrective actions.

The tracking of corrective actions for ES&H appraisals is accomplished through the use of a word processing application on a personal computer. As a result, the absence of an integrated on-line data base precludes affected M&H and AAO organizations from inputting, updating and manipulating pertinent data. Most AAO and M&H personnel who prepare or review the quarterly status reports did not identify any particular problems or concerns with the current tracking system. (I-M-1, 11, 18 and 38) However, there was one manager who indicated that greater utilization of automated data processing resources could be realized. (I-M-23)

For example, the quarterly status report for the period ending September 30, 1989, contains 82 pages and addresses 15 separate appraisals which have a total of 179 recommendations. (Document M-120) This amount of information is too voluminous to be effectively assimilated and evaluated without the aid of statistical and summary data.

Clearly, the individual status sheets which comprise the quarterly status reports provide meaningful and useful information. However, summary information on the total number of appraisals, recommendations, completed actions, and closed actions is not reported. (Note: As of September 30, 1989, there were 179 recommendations. Of this total, actions were completed on 55 items and an additional 53 items were closed.) Similarly, summary information highlighting significant changes between reporting periods is not identified for use in monitoring overall resolution progress.

Other summary information which is not provided includes the identification of similar findings and recommendations, changes in target dates for the completion of corrective actions and possible problem areas. With regard to the latter, a specific example involves delays in the approval of corrective actions by AL and DOE. As of October 5, 1989, there were 55 completed actions awaiting close-out certification by AL or DOE. Four of these actions were completed over 18 months ago. Two additional actions were completed over 10 months ago and 25 actions were completed over 7 months ago. (Document M-120) See Finding M/BMPF-12, "ES&H Technical Guidance and Assistance from AL" for additional information.

6.5.5 DOE OVERSIGHT

6.5.5.1 Overview

The M&O Assessment Team reviewed the extent that technical assistance is provided to AAO by HQ and AL. The team conducted interviews of ES&H staff at both AL and AAO, reviewed applicable DOE and AL orders, reviewed appraisal follow-up actions and searched for documentation of AL technical assistance visits. The purpose was to determine whether HQ and AL has provided AAO with adequate policy and technical direction as required by DOE Order 1120 and AL supplementing orders.

The review disclosed weaknesses in the adequacy of technical assistance and appraisal follow-up. Appraisal follow-up has been characterized by delays in approving Action Plans, and further delays in providing certification approval of appraisal findings. ES&H appraisals are conducted by AL primarily to identify corrective actions rather than to provide technical assistance, and assurance that needed corrective actions were completed has often been delayed until long after the appraisal was conducted.

In light of recent directives by DOE to insure ES&H compliance at the operating level, there has not been sufficient recognition by AL of need to insure timely compliance.

6.5.5.3 Best Management Practices Finding (BMPF)

■ M/BMPF-12

ES&H Technical Guidance and Assistance From AL

Performance Objective

To assure that AL has complied with its responsibilities for carrying out appraisals to assess the level and timeliness of ES&H compliance at the Pantex Plant; and through the appraisal process provide functional guidance to insure that DOE and AL policies and technical direction are implemented.

Finding

AL is not always responsive in providing technical guidance following ES&H appraisals. Specifically, AL ES&H staff has not been timely in the review and approval of corrective action plans, and in certifying

the closure of appraisal findings. Technical and functional site assistance from AL on ES&H activities is generally lacking.

Discussion

AL Order 5482.1A, Para. 6-E-(1) provides that functional appraisal reports and management appraisal reports shall be transmitted to the organization appraised within 30 days and 45 days respectively. Para. 6-F-(2) provides that the Director, ES&H Division shall follow-up on all recommendations until corrective actions have been completed or they are otherwise resolved. (M-84)

Of all appraisal/survey reports that have been published since 1984, there are a total of 43 corrective action findings which need close-out certification by AL. As of October 15, 1989, these findings are overdue for close-out by an average of 24 weeks. Four are overdue by 72 weeks, two by 48, weeks, twenty-five by 24 weeks, and nine by 10 weeks or more. (Document M-120)

The primary source of AL program knowledge on Pantex Plant ES&H activities is through the appraisal process. However, appraisals are used by AL primarily to seek corrective action rather than to obtain program knowledge or provide technical and functional guidance. (I-M-1) The guidance that has been provided through the appraisal process has not been timely in that appraisal reports, and AL approval of Action Plans and appraisal findings are often late. (I-M-1, I-M-11, M-120 and M-145)

The need to provide technical and functional assistance is set out in paragraph 4-C-(19) and in tables 1 and 2, of AL Order 1120. The order states that in performing its mission, AL shall provide support services as required for carrying out assigned work programs and related responsibilities. Functional assistance is also called for in the order. According to Tables 1 and 2, AL is responsible for providing functional program and policy guidance; and AAO is responsible for implementing the guidance. (Document M-46 and 140)

Although DOE and AL orders do not specifically require functional assistance visits, a number of site visits were made during the last year. However, these were because of incidents that occurred at the plant, to conduct appraisals (including concurrent follow-up of previous appraisals), or for other compliance related functions.

APPENDIX A

**CITATION AND INTERVIEW
REFERENCES**

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
A-1	Texas Clean Air Act	Texas Civil Statutes Title	11/13/87
A-2	DOE/ES&H/Environmental Survey Preliminary Report	DOE	09/87
A-3	Draft Pantex Environmental Report - 1988	W. Laseter, M&H D. Langston, M&H	05/89
A-4	Sampling and analysis Data, Volume IB	DOE Envr. Survey	08/88
A-5	M&H O&I Standard 7-5660	M&H	
A-6	Ambient Air Monitor Guidelines for PSD	EPA-450/4-87-007 AP	1987
A-7	40 CFR 46 Appendix E, Paragraphs 2, 3, 4, 5, and 6	Clean Air Act	03/85

LEGEND:

A	-	Air	IWS	-	Inactive Waste Sites
SW	-	Surface Water	N	-	National Environmental Policy Act
GW	-	Groundwater	CNR	-	Cultural and Natural Resources
WM	-	Waste Management	S	-	Safety and Health
TS	-	Toxic Substances Control Act	M	-	Management
QA	-	Quality Assurance			
RAD	-	Radioactivity	I	-	Interviews

CONTACTS/INTERVIEWS

<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-A-1	10/03/89	M&H	EP Manager/Sampling	Siting of High/Low Volumes
I-A-2	10/03/89	M&H	EP Manager/Sampling	MO for Hi-Filter Change
I-A-3	10/11/89	M&H	Development Manager	Water and Air Flows
I-A-4	10/11/89	M&H	Sr. Health Physicist	Asbestos/NESHAPS
		M&H	Sectional Scientist	Asbestos/NESHAPS
I-A-5	10/11/89	M&H	Sectional Engineer	Fluorides (TACB)
				Monitoring/Sampling
I-A-6	10/10/89	M&H	Paint Shop Foreman	Facilities/Equipment Painting
I-A-7	10/10/89	M&H	Plastics Shop Supr.	Use of Solvents
I-A-8	10/11/89	M&H	Department Head	Burning Ground Activities
I-A-9	10/11/89	M&H	Sr. Engineer	Use of Solvents in HE
		M&H	Technician	Development
		M&H	Supervisor	"
I-A-10	10/11/89	M&H	Section Leader	Use of Solvents in HE
				Development
I-A-11	10/11/89	M&H	Assy./Fab. Supr.	12-41 MAA Production Painting
		M&H	Assy./Fab. Supr.	"
		M&H	Project Engineer	"
I-A-12	10/11/89	M&H	VMP Supervisor	Vehicle emissions testing, painting, abrasive cleaning, degreasing
I-A-13	10/12/89	M&H	Machine Shop Supr.	Aluminum anodizing; steel heat treating, black oxide coating

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
SW-1	Pantex Plant Site Environmental Report - 1988	William A. Laseter David C. Langston	05/89
SW-2	Amended Permit 02296, Wastewater Discharge - Texas Water Commission.	Texas Water Commission	
SW-3	Environment, Safety & Health Appraisals	DOE - Pantex Plant	09/86 08/89
SW-4	Environment, Safety & Health Office of Environmental Audit	Preliminary Survey/Report	09/87
SW-5	Wastewater Treatment Plant Facilities Plan	Leedshill, et al., Engineering Inc.	12/85
SW-6	Conceptual Design Report for Facilities Capability Assurance Program (Sanitary Sever System Renovation) FY-1991 Line Item	M&H	09/88
SW-7	Letter from Don Manning (TWC)	M&H	08/89
SW-8	Videotape of Sanitary Sever Survey	Leedshill, et al., Engineering Inc.	12/85
SW-9	Characterization of Wastestreams from Operations at Pantex Plant During FY-1988	Enerco Engr.	09/88
SW-10	Pantex Sampling and Analysis Data Document (Draft)	DOE	11/88
SW-11	Revised Response to Annual Wastewater Compliance Inspection, Permit No. 02296 (Attachments to letter J. E. Hemphill to B. L. Gage, 10/10/89) (Action Plan for Deficiency Number 2)	M&H	10/10/89

CONTACTS/INTERVIEWS

<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-SW-1	10/02/89	M&H	Operator	Wastewater
I-SW-2	10/03/89	M&H	Superintendent	Wastewater
I-SW-3	10/03/89	M&H	Sr. Engineer	Wastewater & Rotoclones
I-SW-4	10/03/89	M&H	Supervisor	Wastewater & Machining
I-SW-5	10/03/89	M&H	Supervisor	Paint Shop Operations
I-SW-6	10/03/89	M&H	Program Engineer	Wastewater
I-SW-7	10/03/89	M&H	Program Engineer	Wastewater
I-SW-8	10/03/89	M&H	Production Supr.	Wastewater
I-SW-9	10/03/89	M&H	Production Supr.	Wastewater
I-SW-10	10/03/89	M&H	Supervisor	Wastewater
I-SW-11	10/03/89	M&H	Section Leader	Wastewater
I-SW-12	10/03/89	M&H	Coordinator	Wastewater
I-SW-13	10/04/89	M&H	Firing Site Dept. Head	Wastewater
I-SW-14	10/04/89	M&H	Firing Site Dept. Head	Wastewater
I-SW-15	10/05/89	M&H	Dept. Manager	Wastewater
I-SW-16	10/05/89	M&H	Utilities Dept. Head	Wastewater
I-SW-17	10/05/89	M&H	Envr. Tech.	Wastewater
I-SW-18	10/06/89	Texas Water Commission	Inspector-TWC Local Office Chief	Wastewater RCRA Wastewater RCRA
I-SW-19	10/11/89	EPA-Region 6	Head of Ind'l. Div.	Permits
I-SW-20	10/13/89	Tx Dept. of Health	Water Hygienist	Water Quality

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
GW-1	OP 3405 - Environmental sampling procedures, air, water, soil, vegetation and biota	M&H	10/14/88
GW-2	Characterization of selected wastewaters generated at the Pantex Plant	M&H	10/03/89
GW-3	LA-9445-PNTX-A Supplementary documentation LA-9445-PNTX-H for an environmental impact LA-9445-PNTX-I statement regarding the Pantex Plant	LANL	12/82 12/82 12/82
GW-4	Remedial Investigation Report Task 1, Stage 1		06/89
GW-5	Development Plan for Comprehensive Groundwater Management Program	M&H	09/27/89
GW-6	Underground Storage Units Drawing D-0-0 S13.3-6		09/13/89
GW-7	Revised Notification for Underground Storage Tanks (USTs)	M&H	
GW-8	Subsoil Investigation: Water Retention Lakes Near the Pantex Plant, Amarillo, Texas	M&H	04/07/80
GW-9	Petroleum Product Storage Tanks	M&H	04/89
GW-10	RCRA Facility Assessment Visual Site Inspection Report, U.S. DOE Pantex Plant, Amarillo, TX	A. T. Kearny and I. T. Corporation	03/89
GW-11	Environmental Restoration Program Work Plan, Task 1, Stage 2, Pantex Plant	DOE/AL	06/89
GW-12	Environmental Restoration Program Field Sampling Plan, Task 1, Stage 2	DOE/AL	06/89

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
GW-13	Environmental Survey Preliminary Report, Pantex Plant, Amarillo, TX, U. S. DOE ESH Office of Environmental Audit	DOE	09/87
GW-14	Draft Review and Recommendations for Enhancement of the Current Pantex Groundwater and Surface Water Monitoring Program	M&H and Engineering Science, Inc.	09/29/89
GW-15	Hydrology and Hydrochemistry of the Ogallala Aquifer, Southern High Plains, Texas Panhandle and Eastern New Mexico Report of Inv. No. 177	Bureau of Economic Geology, UT	1988
GW-16	Pantex Site Sampling and Analysis Data Document, Dfaft	DOE	11/19/88

CONTACTS/INTERVIEWS

<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I GW 1	10/23/89	M&H	PM - Section Head	UST Testing
I-GW-2	10/6/89	M&H	Envr. Mon. Supr.	Ground Water Sampling
I-GW-3	10/10/89	M&H	VMP Foreman VMP - Supervisor	USTS at VMP
I-GW-4	10/10/89	M&H	Sectional Engr. Util. Dept. Head	Drinking Water System
I-GW-5	10/11/89	M&H	Sectional Engr.	Leased Land Playas
I-GW-6	10/6/89	M&H	Project Scientist	Pantex Lake Playa 1, GW Program
I-GW-7	10/12/19	M&H	Sr. Project Engr.	USTS

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
WM-1	Hazardous Waste Part B Permit Application	DOE/AAO	1989
WM-2	Hazardous Waste Part A Notification, Amended	DOE/AAO	06/89
WM-3	Internal Memorandum, Hazard Classification of Water Containing Twenty Percent by Weight or Less of Secondary Explosives	R. H. Pankratz, M&H	08/24/89
WM-4	Printout of 11-7 North Pad Inventory Database Structure	M&H	08/08/89
WM-5	O&I Standard No. 7-5660, Handling, Transportation, and Thermal Treatment of HE-Contaminated Material at the Burning Grounds	M&H	08/25/89
WM-6	O&I Standard No. 3-1040, Satellite Accumulation Areas	M&H	08/22/89
WM-7	O&I Standard No. 3-1042, Ninety Day Accumulation Sites	M&H	08/22/89
WM-8	RCRA Inspection Reports File for Building 4-19B	M&H	01/89 thru 09/89
WM-9	Vendor Correspondence File for LDR Documentation	M&H	Current (10/89)
WM-10	Environmental Survey Preliminary Report, Pantex Plant	DOE	1986
WM-11	Characterization of Wastestreams from Operations at Pantex Plant during FY-88	ENRECO Engineering	09/88
WM-12	Addendum to Characterization of Wastestreams from Operations at Pantex Plant during FY-88	ENRECO Engineering	12/88

LIST OF SITE DOCUMENTS

	<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
	WM-13	Pantex Site Sampling and Analysis Data Document, Volume II	DOE	11/88
	WM-14	RCRA Inspection Reports, Miscellaneous Reports for 90-Day Accumulation Areas and Satellite Accumulation Areas	M&H	1989
	WM-15	RCRA Inspection Reports, Miscellaneous Reports for TSD Facilities	M&H	1989
	WM-16	RCRA Inspection Reports File for 11-7N Pad	M&H	01/89 thru 09/89
A-9	WM-17	Inspection Reports File for Sanitary Landfill	M&H	01/89 thru 09/89
	WM-18	Inspection Reports File for Construction Landfill	M&H	01/89 thru 09/89
	WM-19	RCRA Inspection Records for Conex #1	M&H	01/89 thru 10/89
	WM-20	RCRA Inspection Records for Conex #2	M&H	01/89 thru 10/89
	WM-21	RCRA Inspection Records for Conex #3	M&H	01/89 thru 09/89
	WM-22	RCRA Inspection Records for Conex #4	M&H	03/89 thru 09/89
	WM-23	MSDS for 3M FC-805	3M Corporation	11/85
	WM-24	MSDS for Mobil Met S 122	Mobil Corporation	09/20/87

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	<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
	WM-25	IOP 3917.2, In-Process Waste Treatment Facilities	M&H	09/01/89
	WM-26	PX-1071 Waste Disposition Instruction Request	M&H	12/86
	WM-27	MSDS for Safety-Kleen 105 Solvent-MS	Safety-Kleen Corp.	11/06/85
	WM-28	Maintenance Department Organization Chart	M&H	08/16/89
	WM-29	Internal Memorandum, Neutralization of Low pH at Inlet to Sewage Lagoon	A. Cagle, M&H	10/04/89
A-10	WM-30	Letter to P. M. Ramey (AAO), Response to Action Plan for RCRA Compliance dated 05/10/89	D. Manning, Texas Water Commission	05/26/89
	WM-31	Draft Memorandum to C. D. Alley (M&H), Action Plan, Annual RCRA Compliance Evaluation Inspection	P. M. Ramey, AAO	Undated (1989)
	WM-32	Letter to P. M. Ramey (AAO), Annual RCRA Compliance Evaluation Inspection	C. D. Alley, M&H	05/10/89
	WM-33	Letter to J. E. Hemphill (M&H), Annual RCRA Compliance Evaluation Inspection	B. L. Gage, AAO	04/13/89
	WM-34	Letter to S. Harrell (AAO), Annual RCRA Compliance Evaluation Inspection	D. Manning, Texas Water Commission	04/10/89
	WM-35	Action Plan for RCRA Compliance, Revised	DOE/AAO	06/20/89

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WM-36	IOP 3405, Environmental Sampling Procedures - Air, Water, Soil, Vegetation, and Biota	M&H	11/14/88
WM-37	IOP 3405.2, Plating Shop Effluent Testing	M&H	11/14/88
WM-38	IOP 3405.3, Inspection of Hazardous Waste PCBs, Container Storage, Treatment and Accumulation Sites	M&H	04/07/89
WM-39	IOP 3405.5, Total Suspended Solids and In- Plant Sewage	M&H	11/14/88
WM-40	IOP 3405.6, Hazardous Waste Analysis Plan	M&H	11/14/88
WM-41	IOP 3405.7, Satellite Accumulation Sites	M&H	01/13/89
WM-42	IOP 3405.8, Off-Site Disposal of RCRA Hazardous Waste	M&H	01/13/89
WM-43	IOP 3405.9, Inspection of the Sanitary and Construction Landfills	M&H	04/07/89
WM-44	IOP 3405.11, Inspection of Drum Containers	M&H	10/18/88
WM-45	IOP 3405.12, Controlling the Use of Lead	M&H	10/18/88
WM-46	Declassified Inventory of Zone 4-19B	M&H	10/13/89
WM-47	List of 90-day Accumulation Areas	M&H	10/16/89
WM-48	RCRA Facility Assessment, Visual Site Inspection Report	A. T. Kearney & Earth Technology Corporation	03/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
WM-49	Standard 343.7, Waste Minimization Program	M&H	10/13/88
WM-50	Installation Spill Contingency Plan	M&H	1989
WM-51	1987 Hazardous Waste Minimization Report	DOE/AAO	03/09/88
WM-52	1988 Hazardous Waste Minimization Report	DOE/AAO	02/22/89
WM-53	Draft Environmental Restoration and Waste Management Five-Year Plan, Volume 4, Waste Management/Minimization	DOE/AAO	Undated
WM-54	O&I Standard No. 7-5080, On-site Transportation of Chemical Explosives, Nuclear Explosives, and Weapons Components	M&H	08/24/89
WM-55	Draft Request for Proposal for Hazardous Waste Vendor Services	M&H	Undated (1989)
WM-56	PX-661 Forms for Waste Going to Flash Pits	M&H	07/89 thru 10/89
WM-57	PX-661 Forms for Waste Going to Evaporation Pans	M&H	09/89 thru 10/89
WM-58	PX-661 Forms for Waste Going to Burn Trays	M&H	10/89
WM-59	Inventory Records of Burning Grounds	M&H	1989
WM-60	Lead Analysis, Method 7421	M&H	09/86
WM-61	Chromium Analysis, Method 7191	M&H	09/86

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WM-62	Partial Inventory of 11-7N Pad	M&H	08/18/89
WM-63	Inventory of 11-7N Pad	M&H	10/11/89
WM-64	RCRA Personnel Training Records	M&H	10/89
WM-65	Standard No. 344, Spill Prevention and Contingency Planning	M&H	05/31/88
WM-66	NTS Shipment Bill of Lading	M&H	05/10/89
WM-67	Draft 3008(h) Corrective Action Order	A. M. Davis, USEPA	09/07/89
A-13 WM-68	Trip Report	Spray, Alexander, Mundt	04/09/85

CONTACTS/INTERVIEWS

<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-WM-1	10/03/89	M&H	Project Scientist	IH Lab
I-WM-2	10/03/89	M&H	Sr. Health Physicist	Blassay Counting Lab
I-WM-3	10/03/89	M&H	Sr. Health Physicist	Blassay Counting Lab
I-WM-4	10/03/89	M&H	Crafts Supervisor	Elect./Mech. Shop Facilities
I-WM-5	10/03/89	M&H	Utilities Dept. Head	Old Steam Plant (Utilities)
I-WM-6	10/03/89	M&H	Crafts Supervisor	12-110 Paint Shop
I-WM-7	10/03/89	M&H	Maintenance Supr.	12-68 Shops
I-WM-8	10/03/89	M&H	Craftsman	12-68 Batchmaster
I-WM-9	10/03/89	M&H	Foreman	Repackaging
I-WM-10	10/03/89	M&H	Manager	12-9, 12-17 HE Pressing
I-WM-11	10/04/89	M&H	Manager	12-24 HE Machining
I-WM-12	10/04/89	M&H	General Foreman	12-24 HE Machining
I-WM-13	10/04/89	M&H	Utilities Manager	12-43 HE Treatment
I-WM-14	10/04/89	M&H	Utilities Dept. Head	12-43 HE Treatment
I-WM-15	10/04/89	M&H	Sr. Engineer	12-19 HE Formulation Pilot Plant/12-43 90-day Storage
I-WM-16	10/04/89	M&H	Sr. Area Safety Engr.	11-7N Storage Pad
I-WM-17	10/04/89	M&H	Sectional Scientist	11-50 HE Treatment
I-WM-18	10/04/89	M&H	Sectional Scientist	11-36 HE Synthesis Pilot Plant
I-WM-19	10/04/89	M&H	Development Supr.	11-51 Dev. Chem Lab
I-WM-20	10/06/89	M&H	Utilities Dept. Head	11-44 Treatment
I-WM-21	10/06/89	M&H	Chief Photographer	11-29 Photo Lab
I-WM-22	10/06/89	M&H	Project Engineer	11-14 Pond
I-WM-23	10/06/89	M&H	Dept. Scientist	11-17 Chem Lab
I-WM-24	10/06/89	M&H	Development Supr.	11-20 HE Pressing
I-WM-25	10/06/89	M&H	General Foreman	12-73 Mock HE Declassification

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-WM-26	10/06/89	M&H	Coordinator for Waste Management Activities for Assembly Division	MAA Areas
I-WM-27	10/06/89	M&H	Assembly Operations General Supervisor	MAA HW/SW Segregation
I-WM-28	10/06/89	M&H	Engr. Tech.	11-42/11-28 HE Staging
I-WM-29	10/10/89	M&H	Sectional Scientist	11-14 Pond Operation
I-WM-30	10/10/89	M&H	Utilities Dept. Head	12-43/11-44 Inspection
I-WM-31	10/10/89	M&H	Maintenance Supr.	12-68 Inspections
I-WM-32	10/10/89	M&H	Transportation Head	Zone 4 Storage Facility
I-WM-33	10/10/89	M&H	Facility Operator	Sanitary Landfill
I-WM-34	10/10/89	M&H	Facility Operator	Construction Landfill
I-WM-35	10/10/89	M&H	Supervisor	Scrapyard
I-WM-36	10/11/89	M&H	Transportation Head	Burning Ground Operations
I-WM-37	10/11/89	M&H	Yard Supervisor	HE Tank by 12-43
I-WM-38	10/11/89	M&H	Sectional Scientist	RCRA Documents
I-WM-39	10/11/89	M&H	Sectional Engineer	Mixed Waste Handling
I-WM-40	10/11/89	M&H	Sectional Scientist	Mixed Waste Compliance
I-WM-41	10/12/89	M&H	Sectional Scientist	TSDF Inspection Records
I-WM-42	10/12/89	M&H	Traffic Coordinator	Hazardous Waste Manifests
I-WM-43	10/12/89	M&H	Transportation Head	Burning Ground Recordkeeping
I-WM-44	10/13/89	M&H	Project Engineer	11-36 Pilot Plant Process
I-WM-45	10/13/89	M&H	General Foreman	12-83/12-65 HE Staging
I-WM-46	10/16/89	M&H	Sectional Scientist	Contingency Plan

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-WM-47	10/16/89	M&H	Transportation Head	Burning Ground Procedures
I-WM-48	10/17/89	M&H	Transportation Head	Evaporation Pan Ages
I-WM-49	10/17/89	M&H	Utilities Dept. Head	12-43 and 11-44 Ages

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
TS-1	Interoffice Memo re: Hazardous Chemicals Without Material Safety Data Sheets	C.W. Diggs/M&H	06/01/89
TS-2	Stock Catalog of Hazardous Materials	M&H	09/12/89
TS-3	Safety Standard 326.2: Pantex Hazardous Chemical Warning Label System	M&H	04/25/86
TS-4	Safety Standard 344: Spill Prevention and Contingency Planning	M&H	05/31/88
TS-5	Safety Standard 344.1: Operational Inspection of Chemical Storage Areas	M&H	07/25/89
TS-6	Interoffice Memo re: September Yard Safety Committee Report	J.C. Darrow/M&H VMF/ B.R. Colvin	10/17/89
TS-7	Interoffice Memo re: Weekly Work Area Survey	J.L. Kennedy/M&H	09/21/89
TS-8	Hazardous Material/Waste/Product Storage Units Inspection Forms for 12-34, 11-36, 12-5B, 12-5G1, and 12-67	E.R. Bolmer/M&H	1989
TS-9	Safety Standard 327: Pest Control Program	M&H	02/27/84
TS-10	Standard Maintenance Instructions 301: Pesticide and Herbicide Control Program	M&H	03/17/89
TS-11	Pest Herbicide Inventory	P. Kuehler/M&H	07/11/89
TS-12	40 CFR 761 - Polychlorinated Biphenyls (PCBs) Manufacturing, Distribution in Commerce, and Use Prohibitions	EPA	1979, as amended
TS-13	Standard Maintenance Instructions 305: Polychlorinated Biphenyls (PCBs)	M&H	02/01/89
TS-14	PCB Control Testing of: Power Substations, Transformers and Switches (database report)	M&H	09/12/89
TS-15	PCB Analysis Report	Aptus Environmental Services	06/08/89

<u>Document Number</u>	<u>Title/ Description</u>	Author/ Organization/ Recipient	Document Date
TS-16	PCB Disposal Records	M&H	04/77 - 09/86
TS-17	PCB Annual Inventory Documents	M&H	07/77 - 07/89
TS-18	Environmental Survey Preliminary Report	DOE	09/87
TS-19	Action Plan for Environmental Survey Preliminary Report	AAO	04/89

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-TS-1	10/03/89	M&H	Utilities Manager	Chemical storage
I-TS-2	10/03/89	M&H	Senior Engineer	Chemical storage
I-TS-3	10/03/89	M&H	Supervisor	Chemical storage
I-TS-4	10/03/89	M&H	Section Scientist	Chemical storage
I-TS-5	10/04/89	M&H	Senior Engineer	Chemical storage
I-TS-6	10/04/89	M&H	Supervisor	Chemical storage
I-TS-7	10/06/89	M&H	Project Engineer	Chemical storage
I-TS-8	10/06/89	M&H	Shop Foreman	Chemical storage
I-TS-9	10/06/89	M&H	Yard Foreman	Chemical storage
I-TS-10	10/06/89	M&H	Shop Steward	Chemical storage
I-TS-11	10/10/89	M&H	Section Leader	PCB program
I-TS-12	10/12/89	M&H	Sr. Project Engineer	Pesticides
I-TS-13	10/18/89	M&H	Env. Safety	Storage inspections
I-TS-14	10/18/89	M&H	PM Technician	PCB sampling
I-TS-15	10/18/89	M&H	Foreman	Transformer maint.
I-TS-16	10/18/89	M&H	Section Leader	PCB program
I-TS-17	10/18/89	M&H	Supervisor	Chemical storage
I-TS-18	10/18/89	M&H	Senior Scientist	Storage inspections
I-TS-19	10/18/89	M&H	Yard Supervisor	Pesticides
I-TS-20	10/18/89	M&H	Yard Foreman	Pesticides
I-TS-21	10/18/89	M&H	Shop Foreman	Storage inspections
I-TS-22	10/19/89	M&H	Senior Engineer	Storage inspections

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
QA-1	NQA-1: Quality Assurance Requirements for Nuclear Facilities	ANSI/ASME	1986
QA-2	Safety Standard 319.11: Environment, Safety & Health Audit/Appraisal Program	M&H	04/25/89
QA-3	Quality Standard 600: Operations Quality Program	M&H	08/16/89
QA-4	Environment, Safety & Health Operations Quality Plan for the Pantex Plant	M&H	08/04/89
QA-5	Pantex Plant Quality Division Metrology Department Operations Manual	M&H	08/89
QA-6	Operations and Inspections Standard 7-0900: Standards and Calibration Program	M&H	04/06/89
QA-7	DOE Order 5484.1: Environmental Protection, Safety, and Health Protection Information Reporting Requirements	DOE	02/24/81
QA-8	DOE Order 5700.6B: Quality Assurance	DOE	09/23/86
QA-9	Internal Operating Procedure No. 3418.5: Industrial Hygiene Laboratory Quality Implementation Plan	M&H	01/20/89
QA-10	Internal Operating Procedure No. 3863: Development Division Quality Program	M&H	02/20/89
QA-11	Interim Guidelines for Preparing Quality Assurance Project Plans	EPA	12/29/80

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
QA-12	RCRA Corrective Action Plan (Interim Final), OSWER Directive 9902.3	EPA	06/88
QA-13	Pantex Plant Site Environmental Report for Calendar Year 1988 (Draft)	M&H	05/89
QA-14	Environmental Monitoring Report for Pantex Plant Covering 1987	M&H	04/88
QA-15	Environmental Monitoring Report for Pantex Plant Covering 1986	M&H	03/15/87
QA-16	DOE Order 5400.1: General Environmental Protection Program	DOE	11/09/88
QA-17	Safety Standard 346: Pantex Plant Environmental Protection Program	M&H	04/21/89
QA-18	DOE Order 5400.xy: Radiological Effluent Monitoring and Environmental Surveillance	DOE	09/14/88
QA-19	Interoffice Memo re: Wastewater Characterization Sampling Request	R. Pankratz/M&H/ M. Payne and S. Billington	07/06/89
QA-20	Interoffice Memo re: Instructions to Collect Burning Ground Ash Samples for TCLP Analysis	R. Pankratz/M&H/ M. Payne, et al	07/10/89
QA-21	Interoffice Memo re: Suspension of Wastewater Characterization Sampling	R. Pankratz/M&H/ M. Payne, et al.	09/25/89
QA-22	Interoffice Memo re: Sampling of Wastewaters for Wastewater Characterization	M. Payne/M&H/ R.Pankratz	10/17/89
QA-23	Purchase Order No. H3244300 to Accu-Labs Research, Inc. for Analytical Services	M&H	03/31/88

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
QA-24	Internal Operating Procedure No. 3405: Environmental Sampling Procedures - Air, Water, Soil, Vegetation, and Biota	M&H	10/14/88
QA-25	Operations and Inspections Standard 3-1044: Environmental Sampling Procedures - Air, Water, Soil, Vegetation, and Biota (Draft #1)	M&H	09/09/89
QA-26	Internal Operating Procedure No. 3458-4.0: Chain of Custody for Sample Receipt and Handling	M&H	09/19/89
QA-27	AAO Internal Audit Report of M&H Environmental Monitoring Program	B. Gage/DOE/AAO	09/03/89

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I-QA-1	10/10/89	M&H	Section Scientist	Laboratory QA
I-QA-2	10/10/89	M&H	Supervisor	Laboratory QA
I-QA-3	10/10/89	M&H	Sr. Project Scientist	Laboratory QA
I-QA-4	10/10/89	M&H	1H Lab Director	Laboratory QA
I-QA-5	10/10/89	M&H	Sr. Health Physicist	Dosimetry QA
I-QA-6	10/11/89	M&H	Envr. Supervisor	Surface water sampling
I-QA-7	10/11/89	M&H	Technician	Surface water sampling
I-QA-8	10/11/89	M&H	Technician	Surface water sampling
I-QA-9	10/11/89	M&H	Technician	Surface water sampling
I-QA-10	10/12/89	M&H	Envr. Supervisor	Well sampling
I-QA-11	10/12/89	M&H	Technician	Well sampling
I-QA-12	10/12/89	M&H	Technician	Well sampling
I-QA-13	10/12/89	M&H	Project Scientist	Well sampling
I-QA-14	10/19/89	M&H	Sectional Scientist	Monitoring program QA
I-QA-15	10/19/89	M&H	Sr. Industrial Hyq.	Monitoring program QA
I-QA-16	10/19/89	M&H	Envr. Supervisor	Monitoring program QA
I-QA-17	10/20/89	M&H	Senior Engineer	Instr. calibration
I-QA-18	10/20/89	M&H	Project Engineer	Instr. calibration

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
RAD-1	Pantex Plant Site Environmental Report for Calendar Year 1988	W. A. Laseter D. C. Langston	05/89
RAD-2	Report of the Pantex Tritium Operations Review Committee	M&H	08/89
RAD-3	Pantex Plant Site Environmental Report for Calendar Year 1987	W. A. Laseter D. C. Langston	05/88
RAD-4	IOP 3405, Environmental Sampling Procedures	Envr. Prot. Dept.	10/14/88
RAD-5	Pantex Emergency Plan	M&H	02/89
RAD-6	Safety Standard 321.1, Control of Radio- active Material Sources	M&H	01/18/88
RAD-7	Safety Standard 312.3, Radioactive Waste Management	M&H	06/20/86
RAD-8	DOE Order 5404.1, Environmental Protection Safety and Health Protection Reporting Requirements	DOE	02/24/81
RAD-9	DOE Order 5820.2A, Radioactive Waste Management	DOE	09/26/88
RAD-10	IOP 521.2, Radioactive Waste Shipments	Production Stores Physical Distribution MC&A	02/28/89
RAD-11	IOP 534.4, Packaging of Non-fissile Radioactive Material	Production Stores	04/05/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
RAD-12	Pantex 1988 Waste Management Site Plan	M&H	01/88
RAD-13	Safety Standard 312 Scrap Explosives and Contaminated Waste Materials	M&H	06/25/84
RAD-14	Safety Standard 321.2, Radiation Protection Surveys	M&H	10/30/87
RAD-15	DOE 5400.XX, Protection of the Public and the Environment	DOE	03/18/88
RAD-16	DOE 5400.XY, Radiological Effluent Monitoring and Environmental Surveillance	DOE	05/12/88
RAD-17	DOE 5400.1, General Environmental Protection Plan	DOE	05/12/87
RAD-18	DOE 5500.3 Emergency Planning	DOE	08/13/81
RAD-19	40 CFR 191, Environmental Standards for Radioactive Wastes	EPA	
RAD-20	10 CFR 61, Packaging, Labeling and Shipping	NRC	
RAD-21	10 CFR 20, Radiological Controls	NRC	
RAD-22	40 CFR 192, Protection Standards for Uranium and Thorium Mill Tailings	EPA	

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-RAD-1	10/03/89	M&H	Envr. Supervisor	Air Sampling
I-RAD-2	10/03/89	M&H	Technician	Air Sampling
I-RAD-3	10/03/89	M&H	Technician	Air Sampling
I-RAD-4	10/04/89	M&H	Dept. Mgr. Firing Site	Rad. Contamination
I-RAD-5	10/04/89	M&H	Sr. Project Engineer	Rad. Contamination
I-RAD-6	10/04/89	M&H	Waste Management Engr.	Rad. Contamination
I-RAD-7	10/04/89	M&H	Technician	Soil/Veg. Sampling
I-RAD-8	10/04/89	M&H	Technician	Soil/Veg. Sampling
I-RAD-9	10/04/89	M&H	Technician	Soil/Veg. Sampling
I-RAD-10	10/04/89	M&H	Technician	Soil/Veg. Sampling
I-RAD-11	10/04/89	M&H	Dept. Manager/H.P.	Reschedule H.P. Tour
I-RAD-12	10/05/89	M&H	Envr. Supervisor	Envr. Monitoring Plan
I-RAD-13	10/05/89	M&H	Technician	Water Sampling
I-RAD-14	10/05/89	M&H	Technician	Sample Storage/Shipment
I-RAD-15	10/05/89	M&H	Technician	Analytical Results
I-RAD-16	10/05/89	M&H	Envr. Supervisor	Laboratory Contract
I-RAD-17	10/06/89	M&H	Dept. Manager/Envr.	ARAC Met. Code
I-RAD-18	10/06/89	M&H	Dept. Manager/Envr.	Met. Tower

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I-RAD-19	10/10/89	M&H	Dosimetry Supervisor	Occupational Dose Assessment
I-RAD-20	10/10/89	M&H	Dept. Manager/Envr.	Alpha/Beta Analysis
I-RAD-21	10/10/89	M&H	Operator	Sanitary Landfill
I-RAD-22	10/10/89	M&H	Operator	Construction Landfill
I-RAD-23	10/11/89	M&H	H.P. Technician	H.P. Activities
I-RAD-24	10/11/89	M&H	H.P. Technician	H.P. Activities
I-RAD-25	10/11/89	M&H	H.P. Technician	H.P. Activities
I-RAD-26	10/12/89	M&H	Dosimetry Supr.	IOPs and Safety Standards
I-RAD-27	10/12/89	M&H	Sr. Engineer	Scrapmetal Recovery
I-RAD-28	10/12/89	M&H	Sr. Project Engineer	Scrapmetal Recovery
I-RAD-29	10/12/89	M&H	Sectional Engineer	Scrapmetal Recovery
I-RAD-30	10/12/89	M&H	Envr. Technician	Groundwater Sampling
I-RAD-31	10/19/89	M&H	Sectional Engineer	Waste Management
I-RAD-32	10/23/89	M&H	Sectional Engineer	ARAC Operators

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
IWS-1	Spill Prevention Control and Countermeasures Plan (SPCC) and RCRA Contingency Plan	M&H	09/88
IWS-2	Standards: Notification, Investigation and Reporting of Occurrences, Index No. 314	M&H	12/02/86
IWS-3	Pantex Emergency Plan (EPP-1000)	M&H	02/89
IWS-4	Interim Procedures for ES&H Accident/ Incident Reporting Revision 1	DOE/AL	05/16/89
IWS-5	AAO Environmental Protection, Safety, and Health Protection Information Reporting Requirements (AAO 5484.1)	DOE/AAO	12/06/88
IWS-6	United States Department of Energy - Pantex Plant, 40 CFR Part 355 (letter to Texas Emergency Response Committee)	P. M. Ramey, DOE/AAO	05/19/87
IWS-7	United States Department of Energy - Pantex Plant, Title III - Emergency Planning and Community Right-to-Know Act of 1986 (letter to Dr. W. R. Elliott, Texas Department of Health and Honorable J. B. Roselius)	P. M. Ramey, DOE/AAO	10/14/87
IWS-8	Submittal of Tier One Form for 1987 (letter to Dr. W. R. Elliott, Texas Department of Health and Honorable J. B. Roselius)	P. M. Ramey, DOE/AAO	02/24/88

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
IWS-9	Submittal of EPA Form R for 1987 (letter to U. S. EPA)	P. M. Ramey, DOE/AAO	06/28/88
IWS-10	Submittal of Tier One Form for 1988 (letters to Dr. W. R. Elliot, Texas Department of Health and Honorable J. B. Roselius)	P. M. Ramey, DOE/AAO	02/24/89
IWS-11	Submittal of Texas Tier Two Form for 1988 (letter to U. S. EPA)	P. M. Ramey, DOE/AAO	06/28/89
IWS-12	Submittal of EPA Form R for 1988 (letter to U. S. EPA)	P. M. Ramey, DOE/AAO	06/30/89
IWS-13	Resubmission of EPA Form R for 1988 (letter to U. S. EPA)	P. M. Ramey, DOE/AAO	07/27/89
IWS-14	Remedial Investigation Plan Pantex Plant Underground Gasoline Leaks and Former Chemical Burn Pit (draft)	DOE/AL Operations Office of Envr. Health - Division ER Program Group	04/88
IWS-15	Work Plan Task 1, Stage 2, Pantex Plant, Draft	DOE/AL Operations Office, Envr. Restoration Programs	06/89
IWS-16	Field Sampling Plan Task 1, Stage 2, Pantex Plant, Draft	DOE/AL Operations Office, Envr. Restoration Programs	06/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
IWS-17	Remedial Investigation Report Task 1, Stage 1, Pantex Plant, Draft	DOE/AL Operations Office, Envr. Restoration Programs	06/89
IWS-18	Environmental Restoration Program, Field Office Management Plan	DOE/AL Operations Office, Envr. Restoration Programs	06/88
IWS-19	Environmental Restoration Program, Field Office Monthly Report	DOE/AL Operations	07/89
IWS-20	Letter to B. L. Gage, AAO, acknowledging receipt of Pantex Plant RI Plan	R. E. Hannesschlager EPA, Region VI	06/06/88
IWS-21	Letter to A. M. Davis, EPA Region VI, submitting Cooling Tower Release RI Plan	B. L. Gage, AAO	06/28/88
IWS-22	Letter to B. W. Dixon, TWC, submitting Cooling Tower Release RI Plan	B. L. Gage, AAO	06/28/88
IWS-23	Letter to A. M. Davis, EPA Region VI, submitting RI Report at three past release sites	P. M. Ramey, AAO	06/16/89
IWS-24	Letter to D. Eden, TWC, submitting RI Report on three past release sites	P. M. Ramey, AAO	06/16/89
IWS-25	Letter to R. Groman, Amarillo Public Library, submitting RI Report on three past release sites	P. M. Ramey, AAO	06/16/89
IWS-26	Subject: Remedial Investigation Report Three Past Release Sites Pantex Plant, Carson Co., TX	W. K. Honker EPA, Region VI	09/21/89
IWS-27	February 24, 1989, meeting notes to J. Cochran, AL: ER-GN-L-89-145	P. D. Farley, LANL	03/23/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
IWS-28	Letter to J. G. Themelis, AL, Requesting Initiation of Negotiating Strategy	B. L. Gage, AAO	07/24/89
IWS-29	Development of Negotiation for Compliance Agreement at Pantex, letter to B. L. Gage, AAO	J. G. Themelis, AL	08/03/89
IWS-30	Letter to J. G. Themelis, AL, Submitting Draft Negotiating Strategy	B. L. Gage, AAO	08/14/89
IWS-31	Approval to Negotiate an Administrative Order on Consent at the Pantex Plant, Memo to J. L. Meinhardt, DOE-HQ, DP	B. G. Twining, AL	09/08/89
IWS-32	Letter to A. M. Davis, EPA Region VI, regarding draft RCRA 3008(h) Corrective Action Order	P. M. Ramey, AAO	09/26/89
IWS-33	Meeting on October 5, 1989, with EPA on draft 3008(h) Order for Pantex Plant, Memorandum-to-File	W. Harrell, AAO	10/07/89
IWS-34	Approval to Negotiate an Administrative Order on Consent at the Pantex Plant, Letter to B. G. Twining, AL	P. M. Ramey, AAO	10/06/89
IWS-35	Action: Approval to Negotiate an Administrative Order at the Pantex Plant, Memo to J. L. Meinhardt, DOE-HQ, DP	J. E. Lytle, DOE-HQ, DP	10/12/89
IWS-36	Approval to Negotiate an Agreement for Cleanup of the Pantex Plant, Memo to Manager, AL	J. L. Meinhardt, DOE-HQ, DP	10/12/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
IWS-37	Policy on Future Environmental Compliance Agreements (Memo for all Departmental Elements)	J. D. Watkins, Secretary of Energy	04/27/89
IWS-38	Draft Copy of RCRA Section 3008(h) Corrective Order on Consent for the U. S. Department of Energy, Pantex Plant, Amarillo, TX, to P. M. Ramey, AAO	A. M. Davis, EPA, Region VI	09/07/89
IWS-39	Summary of February 15, 1989, Environmental Restoration Meeting letter to S. Harrell, AAO ER-GN-L-89-146	P. D. Farley, LANL	03/23/89
IWS-40	Review of Remedial Investigation Report, Task 1, Environmental Restoration (ER) Program (Memo to J. G. Themelis, AL	B. L. Gage, AAO	05/11/89
IWS-41	Review of RI Report, Task 1, Stage 1, letter to D. Farley, LANL	R. F. Sena, AL	05/31/89
IWS-42	Comments on Task 1, Stage 1, RI Report and Task 1, Stage 2, RI Work Plan letter to R. D. Quinn, DOE-HQ	J. F. Keller, Battelle Pacific Northwest Labs.	05/12/89
IWS-43	Submittal of Technical Review Comments on Pantex Remedial Investigation Documents - CWA-19-89	C. W. Ariss, Idaho Natl. Engineering Laboratory	05/15/89
IWS-44	Letter Regarding Drum Inventory and Disposal for ER Program Generated Wastes (Letter to K. H. Rea, LANL)	R. F. Sena, AL	05/16/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
IWS-45	Meeting at Pantex Plant, May 25, 1989 (Letter to S. Harrell, AAO), ER-GN-L-89-203	P. D. Farley, LANL	06/01/89
IWS-46	Texas Water Commission Violation - Licensed Driller on Site During Installation of Chemical Burn Pit Monitoring Wells (correspondence to D. L. Krenz, AL)	P. M. Ramey, AAO	09/08/89
IWS-47	ER Program, Pantex Plant, Task 1, Stage 2, RI/FS Non-Conformance, Texas Water Commission Violation, RFP WO#2744-24-11	D. D. Gonzalez, (Weston)	09/06/89
IWS-48	Well Contamination - Pantex Plant (correspondence to J. G. Themelis, AL)	B. L. Gage, AAO	09/22/89
IWS-49	PTX 03-0011 Well Contamination (letter to B. L. Gage, AAO)	J. E. Hemphill, M&H	09/13/89
IWS-50	Well Construction Anomaly at Burning Grounds (letter to B. L. Gage, AAO)	J. E. Hemphill, M&H	09/27/89
IWS-51	Texas Water Commission Violation - Licensed Driller On Site During Installation of Monitoring Wells at the Former Chemical Burn Pit (memo to P. M. Ramey, AAO)	J. G. Themelis, AL	10/04/89
IWS-52	Environmental Survey Preliminary Report, Pantex Facility (DOE/EH/OEV-06-P)	DOE, ES&H, Office of Environmental Audit	09/89
IWS-53	RCRA Facility Assessment, Visual Inspection Report, U. S. DOE Pantex Plant	EPA Region VI, (A. T. Kearney, Inc., and The Earth Technology Corp.)	03/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
IWS-54	Phase 1: Installation Assessment Pantex Plant Draft (Comprehensive Environmental Assessment and Response Program)	AL, ES&H, Division, Environmental Programs Branch	06/86
IWS-55	Permit Application for Industrial Waste Storage/ Processing/Disposal Facility, Amended Part A	DOE/AAO	06/89
IWS-56	Industrial Hazardous Waste Part B Permit Application	DOE/AAO	No Date

CONTACTS/INTERVIEWS

<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-IWS-1	10/03/89	M&H	Utilities Manager	12-43 Processes & Waste Streams
I-IWS-2	10/03/89	M&H	Sectional Scientist	Process/Treatment/Waste Streams
I-IWS-3	10/03/89	M&H	Department Manager	12-17 Processes & Waste Streams
I-IWS-4	10/03/89	M&H	Senior Engineer	12-19 Processes & Waste Streams
I-IWS-5	10/03/89	M&H	General Foreman	12-24N Processes & Waste Streams
I-IWS-6	10/03/89	M&H	Assessment Opr. Supr.	12-41 Processes & Waste Streams
I-IWS-7	10/03/89	M&H	Project Engineer	12-44, Cell 4 Processes & Waste Streams
I-IWS-8	10/03/89	M&H	Project Engineer	12-64, Bay 13 Processes & Waste Streams
I-IWS-9	10/03/89	M&H	Production Supr.	12-98, Cell 2 Processes & Waste Streams

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-IWS-10	10/03/89	M&H	Production Supr.	11-50 Processes & Waste Streams
I-IWS-11	10/03/89	M&H	Building Supervisor	12-43 Processes & Waste Streams
I-IWS-12	10/03/89	M&H	Section Leader	11-36 Processes & Waste Streams
I-IWS-13	10/04/89	DOE/AAO	Physical Scientist	ER Program
I-IWS-13	10/04/89	M&H	Department Manager	ER Program
I-IWS-13	10/04/89	M&H	Sectional Engineer	ER Program
I-IWS-14	10/05/89	DOE/AAO	Physical Scientist	Natural Resources & Inactive Sites
I-IWS-15	10/06/89	M&H	Project Engineer	Spill Response at 11-36
I-IWS-16	10/06/89	M&H	General Foreman	Ethylene Glycol Use
I-IWS-17	10/06/89	M&H	Garage Mechanic	Spill Reporting at VMF
I-IWS-18	10/06/89	M&H	Physical Scientist	Spill Reporting Procedures
I-IWS-19	10/10/89	M&H	Envr. Monitoring Supr.	SARA Title III
I-IWS-20	10/10/89	M&H	Property Manager	Hazardous Chemical Inventory
I-IWS-21	10/10/89	M&H	Inventory Control Supr.	Hazardous Chemical Inventory
I-IWS-22	10/10/89	M&H	Warehouse Supr.	Spill Reporting at Gen. Stores
I-IWS-23	10/10/89	M&H	Engineering Technician	Spill Reporting, Bldg. 11-36

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-IWS-24	10/10/89	M&H	Project Engineer	Toxic Chemical Use, Bldg. 11-36
I-IWS-25	10/10/89	DOE/AAO	Chief, ES&H	Participation with LEPC
I-IWS-26	10/10/89	M&H	Sr. Health Physicist	Environmental Noise Monitoring
I-IWS-27	10/10/89	DOE/AAO	Physical Scientist	Distribution of SARA Title III Reports
I-IWS-28	10/11/89	M&H	Sr. Scientist	Hazardous Chemical Tracking
I-IWS-28	10/11/89	M&H	Sr. Health Physicist	Hazardous Chemical Tracking
I-IWS-29	10/11/89	M&H	Sectional Engineer	Hazardous Chemical Tracking
I-IWS-30	10/11/89	M&H	Department Head	Environmental Noise
I-IWS-31	10/11/89	M&H	Fire Chief	SARA Title III Reports
I-IWS-31	10/11/89	M&H	Assistant Fire Chief	SARA Title III Reports
I-IWS-32	10/11/89	M&H	Section Engineer	Hazardous Chemical Use
I-IWS-33	10/11/89	M&H	Envr. Monitoring Supr.	Hazardous Chemical Inventory
I-IWS-34	10/12/89	DOE/AL	Project Manager	AL ER Program
I-IWS-35	10/12/89	M&H	Fire Chief	Need for SARA Title III Reports
I-IWS-36	10/16/89	DOE/HQ	Envr. Scientist	HQ Perspective on ER Program and Proposed 3008(h) Consent Order

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I-IWS-37	10/16/89	M&H	Envr. Monitoring Supr.	Toxic Chemical Use, Bldg. 11-36
I-IWS-38	10/16/89	M&H	Project Engineer	Toxic Chemical Use, Bldg. 11-36
I-IWS-39	10/16/89	DOE/AAO	Physical Scientist	3008(h) Consent Order, ER Program
I-IWS-40	10/16/89	M&H	Envr. Monitoring Supr.	SARA Title III Report Review and Training
I-IWS-41	10/19/89	DOE/AL	Project Engineer	AL ER Program
I-IWS-42	10/20/89	DOE/AAO	Physical Scientist	AL ER Program

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-1	Memo: Monthly Project Authorization/ Status Report for General Plant Projects	C. D. Alley, M&H/ P. M. Ramey, AAO	09/06/89
N-2	Memo: Monthly Project Authorization/ Status Report for General Plant Projects	C. D. Alley, M&H/ P. M. Ramey, AAO	10/03/88
N-3	Memo: Monthly Project Authorization/ Status Report for General Plant Projects	C. D. Alley, M&H/ P. M. Ramey, AAO	09/01/87
N-4	Memo: AL Call for FY-1992/FY-1993 Weapons Capital Budget and FY-1994/FY-1997 Long- Range Projections - Weapons P&S, Plant Capital and Equipment	C. D. Alley, M&H/ P. M. Ramey, AAO	09/14/89
N-5	Memo: Second Update of A-106 Plan for FY-1991	C. D. Alley, M&H/ R. L. Gage, AAO	06/23/89
N-6	Memo: Environmental Corrective Action Project Plans/OMB Circular A-106; First Update for FY-1991	C. D. Alley, M&H/ P. M. Ramey, AAO	01/09/89
N-7	Memo: Reporting of Pollution Abatement Projects/OMB Circular A-106; First Update for FY-1990 Submission	C. R. Poole, M&H/ P. M. Ramey, AAO	05/19/88
N-8	Memo: Reporting of Pollution Abatement Projects/OMB Circular A-106; Second Up- date for FY-1990 Submission	C. R. Poole, M&H/ P. M. Ramey, AAO	11/13/87
N-9	Memo: Pollution Abatement Plan - Project Reports (OMB Circular A-106)	C. R. Poole, M&H/ C. L. Soden, AL	04/30/87

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-10	FAX: Pollution Abatement Plan - Project Report (OMB Circular A-106)	G. Clifford, M&H/ M. Kleinrock, DOE-EH	01/07/87
N-11	Memo: Environmental Programs Appraisal, November 1-3, 1988	J. G. Themelis, AL/ P. M. Ramey, AAO	04/27/89
N-12	Memo: National Environmental Policy Act (NEPA) Documentation, AL Review and Approval Channels	J. G. Themelis, AL/ P. M. Ramey, AAO	12/23/87
N-13	Panhandle Environmental Awareness Committee vs. DOE, Stipulation of Dismissal	Hoffman, Steeg, and Wheeler/DOJ	03/17/81
N-14	AL 5440.1B, Implementation of the National Environmental Policy Act	AL	11/12/82
N-15	Pantex Plant Site: Record of Decision (49 FR 43490)	W. W. Hoover, DOE-DP-1	10/17/84
N-16	Pantex Plant Nuclear Weapons Operation, Amarillo, TX; Final Environmental Impact Statement (DOE/EIS-0098)	DOE	10/83
N-17	Notice of Intent to Prepare EIS for Pantex Plant (46 FR 23285)	B. R. House, DOE-EH-1	04/21/81
N-18	DOE Environmental Compliance Guide	DOE-EH	1981
N-19	Draft Pantex Plant Site: Record of Decision	P. R. Wagner, M&H/ P. M. Ramey, AAO	06/07/84

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N-20	Public Scoping Meeting	R. L. Burke, AL	05/28/81
N-21	A Risk Management Manual (Draft)	Risk Management Dept., M&H	07/89
N-22	Summary of NEPA Documentation for Pantex Projects	DOE NEPA Tiger Team	10/12/89
N-23	Internal Operating Procedures (IOP 3600.0)	M&H	06/28/89
N-24	Safety Standard Index No. 306.2	M&H	08/24/89
N-25	DOE 5440.1C, National Environmental Policy Act	DOE	04/09/85
N-26	Compliance with the National Environmental Policy Act (DOE Guidelines - 52 FR 47652)	DOE	12/15/87
N-27	Memo: Environmental Compliance Actions for Project 88-D-125, High Explosive Machining Facility	A. L. Gonzales, AL/File	03/02/89
N-28	Memo: NEPA Documentation for the High Explosive Machining Facility at Pantex	C. L. Soden, AL/File	09/29/89
N-29	High Explosive Machining Facility, Revised Action Description Memorandum	M&H/DOE	03/08/89
N-30	High Explosive Machining Facility Project Plan and Charter	B. G. Twining, AL/ J. M. Barr, DOE-DP	09/19/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-31	High Explosive Machining Facility Project Management Plan	D. D. Fincher, AAO	09/08/89
N-32	Environmental Assessment for Pantex High Explosive Machining Facility (Draft)	DZA Inc./AAO	Undated
N-33	Utilities Restoration: Subproject I, Restore Domestic/Fire Protection Supply, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	04/08/87
N-34	Utilities Restoration: Subproject I, Restore Domestic/Fire Protection Water Supply, Action Description Memorandum	Unidentified Author, M&H	03/13/87
N-35	High Explosive Synthesis Facility, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	12/18/87
N-36	High Explosive Synthesis Facility, Revised Action Description Memorandum	Unidentified Author, M&H	09/88
N-37	Hazardous Waste Treatment and Processing Facility, Memorandum-to-File (EA determination)	C. L. Soden, AL P. M. Ramey, AAO	12/20/88
N-38	Hazardous Waste Treatment and Processing Facility, Action Description Memorandum	Lockwood Green/Planners	07/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-39	Facilities Capability Assurance Program (Subprojects: Sanitary Sewer System Renovation (90.3), Roads and Parking Areas (90.6), Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	01/20/88
N-40	Facilities Capability Assurance Program (Subprojects: Sanitary Sewer System Renovation (90.3), Roads and Parking Areas (90.6)) Action Description Memorandum	Unidentified Author, M&H	09/87
N-41	Personnel Radiological Monitoring and Contamination Control Improvements (VL), Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/05/86
N-42	Personnel Radiological Monitoring and Contamination Control Improvements (VL), Action Description Memorandum	Unidentified Author, M&H	12/85
N-43	Facilities Capability Assurance Program: High Explosive (HE) Formulation Facility, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	04/12/88
N-44	Facilities Capability Assurance Program: High Explosive (HE) Formulation Facility, Revised Action Description Memorandum	Unidentified Author, M&H	02/89
N-45	Nuclear Depth/Strike Bomb (ND/SB) (B90), Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	05/10/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-46	Nuclear Depth/Strike Bomb (ND/SB) (B90), Action Description Memorandum	Unidentified Author, M&H	12/88
N-47	Standoff Weapon - Sealance (SOW), Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	05/11/89
N-48	Standoff Weapon - Sealance (SOW), Action Description Memorandum	Unidentified Author, M&H	12/88
N-49	Short Range Attack Missile II (SRAM II), Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	01/20/88
N-50	Short Range Attack Missile II (SRAM II), Revised Action Description Memorandum	Unidentified Author, M&H	12/88
N-51	Automated Data Processing Support Facility, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	01/29/88
N-52	Automated Data Processing Support Facility, Revised Action Description Memorandum	Unidentified Author, M&H	09/88
N-53	Facility Capability Assurance Program - Renovate Fire Protection Water Supply System, Memorandum- to-File	C. L. Soden, AL P. M. Ramey, AAO	01/13/88

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-54	Facility Capability Assurance Program - Renovate Fire Protection Water Supply System, Revised Action Description Memorandum	Unidentified Author, M&H	09/88
N-55	Fire Protection Upgrading, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	01/29/88
N-56	Fire Protection Upgrading, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	08/07/89
N-57	Fire Protection Upgrading, Revised Action Description Memorandum	Unidentified Author, M&H	09/88
N-58	Facility Capability Assurance Program - Central Fire Station/EOC, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	10/13/87
N-59	Facility Capability Assurance Program - Central Fire Station/EOC, Action Description Memorandum	Unidentified Author, M&H	09/87
N-60	RCRA Classified Hazardous Waste Staging Facility, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	08/04/89
N-61	RCRA Classified Hazardous Waste Staging Facility, Action Description Memorandum	Unidentified Author, M&H	02/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-62	Facility Capability Assurance Program - Building 12-64 Mechanical and Earth Cover Renovation, Memorandum- to-File	C. L. Soden, AL P. M. Ramey, AAO	12/18/87
N-63	Facility Capability Assurance Program - Building 12-64 Mechanical and Earth Cover Renovation, Action Description Memorandum	Unidentified Author, M&H	10/15/87
N-64	High Explosive Machining Facility, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	04/14/88
N-65	High Explosive Machining Facility, Action Description Memorandum	Unidentified Author, M&H	09/87
N-66	Follow-On To Lance (FOTL) (also called Lance Follow-On), Memorandum- to-File	C. L. Soden, AL P. M. Ramey, AAO	02/25/84
N-67	Follow-On To Lance (FOTL) (also called Lance Follow-On), Memorandum- to-File	C. L. Soden, AL P. M. Ramey, AAO	05/10/89
N-68	Follow-On To Lance (FOTL) (also called Lance Follow-On), Action Description Memorandum	Unidentified Author, M&H	12/88
N-69	Trident II, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	02/25/84

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-70	Trident II, Action Description Memorandum	Unidentified Author, M&H	01/84
N-71	Neutron Radiography Facility, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	08/29/88
N-72	Neutron Radiography Facility, Action Description Memorandum	Unidentified Author, M&H	07/88
N-73	Classified, Action Description Memorandum	Unidentified Author, M&H	05/89
N-74	Metrology Health Physics Calibration Facility, Action Description Memorandum	Unidentified Author, M&H	03/89
N-75	Special Purpose Weapons Capability Complex, Action Description Memorandum	Unidentified Author, M&H	02/20/86
N-76	Liquid/Solid Waste Incinerator, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	07/24/87
N-77	Small ICBM (SICBM) Support, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/05/86
N-78	Small ICBM (SICBM) Support, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	01/20/88
N-79	SNM Component Staging Facility, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/05/86

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-80	Weapons Assembly Bays Replacement, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/25/84
N-81	Weapons Assembly Bays Replacement, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/05/86
N-82	Radiological/Environmental Monitoring Laboratory, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/25/84
N-83	Fire Alarm System Replacement, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/25/84
N-84	Safeguards Perimeter Alarm and Surveillance System, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/25/84
N-85	Material and Weapons Aging Facility, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/25/84
N-86	Anti-Submarine Warfare/Standoff Weapon (ASW/SOW) Program, Memorandum- to-File	C. E. Garcia, AL D. R. Ellis, AL	02/25/84
N-87	Advanced Air-To-Surface Missile (AASM) Program, Memorandum-to-File	C. E. Garcia, AL D. R. Ellis, AL	02/25/84
N-88	Security Enhancement Project, Memorandum-to-File	C. L. Soden, AL P. M. Ramey, AAO	01/26/88
N-89	W87 (MX ABRV Warhead), Action Description Memorandum	Unidentified Author, M&H	06/25/82

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-90	NEPA Review of FY84 AL Proposed Projects (Rocky Flats, Kansas City, Pinellas, Mound, Pantex) - Pantex Project - Utilities and Equipment, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/08/82
N-91	NEPA Review of FY84 AL Proposed Projects (Rocky Flats, Kansas City, Pinellas, Mound, Pantex) - Pantex Project - Health Physics Assurance Facility, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/08/82
N-92	W82 Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-93	Anti-Submarine Warhead/Stand-off Weapon Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-94	MX Weapons System/Advance Ballistic Reentry Vehicle Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-95	Corps Support Weapons System Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-96	Low Altitude Defense System Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-97	Trident II Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-98	Low Altitude Defense System Excursion Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-99	Computer Aided Design/Computer Aided Manufacturing Program, Memorandum- to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-100	Anti-Tactical Missile Program, Memorandum-to-File	J. R. Roeder, AL D. R. Ellis, AL	02/04/82
N-101	Interim Test Fire Facility, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-102	Weapon Assembly Facilities, FY-82, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-103	Explosive Drilling Facility, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-104	W80 Surge, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-105	Weapon Assembly Facilities, Stockpile Modernization, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-106	Explosives Pilot Plant, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-107	Explosives Staging Facility, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
N-108	Electrical Substation, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-109	Explosive Development Machining Facility, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-110	Weapons Assembly Facilities, "Task I," Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memo- randum dated 12/07/81)
N-111	Infrastructure Support, Facilities Gas Line Replacement (LANL), Memorandum- to-File	C. L. Soden, AL H. E. Valencia, AAO	08/19/89

CONTACTS/INTERVIEWS

<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-N-1	10/03/89	AAO	Physical Scientist	NEPA Management
I-N-2	10/03/89	M&H	Plant Engr. & Design	NEPA Management
I-N-3	10/03/89	M&H	Plant Engr. & Design	NEPA Management
I-N-4	10/04/89	AAO	Physical Scientist	NEPA Management
I-N-5	10/04/89	M&H	Envr. Protection Dept.	NEPA Management
I-N-6	10/04/89	M&H	Risk Mgmt. Dept. Mgr.	NEPA Management
I-N-7	10/04/89	M&H	Sectional Scientist	NEPA Management
I-N-8	10/05/89	M&H	Sectional Engineer	NEPA Management
I-N-9	10/03/89	AAO	Physical Scientist	NEPA/RCRA/CERCLA
I-N-10	10/04/89	AAO	Physical Scientist	NEPA/RCRA/CERCLA
I-N-11	10/05/89	M&H	Sr. Budget Analyst	Budget Terminology
I-N-12	10/03/89	AAO	Physical Scientist	NEPA Documentation
I-N-13	10/04/89	M&H	Plant Engr. & Design	NEPA Construction/Mitigation
I-N-14	10/04/89	M&H	Sectional Engineer	NEPA Past Actions
I-N-15	10/05/89	AAO	Area Manager	NEPA Documentation
I-N-16	10/05/89	AAO	Deputy Area Manager	NEPA Documentation
I-N-17	10/05/89	FAA	Air Traffic Manager	Crash Risk in 1983 EIS
I-N-18	10/05/89	AAO	Physical Scientist	NEPA Documentation
I-N-19	10/06/89	M&H	Indl. Engr. Manager	NEPA Mitigation
I-N-20	10/06/89	M&H	Plant Engr. & Design	NEPA Projects

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-N-21	10/06/89	M&H	Plant Engr. & Design	NEPA Projects
I-N-22	10/06/89	M&H	Sr. Budget Analyst	NEPA Projects
I-N-23	10/10/89	M&H	Plant Engr. & Design	NEPA Projects
I-N-24	10/10/89	M&H	Plant Engr. & Design	NEPA Projects
I-N-25	10/10/89	M&H	Sr. Budget Analyst	NEPA Projects
I-N-26	10/05/89	M&H	Sr. Budget Analyst	NEPA Projects
I-N-27	10/05/89	M&H	Plant Engr. & Design	NEPA Projects
I-N-28	10/05/89	M&H	Plant Engr. & Design	NEPA Projects
I-N-29	10/24/89	AL	Chief, Envr. Program	NEPA Findings

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
CNR-1	Final Environmental Impact Statement, Pantex Plant Site.	DOE (DOE/E15-0098)	10/83
CNR-2	Utilities Restoration: Subproject I, Restore Domestic/Fire Protection Water Supply, Action Description Memorandum	Unidentified Author, H&H	04/08/87
CNR-3	High Explosive Synthesis Facility, Revised Action Description Memorandum	Unidentified Author, H&H	09/88
CNR-4	Personnel Radiological Monitoring and Contamination Control Improvements (VL), Action Description Memorandum	Unidentified Author, M&H	12/85
CNR-5	Facilities Capability Assurance Program: High Explosive (HE) Formulation Facility, Revised Action Description Memorandum	Unidentified Author, H&H	02/89
CNR-6	High Explosive Machining Facility, Action Description Memorandum	Unidentified Author, M&H	09/87
CNR-7	Trident II, Action Description Memorandum	Unidentified Author, H&H	01/84

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
CNR-8	Special Purpose Weapons Capability Complex, Action Description Memorandum	Unidentified Author, H&H	02/20/86
CNR-9	W87 (MX ABRV Warhead), Action Description Memorandum	Unidentified Author, M&H	06/25/82
CNR-10	W80 Surge, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memorandum dated 12/07/81)
CNR-11	Explosives Pilot Plant, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memorandum dated 12/07/81)
CNR-12	Explosive Development Machining Facility, Action Description Memorandum	Unidentified Author, M&H	Undated (forwarding memorandum dated 12/07/81)
CNR-13	Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1)	Environment Laboratory, Department of the Army	1/87

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<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-CNR-1	10/5/89	DOE/AAO	Physical Scientist	Cultural and Natural Resources
I-CNR-2	10/6/89	DOE/AAO	Physical Scientist	Cultural and Natural Resources

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
S-1	Commerce Business Daily A&E Services for Pantex Plant	Bidwell, M&H	08/28/89
S-2	Proposed Staff	D.White,DOE-AAO	10/05/89
S-3	Analysis Report (SAR) Status	P. M. Ramey, DOE-AAO	
S-4	Preventative Maintenance, Work Order 680-1300, Rt.	M&H	04/19/87
S-5	General Office Standard, 014	O&I Standard Section	04/21/89
S-6	General Office Standard, 015		Issue#29
S-7	General Office Standard, 016		06/14/88
S-8	O&I Standard Manual	FabricationDiv.	11/17/88
S-9	Quality Assurance Program Requirements for Nuclear Facilities, ANSI/ASME NQA-1		1986
S-10	Small Job OrderVs. Maintenance Repair Order, 10M	E. Stepp to B. Colvin	10/06/89
S-11	Final Safety Analysis Report "High Explosive Subassembly Facility, Bldg. 12-104"		09/1988
S-12	Preventative Maintenance Work Order 680-1299 Rt.,RAMS Alpha		04/1987

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
S-13	Contractor Industrial Hygiene Program 5480-11	DOE/HQ	06/26/89
S-14	Industrial Hygiene, 5480.1A	DOE/AL	05/21/82
S-15	Asbestos Handling Operations, Std. 305	M&H	07/10/85
S-16	CFR 29 Code of Federal Regulations	OSHA	07/01/87
S-17	Pantex Emergency Plan EPP-100 and M&H Supporting Documents	02/1989 Rev. 1	
S-18	AEC Contract AT (29-2) 2858	AEC	04/10/70
S-19	28-9012 MC705 Decontamination		06/23/89
S-20	Health Physics Manual of Good Practices for Plutonium Facilities	L. G. Faust Pacific NW Lab.	1988
S-21	Health Physics Manual of Good Practices for Uranium Facilities	B. L. Rich, Idaho Nat'l Eng. Lab.	1988
S-22	Health Physics Manual of Good Practices for Reducing Radiation Exposure to Levels That Are As Low As Reasonably Achievable (ALARA), PNL-6577		1988
S-23	Nuclear Safety Program Appraisal of the Albuquerque Operations Office, DOE-EH-0005		06/1985
S-24	Selection, Qualification, and Training of Personnel for Nuclear Power Plants, ANSI/ANS3-1		1987
S-25	American National Standard Practice for Occupational Radiation Exposure Records Systems, ANSI N13.6		1972

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
S-26	Operational Health Physics Training, ANL-88-26	1988	
S-27	Operational Radiation Safety Program, NCRP-84	1983	
S-28	Safety File No. 1045.89 (004) IHE Machining Incident	M&H/ES&H Safety Dept.	01/13/89
S-29	UOR File (MHAAO-88-5-12-84) Accidental Activation of Deluge System Investigation Report, and Related Documents	C. D. Alley, M&H	07/19/89
S-30	M&H SMI File 104	Maintenance	09/14/89

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<u>FINDING NUMBER</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-S-1	10/05/89	M&H/Asst. Manager DOE/AAO	Asst. Mgr, Support Chief/Admin. Branch	Technical Support Staffing
I-S-2	10/06/89	M&H/Comp/Benefits	Manager	Staffing & Turnover
I-S-3	10/05/89	M&H DOE/AAO M&H/ES&H M&H/ES&H	Senior Buyer Contracts Spec. Mgr/Eng. Anal. Mgr/Safety Anal.	Technical Support, Staffing
I-S-4	10/7-9/89	M&H/ES&H	Mgr/Risk Assessment	Technical Support, Staffing, Operation Experience Review
I-S-5	10/11/89	M&H/ES&H	Acting Mgr.	Staffing, Technical Support
I-S-6	10/04/89	M&H/Risk Management	Manager	Plant Design
I-S-7	10/04/89	M&H/Plant Design M&H/Plant Design M&H/Risk Management M&H/Risk Management M&H/Risk Management M&H/Plant Design M&H/Plant Design M&H/Plant Design	Manager	
I-S-8	10/05/89	M&H/Plant Design	Security Engineer	Facility Design Control
I-S-9	10/06/89	Maintenance Division		Master Mechanic MRO/L&T
I-S-10		Maintenance	Electronics Shop	MRO
I-S-11		Maintenance	PF-Foreman	MRO/L&T
I-S-12		Maintenance	Technician	MRO

FINDING NUMBER	DATE	ORGANIZATION	POSITION	TOPIC(S)
I-S-13	10/05/89	M&H/Preventive Maint. M&H/Preventive Maint. M&H/Risk Management M&H/DOE/AAO	Section Head Senior Engr. Dept. Mgr.	Maintenance
I-S-14	10/10/89	M&H/IH Department M&H/IH Department	Dept. Head Field Technician	Asbestos Asbestos
I-S-15	10/05/89	M&H/Maintenance M&H/Plant Design M&H/IH	Maintenance Mgr. PM Section Head Design Engr. IH Supervisor	Asbestos Asbestos Asbestos Asbestos
I-S-16	10/05/89	M&H/Design Engineer	Drafting Supv.	
I-S-17	10/06/89	M&H/ES&H	Mgr./Emerg. Prep.	Emergency Plans
I-S-18	10/09/89	St. Anthony's Hospital	Administrator	Emergency Medical Response
I-S-19	10/06/89	M&H/Radiation Safety	HPT	12-26-17 Incident
I-S-20	10/5-7/89	M&H/Radiation Safety	Manager	Radiation Protection
I-S-21	10/4-9/89	M&H/DOE/AAO	Industrial Hygiene	General Radiation Safety
I-S-22	10/06/89	M&H/Environmental Prot.	Dept. Manager	General Radiation Protection
I-S-23	10/06/89	M&H/Safety		W-43 & W-55
I-S-24	10/05/89	M&H/Risk Management	Sr. HPT	Audits, QC
I-S-25	10/06/89	M&H/Radiation Safety	Manager	RPT Training
I-S-26	10/06/89	M&H/DOE/AAO	Chief, ES&H	
I-S-27		M&H Maintenance	Dept. Manager	
I-S-28	10/04/89	M&H/Safety		W-28

<u>FINDING NUMBER</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-S-29	10/05/89	M&H/Radiation Safety	Sr. HPT	
I-S-30	10/04/89	M&H/Assembly Engineering M&H/Training M&H/Training M&H/Training	Project Engineer Training Supervisor Sr. Training Spec. Training Supervisor	W-28, B-28 B-28 B-28 B-28
I-S-31	10/06/89	M&H/ES&H Safety	Director	Safety Report Systems
I-S-32		M&H/ES&H Safety	Staff Engineer	Operating Experience Review
I-S-33		M&H/Risk Management	Safety Analyst	Safety Committees
I-S-34	10/06/89	M&H/Assembly Division	General Str.	Safety Reporting
I-S-35				Safety Committees
I-S-36	10/5-6/89	M&H/ES&H/Operator	HE Machinist Paint Specialist Assembly Technician	Safety Reporting
I-S-37	10/05/89	DOE/AAO/ESHP	Manager	Safety Reporting
I-S-38			QA Specialist	Safety Committees
I-S-39	10/05/89	Utilities Division	Manager/Supervisor	Logs/Rounds/L&T
I-S-40			Manager	Equipment Monitor/L&T
I-S-41	10/06/89		Utilities Operator	Logs/Equipment Monitor/L&T
I-S-42	10/07/89	Training		W-28/Retraining/L&T
I-S-43	10/11/89	DOE/AAO Safeguards & Security Branch	Branch Chief	Safety/Security Interface

October 23, 1989

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M-1	Tiger Team Guidance Manual - Environment, Safety and Health and Management and Organization Assessment.	DOE	09/89
M-2	Environment, Safety and Health Long Range Plan	M & H	02/88
M-3	Organization Responsibilities and Authorities	M & H	1989
M-4	An Introduction to Pantex Plant	M & H	03/89
M-5	TSA Performance Objectives and Criteria - Appendix A	DOE	01/89
M-6	Rocky Flats Area Office Management Assessment	DOE	06/29/89
M-7	Solid Waste and Residue Management at Rocky Flats Plant	DOE	07/25/89
M-8	Draft Tiger Team Assessment Report for the Feed Materials Production Center (FMPC)	DOE	09/12/89
M-9	Focus: A Strategic Plan for the Pursuit of Excellence at Pantex	M & H	None
M-10	Nuclear Waste - Problems Associated with DOE's Inactive Waste Sites	USGAO	08/88
M-11	Nuclear Waste - Supplementary Information on Problems at DOE's Inactive Waste Sites	USGAO	09/88
M-12	Environmental Restoration and Waste Management, Five Year Plan	DOE	1989
M-13	Attachment 6 - Items 1-11, Pantex Tiger Team Assessment Information Request - ES&H	M & H	1989
M-14	Attachment 6 - Items 1-11, Pantex Tiger Team Assessment Information Request, DOE/MH	M & H	1989
M-15	Submission of Monthly Environmental Compliance Reports in Compliance with Secretary of Energy Notice SEN-7-89	DOE	08/89
M-16	Memorandum of Agreement Among DOE Offices With Respect to Environmental Management of DOE Facilities	DOE	09/89
M-17	USDOE Albuquerque Operations Office	DOE	09/89
M-18	ES&H Issues	M & H	04/89
M-19	Development Division Functions	M & H	09/20/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M-20	Pantex Plant - Environment, Safety and Health M & H Management Issues	M & H	09/19/89
M-21	Functions of Formulation Facility	M & H	1989
M-22	MORT Based Root Cause Analysis and Sample Report	DOE	06/89
M-23	Events and Causal Factors Charting	DOE	08/78
M-24	Barrier Analysis	DOE	08/85
M-25	MORT User's Manual For Use With The Management Oversight and Risk Tree Analytical Logic Diagram	DOE	08/83
M-26	Change Control and Analysis	DOE	03/81
M-27	Distribution of Functions Within The Amarillo Area Office	DOE	10/88
M-28	Pantex Plant ES&H Construction Projects	M & H	1989
M-29	Department of Energy Tiger Team Assessment	DOE	1989
M-30	Tiger Team Pre-Assessment Visit, Sept. 9-21, 1989, AAO Management Overview - P.M. Ramey, Area Manager, (Viewgraphs)	M & H	09/89
M-31	DOE Order 5484.1 - Environmental Protection, Safety and Health Protection Information Reporting Requirements	DOE	02/24/89
M-32	M & H Office Standards Index Pages	M & H	09/89
M-33	Environment Safety and Health Compliance Assessment	DOE	10/89
M-34	Operational Surety Program Strategic Plan	DOE	08/88
M-35	Environment, Safety and Health Appraisals, 9/86 - 8/89	M & H	08/89
M-36	Manufacturing Day Calendar & DOE Training File	M & H	09/18/89
M-37	DOe-AAO Operations Management Branch "Tigers For Excellence"	M & H	09/18/89
M-38	Operations Management Branch Reports	DOE	10/89
M-39	5600xx Draft AAO Operations Surety Program	DOE	
M-40	DOE/AAO Safeguards and Security Management Branch DOE/AL Order Responsibility Assignment	DOE	

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M 41	AAO Safeguards and Security Management Branch Major Functional Areas	DOE	None
M-42	Evolution of the S & SM Branch	DOE	85-89
M-43	Description, Chief S & SM Branch	DOE	10/89
M-44	S & SM Branch, Bio Data on Employees	DOE	None
M-45	Appraisals, Evaluations, Surveys, Studies	DOE	None
M 46	AL-1120, Ch. IV-10, Organization, Authorities and Functions, AAO	DOE	10/03/88
M-47	AAO Initiative to Enhance AAO Safety Program	DOE	09/26/88
M-48	Health Protection-Industrial Hygiene Appraisal DOE/AL 08/29 - 09/01/88	DOE	09/88
M-49	Occupational Medical Review (Dr. Christiansen) 07/26 - 27/89	DOE	07/89
M-50	AAO Internal Audit of M & H Occupational Medical Program 12/14-17/88	DOE	12/88
M-51	Articles of Agreement Between Mason and Hanger, Silas Mason Co., Inc., Pantex Plant, Amarillo, Texas and Metal Trades Council of Amarillo, Texas and Vicinity AF of L, CIO, 1987 - 1990	M & H	1987
M-52	Secretary of Energy Notices, SEN-0-89	DOE	1989
M-53	OSH Appraisal DOE/AL 4/4 - 9/88	DOE	09/88
M-54	ES&H Management Appraisal DOE/OESH	DOE	11/03/88
M-55	ES&H Strategic Plan	M & H	12/13/88
M-56	Classification of Industrial Hygiene/Health Physicist Position	DOE	
M 57	Positions Required for ES&H and Operational Quality	DOE	08/24/89
M-58	Safety and Occupational Health Manager GM-018-13	DOE	None
M-59	M & H Organization Chart (with names) - All Divisions	DOE	None
M 60	Letter, Alley to Ramey, EPA Meeting on 10/5/89	M & H	10/04/89

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<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M-61	Letter, Alley to Ramey, 2/28 Contamination Incident	M & H	09/13/89
M-62	Letter, Alley to Ramey, 2/28 Contamination Incident	M & H	09/18/89
M-63	Risk Management Manual	M & H	07/89
M-64	Contract Between USAEC and St. Anthony's Hospital For Operation of an Emergency Radiation Treatment Facility	DOE	04/10/70
M-65	What is Operational Surety?	M & H	07/10/89
M-66	AAO Inspector Comment on "Is Operational Surety There?"	DOE	09/14/89
M-67	Office Standard 304.1 re: Occupational Injury or Illness Determination Board	M & H	01/19/87
M-68	DOE/MH Meeting Note With EPA in Dallas on October 5, 1989	DOE	10/07/89
M-69	1988 Pantex Plant Safety and Health Audit Report, National Safety Council	M & H	1988
M-70	1988 Pantex Plant S & H Action Plan, Revised	M & H	10/02/89
M-71	Letter, Poyner (M & H) to Paradee (AAO)	M & H	09/28/89
M-72	Pantex Plant Advanced Degree Program (TV)	M & H	
M-73	Communication Task Force Recommendations	DOE	
M-74	AAO Ramey to EPA With Draft Copy of RCRA Corrective Action Order	DOE	09/26/89
M-75	Approval Request to HQ From AAO and AL00 to Negotiate a Consent Order for Pantex	DOE	10/06/89
M-76	Cost Plus Award Fee (CPAF)	DOE	09/89
M-77	DOE Order 5400.1 - General Environmental Protection Program	DOE	11/09/88
M-78	AAO Management Charter (predecessor to 5400.1)	DOE	06/87
M-79	DOE Order 5480.1 - ES&H Program for DOE Operations	DOE	
M-80	AL00 5480.1B ES&H Program	DOE	
M-81	AAO 5480.1B ES&H Program	DOE	

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M-82	Memo from R. Hymer - Secretary of Energy Notice, SEN-7-89, "Policy on Line Management's Responsibility to Achieve Environmental Compliance"	DOE	07/89
M-83	DOE 5482.1B Environment, Safety and Health Appraisal	DOE	09/23/86
M-84	AL 5482.1A AL Environmental, Safety and Health (ES&H) Appraisal Program	DOE	04/30/84
M-85	AAO 5482.1B AAO Environmental, Safety and Health (ES&H) Appraisal Program	DOE	12/06/88
M-86	DOE 5484.1 Environmental Protection, Safety and Health Protection Information Reporting Requirements	DOE	02/24/81
M-87	AL 5484.1 AL Environmental Protection, Safety and Health Protection Information Reporting Requirements	DOE	08/23/82
M-88	AAO 5484.1 AAO Environmental Protection, Safety and Health Protection Information Reporting Requirements	DOE	09/06/88
M-89	DOE 5700.6B Quality Assurance	DOE	09/23/86
M-90	AL 5700.6B Revision 1, Non-Weapons Quality Assurance	DOE	09/13/88
M-91	AAO 5700.6B Revision 1, AAO Non-Weapons Quality Assurance	DOE	03/10/89
M-92	DOE 5480.14 Comprehensive Environmental Response, Compensation and Liability Act Program	DOE	04/26/85
M-93	DOE 5400.3 Hazardous and Radioactive Mixed Waste Program	DOE	02/22/89
M-94	DOE 5440.1C National Environmental Policy Act	DOE	04/09/85
M-95	AL 5440.1B Implementation of the National Environmental Policy Act (NEPA)	DOE	11/12/82
M-96	Project Management Branch Binder	DOE	
M-97	AL Budget Reform Task (ALBURT)	DOE	09/14/89
M-98	ALBURT Force Overview of DOE/ALL Program WBS	DOE	
M-99	FY 1992/1993 Budget Submission Operations	M & H	09/28/89
M-100	NEPA Documentation for the HE Machining Facility at Pantex	DOE	09/29/89
M-101	AAO Operations QA Program (Correspondence)	DOE	10/02/89

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M-102	AAO Operations QA Program (Procedures)	DOE	10/02/89
M-103	AAO Staffing and Ceiling Information	DOE	
M-104	AAO Budget and Program Finance Information	DOE	
M-105	Annual Audit Plan for FY 1990	M & H	06/14/89
M-106	Internal Audit Tracking Documents	M & H	
M-107	Internal Audit Department - Project Risk Assessment	M & H	09/26/89
M-108	HE Machining Facility - Project Management Plan	DOE	09/25/88
M-109	AL Information Digest (10/86 - 10/88)	DOE	
M-110	FY 89 Material Weaknesses	M & H	1989
M-111	Examples of Internal Audit Reports	M & H	
M-112	FY-1989 Listing of Reviews and Audits	M & H	
M-113	HE Machining Facility, Pantex Plant, Project Plan and Charter	DOE	09/19/89
M-114	Construction ES&H Program Brochure	DOE	01/89
M-115	Examples of AAO Site Visit Forms (ES&H)	DOE	
M-116	Samples of Non-Weapons QA Checklist		
M-117	HE Machining Facility - Project Manager's Progress Report	DOE	09/29/89
M-118	ES&H Capital Supplemental Budget - Maintenance Projects to Correct ES&H Deficiencies	DOE	
M-119	Draft HE Machining Facility Assessment Review	DOE	02/18/89
M-120	Quality Status Report of OESH Appraisals	M & H	07/07/89
M-121	ES&H Division Program Manual (Non-Weapons QA)	M & H	08/04/89
M-122	Non-Weapons QA Site Plan	M & H	08/18/89
M-123	Computer Printouts of AAO Training for ES&H	M & H	09/19/89
M-124	Computer Prinouts of M & H Training for ES&H	M & H	10/12/89

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M-125	M & H Staffing and Vacancy Data	M & H	
M-126	AAO Action Plan NAS Report	DOE	
M-127	AL Classification Correspondence	DOE	
M-128	AAO-AL Correspondence on Staffing Requests	DOE	
M-129	AAO Ceiling Requests and Correspondence	DOE	
M-130	AAO Proposed Organization	DOE	10/06/89
M-131	Process for Response to OESH Functional Appraisals	DOE	03/89
M-132	AL Environmental Restoration and Waste Management 5-Year Plan, Rev. I	M & H	07/21/89
M-133	Environmental Related O & I's	M & H	
M-134	AL Budget Reform Task (ALBURT) Viewgraph	DOE	
M-135	Integrated Prioritized List of IRB/MC Positions	DOE	10/16/89
M-136	Performance Appraisal Standards	DOE	
M-137	Summary of OQ Activities and Plans	M & H	10/02/89
M-138	Operations Quality Assurance Program Status (Ramey Memo)	DOE	08/02/89
M-139	Operations Quality Assurance Program Status (Alley Memo)	M & H	08/23/89
M-140	Role of the Area Office in the AL Operations Complex	AL	03/89
M-141	Safety Policy, Program and Organization "Package"	M & H	09/29/89
M-142	Action Plan - A Needs Assessment for an Injury Management System, 1989 (Proposal)	M & H	1989
M-143	M & H Worker's Compensation Exp.	DOE	07/19/89
M-144	Transcription of Telephone Interview	TRAN	09/20/89
M-145	ES&H Correspondence and Data on Appraisal Reports	AAO	
M-146	AAO Visitor List for FY89 (w/dates, names, organizations, purpose and duration)	AAO	FY89
M-147	Injury Mgmt. System (and Report Forms)	R Douglas	

LIST OF SITE DOCUMENTS

<u>Document Number</u>	<u>Title/ Description</u>	<u>Author/ Organization/ Recipient</u>	<u>Document Date</u>
M-148	M & H ES&H Staff Education List	M & H	

CONTACTS/INTERVIEWS

<u>REF. NO.</u>	<u>DATE</u>	<u>ORGANIZATION</u>	<u>POSITION</u>	<u>TOPIC(S)</u>
I-M-1	10/03/89	AAO/ES&H-EP	Branch Chief	General Overview
I-M-2	10/03/89	AAO/Op. Mgmt.	Branch Chief	General Overview
I-M-3	10/04/89	AAO/Op. Mgmt.	Ind. Specialist	Interview
I-M-4	10/04/89	AAO/Op. Mgmt.	Gen Engineer	Interview
I-M-5	10/04/89	AAO/Quality Mgmt.	Branch Chief	General Overview
I-M-6	10/04/89	AAO/Quality Mgmt.	QA Sr Engineer	General Overview
I-M-7	10/04/89	AAO/S & SM	Branch Chief	Interview
I-M-8	10/05/89	AAO/S & SM	Personal Security	Interview
I-M-9	10/04/89	AAO/Project Mgmt.	Branch Chief	Interview
I-M-10	10/04/89	AAO/Project Mgmt.	Gen Engineer	Interview
I-M-11	10/10/89	AAO/ES&H-EP	Physical Scientist	Interview
I-M-12	10/05/89	AAO/ES&H-EP	Safety Engineer	Interview
I-M-13	10/05/89	AAO/ES&H-EP	Physical Scientist	General Overview
I-M-14	10/05/89	AAO/ES&H-EP	NWQA Specialist	Interview
I-M-15	10/05/89	AAO/Adm. Services	Branch Chief	Interview
I-M-16	10/05/89	M & H/Medical	Medical Director	General Overview
I-M-17	10/06/89	M & H/Internal Audit	Chief Auditor	Interview
I-M-18	10/04/89	M & H/ES&H	Director	General Overview
I-M-19	10/06/89	M & H/Support	Asst. Plant Manager	M & H/ES&H Program
I-M-21	10/10/89	M & H/Quality	Division Manager	Interview
I-M-22	10/04/89	M & H	Attorney	Interview
I-M-23	10/05/89	M & H/Systems	Division Manager	Interview
I-M-24	10/05/89	M & H	Excellence Coordin.	M & H Excellence Program
I-M-25	10/09/89	M & H/Safety	Workman's Comp. Spec.	Workman's Compensation
I-M-26	10/05/89	M & H/Finance	Division Manager	Interview
I-M-27	10/06/89	M & H/Risk Management	Department Manager	Interview
I-M-28	10/11/89	M & H/Plant Engineering	Division Manager	Interview
I-M-31	10/11/89	M & H/Fabrication	Division Manager	Interview
I-M-32	10/06/89	M & H/Assembly	Department Manager	Interview
I-M-33	10/09/89	St. Anthony's Hospital	Administrator	Emergency Rad. Treatment
I-M-34	10/11/89	M & H/Development	Division Manager	Interview
I-M-35	10/10/89	AAO/Management	Ind. Relations Spec.	Interview

CONTACTS/INTERVIEWS

REF. NO.	DATE	ORGANIZATION	POSITION	TOPIC(S)
I-M-36	10/10/89	ALOO	Operations Surety	Operations Surety Program
I-M-38	10/10/89	M & H/ES&H	Safety Engineer	Interview
I-M-39	10/11/89	AAO	Deputy Area Manager	Tour and Briefing
I-M-40	10/13/89	M & H/Human Resources	Specialist	Interview
I-M-41	10/13/89	Traveler's Insurance	Claims Agent	Interview
I-M-42	10/16/89	M & H/Crafts	Tool Maker	Interview
I-M-43	10/17/89	M & H/A & S	Division Manager	Interview
I-M-44	10/12/89	AL	AMA	Interview
I-M-45	10/12/89	AL/ES&H Division	Area Manager	Interview
I-M-46	10/12/89	AL/ES&H Division	Director	Interview
I-M-47	10/12/89	AL/Safety Programs	Director	Interview
I-M-48	10/13/89	AL/Weapons Program	Director	Interview
I-M-49	10/13/89	AL	Manager	Interview
I-M-50	10/13/89	AL/OSP	Director	Interview
I-M-51	10/13/89	M&H/Human Res. Division	Manager	Interview
I-M-52	10/16/89	AL Pers. & Emp. Rel.	Director	Interview
I-M-53	10/16/89	AL Pers. & Emp. Rel.	Director	Interview
I-M-54	10/17/89	AL/ES&H Division	Director	Interview
I-M-55	10/17/89	AL/OLAD	Prog. Dir.	Presentation
I-M-56	10/21/89	AAO	Manager	Interview
I-M-57	10/21/89	M&H	Manager	Interview
I-M-58	10/23/89	AAU	Dpty. Mgr.	Interview
I-M-59	10/18/89	Travelers Insurance	Claims Mgr.	Interview

APPENDIX B

PERSONNEL BIOGRAPHIES

NAME: Ralph Stein

POSITION ON TIGER TEAM: Tiger Team Leader

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Ohio State University	Graduate work, Nuclear Engineering	----
University of Pittsburgh	B.S. in Chemical Engineering	1954

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Treatment Engineer	3	Water treatment
Principal Engineer	5	Nuclear technology, radiation effects, fuel fabrication
Nuclear Programs	15	Nuclear process designer/constructor, water and air
Program/Project Manager	15	Reactor design and technology, nuclear waste disposal development, reactor safety

NAME: Dorner T. Schueler

POSITION ON TIGER TEAM: Deputy Tiger Team Leader

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of California	B.S. in Mining Engineering	1948
University of California	B.S. in Naval Science	1948

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Manager, Engineering Construction Division	4	Engineering and construction, project management and organization. Budget and program development. Technical program administration.
Manager, Technical Services Division	6	
Director, Test Site Operations	4	
Director, Construction and Engineering Division	2	
Project Manager, WIPP Project	4	
Assistant Manager, Administration, Projects and Energy Programs Resource Management	12	
Deputy Manager, Ops Office	1	

NAME: Norman H. Davison

POSITION ON TIGER TEAM: Safety and Health Team Leader

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Illinois	Mechanical Engineering, B.S.	1956

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Nuclear Engineer	13	Federal nuclear regulatory and compliance activities
Reactor Engineer	9	Reactor design, shielding analysis and project management
Nuclear Process Engineer	5	Nuclear fuel reprocessing, vitrification, storage, transport and disposal
Consultant	6	Serving the nuclear industry and government agencies

NAME: Raymond DiSalvo

POSITION ON TIGER TEAM: Organization and Administration,
and Technical Support - Safety and
Health Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Pennsylvania State University	Solid State Science, Ph.D.	1973
Rutgers University	Chemistry, A.B.	1967

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Vice President, Systems Safety and Security	8	Participation in security and safety evaluations at DOE sites/facilities providing indepth understanding of DOE policies, requirements and missions
Program Manager	8	Management of research for nuclear fuel cycle facilities providing indepth understanding of comparability with regulation of commercial facilities

NAME: Leo G. Faust

POSITION ON TIGER TEAM: Nuclear Criticality Safety and
Radiological Protection - Safety
and Health Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Humboldt State College	Physics, B.S.	1959

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Chief Scientist Health Physics Department	28	Various management positions covering all phases of health physics; broad range of health physics and dosimetry research and development activities, including various dosimetry upgrade programs; serves on several national and international standards committees; DOE representative to the Interagency Intrinsic Radiation (INRAD) Committee and Joint Radiation Protection Group; managed the radiation monitoring program of the Hanford Laboratories; responsible for establishing improved routine surveillance programs resulting in better contamination control and reduced exposures within the facilities of the Laboratory; development and application of radiological engineering criteria for new and old facilities; research and development of personnel dosimeters; dose rate determinations and shielding calculations

NAME: Walter C. Lipinski

POSITION ON TIGER TEAM: Auxiliary Systems, Facility Design and Engineering, and Facility Safety Review - Safety and Health Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Illinois Institute of Technology	Electrical Engineering, Ph.D.	1969
Illinois Institute of Technology	Electrical Engineering, M.S.	1963
University of Illinois	Electrical Engineering, B.S.	1950

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Sr. Electrical Engineer activities, advisory	20	Experience with various reactor designs, consulting committee on Reactor Safeguards, US Nuclear Regulatory Commission (NRC)

NAME: Larry L. Sherfey

POSITION ON TIGER TEAM: Consultant to Safety and Health
Team for Operations, Maintenance,
Training and Certification

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Washington State University	Sociology, B.A.	1974

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Sr. Development Engineer	1	Certified NCR License Examiner/Auditor, evalua- tions and audits
Operation Manager	8	Nuclear reactor management

NAME: Charles Grua

POSITION ON TIGER TEAM: Coordinator OSHA Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
US Merchant Marine Academy	Marine Engineering, B.S.	1957

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
General Engineer	8	In the EH Office of Quality Programs as a Senior Quality Assurance Engineer, participated in 6 TSAS, and approximately 15 other Quality Assurance appraisals, audits, readiness reviews and investigations at DOE facilities as a team leader and team member

NAME: Jacques B. J. Read

POSITION ON TIGER TEAM: DOE Coordinator - OSHA Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Yale	Physics and Chemistry, Ph.D.	1962
Yale	Chemistry, M.S.	1958
Princeton	Chemistry, A.B.	1957

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Senior Physical Scientist, NRC	14	Performed safety reviews of proposed nuclear power plants
Group Leader, DOE	1/2	Supervise occupational safety and health oversight organization

NAME: Les Grove

POSITION ON TIGER TEAM: Team Leader - OSHA Team, Industrial Hygienist

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
St. Joseph's University	Biology, B.S.	1978

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Industrial Hygiene Supervisor	2	Supervised and trained other industrial hygienists
Senior Industrial Hygienist/ Industrial Hygienist	8	Conducted investigations of a complex nature in varied industrial settings

NAME: Fred Bartol

POSITION ON TIGER TEAM: Industrial Hygienist - OSHA Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Drexel University	Industrial Hygiene, M.S.	1983
Lock Haven University	Biology & General Science, B.S.	1981

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Senior Industrial Hygienist	6	Conducted inspections of a complex nature in various manufacturing industries
Penn State University Instructor	3	Instructed students in Industrial Hygiene principals and practices

NAME: Ronald H. Sarnacki

POSITION ON TIGER TEAM: Compliance Officer - OSHA Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
U.S. Air Force and Department of Labor Technical Training		

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Safety/Health Compliance Officer, OSHA/DOL	16	Conducted inspection of a complex nature in various manufacturing industries

NAME: Joseph O. Boda

POSITION ON TIGER TEAM: Environmental Assessment Team
Leader

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Oregon State University	Sanitary Engineering, M.S.	1975
University of California, Davis	Soil and Water Science, B.S.	1972

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Environmental Engineer	14	DOE environmental surveys; NEPA documentation; water quality and dredged material investigations; RCRA compliance; remedial waste site investigations; and cultural and natural resources determinations

NAME: Jerry J. Nelsen

POSITION ON TIGER TEAM: Assistant Environmental Team Leader

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Oklahoma	Ph.D. Radiological Health/ Environmental Engineering	1974
Michigan State University	M.S. Plant Physiology	1966
University of Northern Iowa	B.A. Chemistry	1961

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Teacher, Jr. High Science	5	Understanding basic science, ecology
University Professor	5	Environmental research, teaching
Environmental Engineer A.E.C., Savannah River Operations Office	2	Oversight contractor environmental programs at SR nuclear industrial complex, coordinate ecology research at Savannah River Ecology Laboratory
Environmental Scientist (Asst. Dir. Environmental Protection), Chicago Operations Office	13(3)	Oversight environmental/ NEPA programs at Chicago Operations Office, Establish National Environmental Research Park at Fermilab

NAME: Joe M. Bryan

POSITION ON TIGER TEAM: Surface Water - Environmental
Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Texas Christian University	Environmental Science, M.S.	1975
Texas Tech University	Political Science, B.A.	1966

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Environmental Scientist	1	Investigated water quality-related and compliance-related issues for various process industries
Scientist	11	Performed field investigations for several clients regarding compliance with surface water discharge regulations
Environmental Planner	4	Participated in planning for water quality management for a major metropolitan area

NAME: Clifford N. Click

POSITION ON TIGER TEAM: Air - Environmental Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Clemson University	Ph.D.BioE	1970
University of Toledo	M.S. Ch.E.	1965
Ohio State University	B.Ch.E.	1957

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Principal Engineer Petrocal	1-1/2	Conduct air emissions - inventories and SARA reports, develop air permits
Senior Engineer	1	Developed emissions inventories for coal conversion processes
Senior Development Engineer	6-1/2	Inspections/surveys of VOC emissions from 16 polymer and 3 acrylonitrile industries
Environmental Protection Engineer	2-1/2	Technically interpret air regulations for the Illinois EPA

NAME: George V. Gartseff

POSITION ON TIGER TEAM: Toxic and Chemical Materials and
Quality Assurance - Environmental
Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Alabama in Birmingham	Master of Public Health	1980
Auburn University	Biological Sciences, B.S.	1974

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Project Manager	6	Manages remedial investigations and feasibility studies of chemically-contaminated sites
Project Scientist	4	Supported field investigations of contaminated sites; performed sampling and analysis; advised on RCRA and CERCLA requirements
Technician	4	Performed water quality studies in the field and laboratory

NAME: Stephen J. Giebel

POSITION ON TIGER TEAM: Radiation - Environmental Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Georgia Institute of Technology	Graduate courses in Health Physics	Ongoing
Virginia Polytechnic Institute & State University	Biology/Health Physics, B.S.	1983

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Radiation Physicist	1	Analyze various environmental media for radioactive content
Environmental Laboratory Coordinator	2	Develop environmental laboratory program and procedures
Associate Radiological Analyst	1	Radiological field task leader for proposed HLW site
Senior Radiological Analyst	2	Evaluate environmental monitoring programs, perform dose assessments, write environmental impact statements, review regulatory compliance

NAME: Donald C. Habib

POSITION ON TIGER TEAM: Waste Management - Environmental
Assessment Team

EDUCATION EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Massachusetts Institute of Technology	Chemical Engineering, B.S.	1982

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Staff Engineer	7	Provide RCRA expertise in environmental surveys and audits, facility investiga- tions, document review, and regulatory development

NAME: William M. Levitan

POSITION ON TIGER TEAM: Inactive Waste Sites, Cultural/
Natural Resources, Contractor
Coordinator - Environmental Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Maryland	Civil Engineering/Engineering Administration, M.S. (partial)	Ongoing
University of Delaware	Marine Studies, M.S.	1977
Johns Hopkins University	Natural Sciences, B.A.	1975

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Environmental Scientist	3	Conduct and coordinate CERCLA environmental surveys and audits of DOE facilities; develop environmental audit checklists; review DOE environmental compliance documents
Environmental Scientist	10	Conducted and managed CERCLA and NEPA-related studies

NAME: John Tschanz

POSITION ON TIGER TEAM: Air - Environmental Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Michigan	Urban Planning, M.S.	1973
Ohio State University	Physics (Nuclear Spectroscopy), Ph.D	1967
Ohio State	Engineering Physics, B.S.	1958

WORK RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Environmental Systems Engineer	10	Developed air emissions databases, conducted air emissions inventories

NAME: Philip R. Winsborough

POSITION ON TIGER TEAM: Groundwater - Environmental Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Texas, Austin	Geology, B.A.	1972

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Principal Hydrogeologist	1	Oversee hazardous and solid waste compliance for industries
Staff Geologist	3	Reviewed compliance by industries with RCRA & State regulations
Senior Hydrogeologist	2	Oversaw RCRA & State compliance for industries
Staff Geologist	9	Performed groundwater monitoring assessments in support of surface mining, RCRA & State regulations; conducted environmental impact assessments

NAME: Carolyn M. Osborne

POSITION ON TIGER TEAM: Environmental Assessment Sub-Team
Leader - NEPA

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Yale University	Ecology, Ph.D.	1977
Harvard University	Natural Sciences and Education, M.A.T.	1966
S.U.N.Y. at Buffalo	Biology, B.A.	1965

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Environmental Protection Specialist	3	Oversee NEPA compliance for DOE waste management activities; developing new NEPA categorical exclusions; prepared draft update of DOE NEPA Compliance Guide; led NEPA Sub-team at West Valley Demonstration Project
Physical Scientist	6	Reviewed NEPA documents submitted to the Food and Drug Administration; wrote NEPA documents for FDA- proposed actions

NAME: Glenn F. Cada

POSITION ON TIGER TEAM: Member, NEPA Environmental
Assessment Sub-Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Nebraska	Zoology, Ph.D.	1977
Colorado State University	Zoology, M.S.	1973
University of Nebraska	Zoology, B.S.	1971

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Research Staff Member	12	Participated in DOE NEPA Audit of Rocky Flats Plant and Tiger Team NEPA Assessment for West Valley Demonstration Project; through the Oak Ridge National Laboratory, provide technical support for DOE's Office of NEPA Project Assistance; prepare NEPA documents for NRC and FERC; conduct research related to the environmental effects of energy technologies

NAME: Gerald K. Eddlemon

POSITION ON TIGER TEAM: Member, NEPA Environmental
Assessment Sub-Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Tennessee	Zoology, M.S.	1974
University of Tennessee	Zoology, B.S.	1970

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Research Associate	15	Participated in DOE Tiger Team NEPA Assessment for West Valley Demonstration Project; through the Oak Ridge National Laboratory, provide technical support for DOE's Office of NEPA Project Assistance; conduct NEPA assessments of environmental effects of energy-related technologies

NAME: James K. Gilliam

POSITION ON TIGER TEAM: Assistant Leader, NEPA Environmental Assessment Sub-Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Eastern Illinois University	Zoology, M.S.	1973
University of Illinois	Biology, B.S.	1971

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Environmental Protection Specialist	1	Oversee NEPA compliance for DOE's Office of Nuclear Energy
Natural Resource Specialist and Fish and Wildlife Biologist	8	Prepared NEPA documentation for the Department of the Interior's oil and gas leasing projects and the Alaskan pipeline
Ecologist for Army Corps of Engineers	2	Prepared NEPA documentation programs

NAME: Cynthia G. Heckman

POSITION ON TIGER TEAM: Member, NEPA Environmental
Assessment Sub-Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Kentucky	Biology, M.S.	1985
Thomas Moore College	Biology, B.A.	1980

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Technical Information Analyst	5	Assisted in development of DOE NEPA Assessment Protocol at Oak Ridge National Laboratory; maintain DOE database of Memoranda-to-File

NAME: Tony C. Upchurch

POSITION ON TIGER TEAM: Management Assessment Team Leader,
Management and Organization

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
East Carolina University	Accounting, B.A.	1960

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Deputy Director of Administration Services	10	Responsible for administration services activities at DOE Headquarters
Director of Administration Services	4	Nuclear Regulatory Commission
Budget & Fiscal Officer	6	Budget responsibilities for the Waste Management Program at AEC/DOE
Accountant/Auditor	9	Conducted nationwide comprehensive audits of various civilian government agencies

NAME: Ben White

POSITION ON TIGER TEAM: Assistant Management Assessment
Team Leader; Management and
Organization

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of Santa Barbara	PhD. Candidate	Present
University of Utah	M.B.A.	1975
University of New Mexico	B.B.A.	1965

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Special Project (DOE)	1/2	Special Projects Officer for planning and productivity for the Office. Represent the Office Director on special assignments of sensitive and/ or departmentwide nature.
Chief of Info. Management (DOE)	3	Responsible for records, forms, and reports management programs for the Department. Coordi- nated information management issues crossing organization- al lines.
Management Analyst, Asst. to Dep. Administrative Officer	3	Responsibilities included development of a variety of management systems, functional statements for major offices and the organizational struc- ture; planning and coordinating activities for the design and preconstruction activities for the Alaska portion of the gas pipeline; and later, all administrative functions during

closedown activities including negotiating an agreement with DOE to provide administrative support to the Office until further activity on the project.

Personnel,
Labor Relations,
and Administra-
tive Officer

15

Fifteen years of personnel, labor relations, and general administrative experience in several locations throughout the country.

NAME: Jack E. Allen

POSITION ON TIGER TEAM: Management Analyst - Management Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Weber State College	Management, B.S.	1970

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Management Analyst/Auditor	2-1/2	Operational Auditing, organizational studies, internal control reviews
Classification/Position Management and Organization Review	8	Conducted or participated in organization reviews, organization change proposals, management reviews

NAME: Dean O. Clark

POSITION ON TIGER TEAM: Management Analyst/Risk Management
Insurance Specialist - Management
Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
University of South Dakota	Mathematics, B.S.	1963

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Actuary	9	Learning and understanding DOE/M&O contract relation- ships
Small Business Owner/Manager	3	Appreciating and formulat- ing work processes affect- ing the "bottom" line
Benefit Consultant ships	1	Understanding working union/management relation-
Insurance Officer	9	Coordinating DOE-wide M&O claim service
Risk and Insurance Management Society (RIMS) National Board Member	2	Has allowed sharing risk management problems/ solutions common to private industry with peers

NAME: Frank C. McCann

POSITION ON TIGER TEAM: Management Analyst/Finance -
Management Assessment Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Pennsylvania State University	Accounting, B.S.	1976

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Auditor	10	Responsible for performing operational audits of multiple programmatic and administrative activities to assess compliance with governing laws, regulations, policies, and procedures.
Management Analyst	1	Responsible for evaluating organizational and staffing resources necessary to fulfill mission requirements.
Staff Accountant	1-1/2	Responsible for oversight and administration of DOE's internal control program. This program is designed to ensure that adequate management controls are established for all Departmental programmatic and administrative functions.

NAME: Curtis E. Schryer

POSITION ON TIGER TEAM: Management Analyst/Personnel
Specialist - Management Assessment
Team

EDUCATIONAL EXPERIENCE:

<u>School</u>	<u>Discipline and Degree Earned</u>	<u>Year</u>
Northern State College (South Dakota)	Business Administration, B.S.	1966
University of South Dakota	Master of Business Administration	1967

WORK-RELATED EXPERIENCE:

<u>Position</u>	<u>Number of Years</u>	<u>Experience Applicable to Tiger Team</u>
Personnel Manage- ment Specialist	8	Involved personnel evalua- tion of line and staff organizational units
Federal Personnel Branch Chief	10	Involved personnel evalua- tion of line and staff organizational units
Contract Administration	4-1/2	Duties included evaluation of contractor performance

APPENDIX C

PRE-ASSESSMENT PLANNING

United States Government

Department of Energy

Memorandum

DATE September 12, 1989

REPLY TO
ATTN OF EH-24

SUBJECT Tiger Team Assessment of the Pantex Facility

TO Bruce G. Twining
Manager
Albuquerque Operations Office

On June 27, 1989, Secretary of Energy Watkins announced a 10-point Initiative to strengthen environmental protection and waste management activities in the Department of Energy (DOE). One of the initiatives involves conducting Tiger Team Assessments at DOE's operating facilities. The purpose of the assessments is to provide the Secretary with information on the current environment, safety and health (ES&H) compliance status of each facility (and associated vulnerabilities), root causes for noncompliance, adequacy of DOE and site contractor ES&H management programs, response actions to address the identified problem areas, and DOE-wide ES&H compliance trends and root causes.

This memorandum is to inform you that the Tiger Team Assessment of the Pantex Facility will begin on the morning of October 2, 1989. The Assessment will be conducted in accordance with the Tiger Team Charter, Attachment 1, and the Draft Tiger Team Assessment Guidance Manual in preparation.

The scope of the assessment is broad and will include, but not be limited to the following ES&H areas:

- o compliance with applicable Federal, state and local regulators, requirements, permits, agreements, orders and consent decrees;
- o compliance with DOE order requirements;
- o adequacy of DOE and site contractors and ES&H management programs, including planning, organization, resources, training, and relationships with regulatory agencies and the public;
- o conformance with applicable "best" or "accepted industry practices;" and,
- o identification of root causes.

To initiate the Tiger Team Assessment at the Pantex Facility, a Pre-assessment site visit to Pantex is scheduled for September 19-21, 1989. The purpose of this Pre-assessment site visit is to acquaint the principal participants, as listed in Attachment 2, with the Area Office and contractor personnel, to become familiar with the facility by means of a site tour and briefings (see suggested topics and schedule on Attachment 3), to review site documents needed by Tiger Team members prior to coming on-site as identified in Attachments 4, 5, and 6, and to discuss logistics for the upcoming Assessment.

Please identify a member of your staff who will be responsible for coordinating the Pre-assessment and Assessment site visits. This person will be responsible for contacting the appropriate personnel at Pantex and advising them of upcoming meetings, establishing site tours and briefings, obtaining appropriate office space and support, and, as directed by the Tiger Team Leader, contacting appropriate state and Federal regulatory agencies to apprise them of the Tiger Team Assessment and request their attendance at both the Pre-assessment and the on-site Assessment.

The Tiger Team Assessment is a high priority with the Secretary of Energy. This priority should be explained to the facility and, if required, to the regulators for their benefit in selecting the appropriate level of personnel to be involved in the Pre-assessment site visit. The participation of site personnel and Federal and state representatives in the Tiger Team Assessment will be explained in greater detail during the Pre-assessment site visit.

To ensure that the Tiger Team has a thorough understanding of the facility prior to the Pre-Assessment site visit, we are requesting that copies of the asterisked information identified for each of the three subteam information requests, as provided in Attachments 4, 5 and 6, be express mailed to the appropriate subteam address as identified on each of the attachments on or before September 17, 1989. The information which is not asterisked should be easily accessible for review by the Tiger Team during the September Pre-Assessment and the October Assessment.

We are aware that the information request list is extensive and several information items may very well be in one document or, in some cases, the information may not exist. New environmental reports or documents should not be generated in the process of responding to this information request.

If you have any questions concerning this request or the upcoming Tiger Team Pre-assessment or Assessment, please contact me, at (FTS) 896-6046.

Ralph Stein
Tiger Team Leader

Attachments (6)

cc: Leo Duffy, S-1
John Meinhardt, DP-1
Raymond P. Berube, EH-20
Denny Krenz, AL
T. M. Ramey, AAO
Eric J. Fygi, CG-1
Christina Sankey, CP-60
Will F. Callicott, CP-60
Joseph C. Karpinski, CP-1
Randal S. Scott, EH-24
Larry Weiner, EH-24
Joseph Boda, EH-24
Norm Davison, EH-342
Carol Borgstrom, EH-25
Jerry Nelsen, CH
Bruce Beelman, OSHA
Don Schuler, AL
John Tseng, EH-23
Kitti Taimi, EH-23

CHARTER**Environment, Safety and Health Tiger Team Assessments****Mission:**

Conduct independent oversight compliance and management assessments of the environment, safety and health (ES&H) programs at DOE facilities.

Purpose:

Provide the Secretary of Energy with concise information on:

- current ES&H compliance status of each facility and associated vulnerabilities;
- root causes for noncompliance;
- adequacy of DOE and site contractor ES&H management programs;
- response actions to address identified problem areas; and
- DOE-wide ES&H compliance trends and root causes.

Authority:

The assessments are being conducted as part of the 10-point Initiative announced by the Secretary on June 27, 1989, and in accordance with the Secretary's implementing directive of July 13, 1989. All DOE and contractor personnel are directed to support and assist this effort.

Scope:

The assessments will include but not be limited to the following ES&H areas:

- compliance with applicable Federal, state, local regulations requirements, permits, agreements, orders and consent decrees;
- Compliance with DOE Order requirements;
- adequacy of DOE and site contractor ES&H management programs, including planning, organization, resources, training, and relationship with regulatory agencies;
- conformance with applicable "best" and "accepted" industry practices; and
- identification of root causes.

TEAM MANAGEMENT:

The teams are to be headed by senior DOE managers from Headquarters and field operations.

HQ MANAGER:

EH-1 is appointed manager for the assessments.

TEAM COMPOSITION:

Teams will be composed of technical experts from DOE and contractor organizations. The type and number of team members will be site specific.

ASSESSMENT PROTOCOL:

EH is responsible for selecting and/or developing assessment protocols.

REPORTING:

All reporting is to be concurrently to Leo Duffy, Program Senior Officials (PSO), and EH-1. Weekly summaries for S-1 are to be prepared by the HQ Manager.

The Secretary has committed to the following schedule:

<u>Number of Facility Assessments</u>	<u>Completion Date</u>
8	December 1989
10	June 1990
17	June 1991
<u>65+</u>	December 1992
Total	100+

HOTLINE:

The Office of the Inspector General (IG) has established a hotline at HQ for citizens and facility workers to report specific facility concerns. The IG is responsible for making the public aware of the availability of the hotline. The hotline number is 202/586-4073 in the Washington, D.C., metropolitan area, or toll free 1-800-541-1625.

TRAINING:

EH is responsible for developing and conducting training sessions for assessment team members and field trainees.

REPORTS:

A draft report, prepared by the Team Leader, will be provided at the on-site assessment closeout and will contain individual findings, root causes, and requisite supporting documentation. The Team Leader will provide the draft

report the facility manager, DOE Operations and Area Office managers, PSO's, GC-1, EH-1 and regulatory agency representatives present during the assessment. The draft report will be made available to the public in DOE (or other) public reading rooms.

The PSO will consolidate comments on the draft report and provide them to the Team Leader within two weeks of receiving the draft report. The Team Leader will incorporate, as appropriate, the draft report comments received from the PSO. The Team Leader will prepare a final report within two weeks of receiving the draft report comments from the PSO.

EH-1 will forward the final report to S-1 and recommend that S-1 forward the final report to the PSO and direct the PSO to prepare a final action plan.

ACTION PLANS:

EH-1 will request the PSO to prepare a draft action which addresses each of the draft assessment findings. The PSO will coordinate the preparation of a draft action plan the PSO will provide the draft action plan to EH-1 within two to four weeks of receiving the draft report.

The Team Leader, in coordination with EH-1 will review and provide the PSO with comments on the adequacy of the draft action plan. The PSO will incorporate, as appropriate, the draft action plan comments received from the Team Leader. The PSO will prepare a final action plan within two to four weeks of receiving the draft action plan comments from the Team Leader. The PSO will forward the forward the final action plan, after obtaining EH-1 and Team Leader concurrence, to S-1. S-1 will approve the final action and direct the PSO to implement the plan.

FOLLOW UP:

Any findings which identify an immediate threat to public health or worker health or safety will be addressed immediately. All other findings will be addressed in a timely manner pursuant to an approved action plan (described above). The PSO will have the lead responsibility for ensuring that approved action plan is implemented and progress is tracked. EH-1 will provide oversight and verification of action plan implementation and tracking.

Attachment 2

PRINCIPAL PARTICIPANTS PANTEX TIGER TEAM PRE-ASSESSMENT SEPTEMBER 19-21, 1989

Ralph Stein, RW-30	Tiger Team Leader
Don Schueler, AL	Assistant Tiger Team Leader
Joseph Boda, EH-24	Environmental Team Leader
Norm Davison, EH-341	Safety and Health Team Leader
Chuck Tierney, MA-2.1	Management Team Leader
Carolyn Osborne, EH-25	NEPA
Jerry Nelsen, CH	Environmental Assistant Team Leader
Bruce Beelman	OSHA
Carolyn Haylock, RW-30	Tiger Team Leader Administrative Assistant Aid

Attachment 3

Proposed Agenda for Pantex Tiger Team Pre-Assessment Visit September 19-21, 1989

September 19

8:30 A.M. Site Introductions

8:45 A.M. Tiger Team Introductions and Briefing on Tiger
Team Assessment

9:45 A.M. Site Overview (Include identification of
problems/issues)

 Operations
 Environmental Program
 Safety and Health
 Site Management

11:45 A.M. Lunch

12:45 P.M. Site Orientation Tour

September 20

8:30 A.M. Assessment Logistics

 Security
 Work Space and Support
 Public Affairs
 Health and Safety Concerns

10:00 A.M. Information Request Review

September 21

8:30 A.M. Discussion of Important Site Processes and
Construction and Remediation Activities.

11:00 A.M. Closeout

Attachment 4

PANTEX TIGER TEAM ASSESSMENT

ENVIRONMENT TEAM INFORMATION REQUEST

- * Items required by Tiger Team at, or preferably before, the Pre-assessment meeting.**

NOTE: ASTERISKED ITEMS SHOULD BE EXPRESS MAILED TO:

**NUS Corporation
Attention: Bill Levitan
910 Clopper Road
Gaithersburg, Maryland 20878-1399**

IF THE INFORMATION IS CLASSIFIED, PLEASE FORWARD THE MATERIAL TO THE SECURE MAIL BOX AT:

**NUS Corporation
Attention: Facility Document Control
P.O. Box 3016
Gaithersburg, Maryland 20878**

I. General Site Information

- 1. Location maps, small scale.**
- 2. General description of plant site and facilities.**
- 3. Aerial surveys (especially historical surveys showing disturbed areas, construction areas, old dump sites, etc.).**
- 4. History of operations, including purpose and scope of activities.**
- *5. Description of operations (flow diagrams, narrative, and sketches).**
- *6. Process description (flow diagrams, including raw material inputs and process outputs including waste streams).**
- *7. Organization charts and description of responsibilities for overall plant management and environmental and health and safety programs.**
- *8. Annual Environmental Monitoring reports for the site for the last three years.**

9. Reports that identify environmental problems or corrective action plans for the site, e.g., Installation Assessment Program Phase I Report (see DOE Order 5480.14).
10. Historic audit/appraisal reports for last three years.
11. Contractor incident/accident report (i.e. unusual occurrence reports).
- *12. List of buildings with building manager names and telephone numbers.
13. Topographic map(s) of the facility.

II. Hydrogeology

1. Reports on site-wide geology and hydrogeology that include physical and chemical parameters analyzed for the site and/or immediate area.
2. Site-specific reports performed under DOE Orders for environmental groundwater monitoring and CERCLA assessments.
3. Annual Groundwater Monitoring reports for RCRA units.
4. Environmental Monitoring Program plans including the sampling plans, quality assurance plans, and reports.
- *5. Current site map of all monitoring wells.
6. Network diagram of Five Year Plan tasks and progress.

III. Surface Water

1. Complete sewer and storm drain layout plan.
- *2. Drawings showing the location of outfalls, sampling locations, treatment/storage facilities (including holding ponds), and sources of wastes being treated/stored.
- *3. Block-flow diagrams of waste treatment facilities.
4. Description of operation of waste treatment facilities.
5. Piping and instrumentation (P & I) diagrams of waste treatment facilities.

6. Studies of wastewater and sludge disposal, wastewater treatability, waste characterization, or other similar tests, investigations, or studies involving site wastewaters.
7. Description of any recent significant changes in manufacturing processes or equipment, new sewer connections or construction, major changes in raw materials used or other similar indications of activities that could signal a significant change in quantity or characteristics of raw wastes.
8. Surface water quality data and reports other than Annual Environmental Monitoring Reports.
9. Information used to plan the Environmental Monitoring Program (how sites were located and how the frequency and type or parameters monitored for were selected).
10. Description of maintenance and calibration procedures for liquid effluent process and monitoring equipment.
11. Progress/status reports provided to regulatory agencies as per FFCA, Consent Decree, etc.
12. Description of pretreatment facilities for applicable Federal pretreatment categories.
13. Descriptions of planned/ongoing construction or upgrades of treatment systems and schedules.
14. Permits-to-install and applications for Permits-to-Install.
- *15. Past 3 Years of NPDES monitoring reports. Descriptions of actions required as a result of NPDES violations/schedules.
16. Best Management practices Plan for liquid effluent controls, if applicable.
17. Implementation Plan/Tracking System for BMP/SPCC Plan items or deficiencies:
 - Reports to POTWs on monitoring of wastewater discharges.
 - * - Pretreatment applications and permits.
 - Analytical data on drinking water.
- *18. List of on-site personnel and off-site contractors used for environmental monitoring.

19. Descriptions of environmental sampling training programs and training courses used by on-site personnel and off-site contractors.
20. List of personnel with certificates to operate an WWTP.

IV. Drinking Water

1. Inspection manuals for the water storage and distribution system.
2. Reports and drawings on the water collection, treatment, storage, and distribution system
3. List of personnel with WTP operator certificates.

V. Spill Prevention and Control

1. SPCC plan.
2. List and location for ongoing projects that could affect oil/hazardous substances storage, piping, or spill response.

VI. Air

- *1. Description of meteorological monitoring system and data acquisition system, copies of maintenance and calibration procedures, and maintenance and calibration records.
- *2. Description of ambient air sampler network, siting criteria, operational procedures, calibration and maintenance procedures, and maintenance and calibration records.
3. Complete source and source emissions inventory for the complex (if no formal source inventories exist, please provide the data most related to this information).
4. Description of source emission controls applied at the complex, type of air contaminants controlled, data verifying effectiveness of emissions control, operating and test procedures for control equipment, emissions controls maintenance records.
5. Description of stack monitoring/sampling program, analytical procedures, calibration procedures, and data.

6. Site-specific meteorological data and air quality data.
7. Dose modeling methodology, results with supporting data/calculations.

VII. Solid Waste Management

- *1. Location (map) and description of all active and inactive solid waste (includes hazardous, nonhazardous, and radioactive wastes) treatment, storage, and disposal facilities (TSDFs). Indicate which facilities are RCRA (Interim Status, Part B, or section 3004(u) solid waste management units), CERCLA (including those listed or proposed NPL sites), and other facilities in which solid waste is treated, stored, or disposed.
2. Operational history of all active and inactive solid waste TSDFs. Indicate if records were kept, and if so, what they contain and the periods covered.
3. Include a list of chemical analyses of past and present waste streams and/or a list of the known or possible waste constituents.
4. Information regarding past waste TSD practices and locations gathered from interviews with past and present employees.
5. Records of facility expansion relevant to disposal of building rubble.
6. Documents pertaining to the identification of on-site and off-site areas that may be contaminated with hazardous or radioactive substances (i.e., Installation Assessment Report, Phase I prepared under DOE Order 5480.14).
7. Documents (final or draft) pertaining to CERCLA response actions or RCRA corrective actions including preliminary assessments/site investigations or RCRA facility assessments, RI/FS work plans or corrective action plans, RI/FS or corrective measures study reports, records of decision, remedial action/remedial design documents, studies associated with all of the above, and comments from EPA/States or DOE Area Offices, Operations Offices and Headquarters on all of the above.
8. Reports pertaining to past spills or other accidental releases, including those which exceeded reportable quantities and were reported to the National Response Center.

9. Facility procedures for reporting spills to the National Response Center.
10. DOE Order 5480.2 Hazardous Waste Management Plan.
11. DOE Order 5820.2 Radioactive Waste Implementation Plan and Radioactive Waste Management Plan.
12. Description of current nonhazardous solid waste management practices.
13. Facility source terms for at least the last 10 years including annual quantities released per release point (atmospheric, surface water, groundwater, soil, and off-site disposal), release point description, release point location, any effluent prior to release, effluent monitoring at each release point, monitoring equipment used, calibration procedures for monitoring equipment, and the process description creating the radiological release.
14. Description of the environmental monitoring program for on-site nonhazardous solid waste disposal sites.
15. Names and locations of past and present off-site TSDFs. Include both commercial and noncommercial facilities. Indicate if records were kept regarding date(s) of shipment(s), type and quantity of waste.
16. Historical inventory of hazardous, radioactive, or mixed waste, including quantities and characteristics of the waste streams.
 - List of off-site TSDFs
 - * - List of LDR-restricted wastes
 - * - Regulated substance UST inventory and reports
 - Historic inventory of cold (non-hazardous, non-radioactive) waste generation.
17. RCRA Part B Permit Application submitted since 1986.

VIII. Toxic Substances (Toxic Materials, PCBs, Asbestos, and Pesticides)

- *1. List and current inventory of toxic substances maintained at the facility.
- *2. List and current inventory of toxic substances used at the facility.
3. Related plans or procedures on purchase, use, and hazard information dissemination.

4. Information on the calculation of radiological doses including:
 - a. Technical description of the computer codes used to estimate atmospheric and aquatic dispersion and dilution,
 - b. Technical description of the procedures/computer codes used to estimate the site boundary and off-site radiological doses.
5. Description of emergency plans at the site.
- *6. List of all buildings containing radiological hazards; and the quantities produced, stored and/or used on an annual basis in each building.
7. Safety analyses report for all buildings that contain radiation.
8. Information of non-orphaned facilities, and abandoned-in-place, DOE scrape metal, FUSRAP and SFMP programs.
9. List and descriptions of buildings and areas with radionuclide contaminants.
- *11. Radioactive material non-waste storage or stock piles.
12. Safety analyses report for all buildings that contain radiation.
- X. Regulatory/Enforcement Related Environmental Information Developed Since 1986
 - *1. Federal/State/Local permit applications and the permits which have been issued, e.g., NPDES, CAA, RCRA Part B. If available, a summary of permit requirements and conditions, e.g., sampling schedules, effluent limitations, emission limitations, pollution control instrumentation calibration and maintenance schedules, maintenance of pollution abatement equipment, etc.
 - *2. Federal/State/Administrative and civil actions, e.g., Interagency Agreements, Federal Facility Compliance Agreements, orders, complaints, consent decrees, notices of violations, warning letters, notice letters, notices of permit denial, notices of intent to deny permits, and pertinent correspondence with Federal/State regulatory agencies regarding non-compliance with substantive permit conditions and/or regulations.
 - *3. Most recent Federal/State inspection reports.

XI. Environmental Monitoring Quality Assurance

- *1. Quality Assurance Program for Facility.**
- 2. Laboratory QA Manuals & Procedures.**
- 3. Sampling QA Manuals and Procedures.**
- 4. Departmental QA Manual and Implementing Guidance.**
- 5. Procedures for:**
 - collecting environmental samples,**
 - sample chain of custody and QA/QC,**
 - sample analyses,**
 - utilities location maps,**
 - data management and reporting.**
- 6. List of environmental monitoring parameters and responsible laboratories (on-site and off-site).**
- 7. List of all environmental monitoring parameters and responsible analytical laboratory.**

XII. Above Ground and Underground Storage Tanks

- *1. Location map showing above/below ground storage tanks.**
- 2. A list of the storage tanks capacities, fabrication materials, product or chemical inventory, date of installation and date of the latest leak test and the results.**
- 3. Tank inventory report to EPA.**
- 4. Plans to comply with new UST regulations.**

XIII. SARA Title III

- 1. Notification to SEPC that the facility is subject to Title III.**
- 2. Notification of a facility emergency coordinator.**
- 3. Documentation of Title III spill reporting procedures, follow-up reports, reporting logs [not required ahead of time].**
- 4. MSDS submittals to SEPC, LEPC, and fire departments [not required of time].**
- 5. Tier I and/or Tier II forms.**

- *6. EPA Form R and back-up documentation of information.

XIV. Hazardous/Radioactive Materials Transport

- 1. Shipping records (e.g. manifests, certifications).
- 2. Package testing results.
- 3. Notification records and precautions.
- *4. Waste acceptance criteria.
- 5. Design specifications and certifications for package.
- 6. Record of identification/markups.
- 7. Labeling/Placarding records information.
- 8. Records for exceptions opted.
- *9. Plans and procedures for shipments.

XV. NEPA

- 1. Records that locate, identify, and describe both on-site occurrences and off-site occurrences of the following, which may be affected by facility activities: endangered and threatened species and their critical habitats, bald and golden eagles and migratory birds and their nests, wild horses and burros, waterways (including waters and navigable waters of the U.S., floodplains, wetlands, and wild and scenic rivers), coastal zones, national recreational trails, wilderness and wilderness study areas, sacred Native American sites, prime/unique farmland, archaeological and historical sites, historic and prehistoric ruins and monuments, other Federal lands (e.g. Natural Forests).
- 2. Documentation of consultation with agencies responsible for the administration of the natural resources listed in #1 above (e.g. Section 7 consultation with the Department of Interior on endangered species).
- 3. Permits such as the U.S. Army Corps of Engineers dredge and fill and 404 (b).
- 4. Policies and procedures for implementation of TSCA, RCRA, Clean Water Act, Clean Air Act, Safe Drinking Water Act, and Noise Control Act.

- *5. Any facility-specific or Operations office NEPA guidance or policies.
- *6. Any correspondence or guidance which refers to delegation of authority to make NEPA determinations.
- 7. Capital budget files, A-106 plans, and other appropriate records of proposed actions or initiated changes in operation.
- *8. Lists of ongoing and proposed CERCLA response actions.
- *9. Lists of ongoing and proposed RCRA closures and corrective actions.
- 10. All NEPA-integrated documents prepared in support of remedial actions.
- 11. State or local "NEPA-type" statutes and regulations.
- 12. Description of any litigation related to NEPA.
- *13. All Memorandums-to-File pertaining to NEPA.
- 14. All draft and final Environmental Assessments (EA) and associated materials (e.g., consultation, FONSI)
- 15. All draft and final Environmental Impact Statements (EIS) and associated materials (e.g., ROD, implementation plan).
- *16. All other types of documents used to make, support, or record NEPA determinations (e.g., Environmental Evaluations, Environmental Checklists, Action Description Memorandums).
- *17. Lists of all EAs and EISs that are still used for assessment of all ongoing or proposed actions.
- 18. Documents and studies that are cited in support of major aspects of facility EAs (e.g., biological assessments for endangered species, engineering details of projects).
- 19. Monitoring or mitigation reports available for EAs and EISs.
- 20. Printout from a database which tracks NEPA documents (if such a database exists).
- 21. Current work orders and work orders for past 5 years.

Attachment 5

PANTEX TIGER TEAM ASSESSMENT

**SAFETY AND HEALTH TEAM
INFORMATION REQUEST**

- * Items required by Tiger Team at, or preferably before, the Pre-assessment meeting.**

NOTE: ASTERISKED ITEMS SHOULD BE EXPRESS MAILED TO:

**Norm Davison, EH-341
Room J-121
U.S. Department of Energy
Germantown, Maryland 20545**

- *1. Contractor organization charts cover all areas of ES&H.**
- *2. List of key personnel with job assignments, including identification of technical support, QA, health physics, and other personnel supporting the operations but not reporting to the facility manager.**
- *3. General facility and site layout diagrams.**
- *4. A summary of facility description.**
- *5. Tables of Contents of safety manuals and quality assurance manuals.**
- *6. Index of operating procedures, emergency drills, and other pertinent procedures for the facility.**
- *7. General plant safety policy statements.**
- 8. Field office safety appraisal reports of the facility for the past three (3) years.**
- 9. Charters for, and members of, the safety committees reviewing facility activities.**
- 10. Contractor ES&H audit reports involving the facility for the past 2 years, including training program evaluations.**
- 11. Safety analysis reports of the facility with applicable addenda.**

12. A set of policy statements and procedures for the facility addressing operations, radiation protection, nuclear including criticality safety, quality assurance, emergency drills, and other ES&H related activities.
13. Site emergency plans and emergency procedures.
14. Accident/incident reports for the facility for the past 5 years.
15. UORs prepared in the past 3 years.
16. Training plans/manuals for operation and support personnel.
17. Statistics on job training and certification activities for the past 2 years (operations and support personnel).
18. Operational Safety Requirements.
19. Rates of turnover of operations and supporting personnel, with an interpretation of the rates.
20. Operating history of the facility for the past 2 years, with explanation of downtimes (scheduled or unscheduled).
21. A description of operations, tests, maintenance, shipping, and other work that is expected to be in progress during the assessment period (e.g., calibration of equipment, preventative maintenance, emergency drills, etc.).

OSHA Related Information

1. Description of the contractor's safety and health program.
2. Description of safety and health management and/or technical committee responsibilities.
3. Injury and illness records for the last 3-4 years, and a listing of any long-term worker complaints of health problems.
4. Copies of any worker safety and health appraisals/inspections for the last two years.
5. Description of respiratory protection programs.

6. Description of the hazard communication program.
7. Safety Analyses Reports.

Attachment 6

PANTEX TIGER TEAM ASSESSMENT

MANAGEMENT/LEGAL SUB-TEAM
INFORMATION REQUEST

- * Items required by Tiger Team at, or preferably before, the Pre-assessment meeting.

NOTE: ASTERISKED ITEMS SHOULD BE EXPRESS MAILED TO:

Charles Tierney
U.S. Department of Energy
Forrestal Building
Room 4A-253
1000 Independence Ave. S.W.
Washington D.C. 20585

- *1. Organization charts and description of responsibilities for overall plant management and environmental and health and safety programs for both DOE (Area Office) and the contractor.
2. Mission/function statements of all organizational units (DOE Area Office and contractor).
3. Staffing plans and any analyses relating to staffing, especially with respect to ES&H activities, for the past three years.
4. Summary of recruitment statistics.
5. Planning documents to implement mission/function of each organizational unit.
6. Management procedures for the distribution and implementation of DOE ES&H orders.
7. Award fee packages for the past two years.
8. Corporate oversight appraisals/audits conducted in the last two years.
9. Budget summaries, including requests and authorizations for the past three years, with an ES&H breakdown.
10. Descriptions of training programs and procedures for the implementation of those programs.
11. List of all Contractors (prime(s) and principal sub(s)).

SEP 13 1989

Those on Attached List

Gentlemen:

This confirms telephone notifications made to you or members of your staff on September 12-13, 1989.

The Secretary of Energy, James D. Watkins, announced on September 8, 1989, that the Department of Energy (DOE) will initiate an environmental "tiger team" assessment of the Pantex Plant. These assessments are one of the 10 initiatives which the Secretary has established to strengthen DOE's environment, safety, health protection and waste management activities.

There will be a pre-assessment site visit to the Pantex Plant by principal participants of the "tiger team" on September 19-21, 1989, beginning at 8:30 a.m. The purpose of this pre-assessment site visit is to become familiar with Pantex Plant by means of briefings and a site tour. The first day, September 19, will be devoted to discussion of issues, the site orientation, purpose of the assessment and establishment of the level of participation by federal or state regulators. This visit also presents an opportunity for your agency to understand better the ongoing programs at Pantex Plant, and to establish with the "tiger team" the level of participation desired in the actual assessment beginning October 2, 1989, with a four to six week effort.

I apologize for the short notice, but hope you will be able to participate in the pre-assessment visit on September 19-21, 1989, and the assessment beginning October 2, 1989.

Sincerely,

ORIGINAL SIGNED BY
P M. RAMEY

P. M. Ramey
Area Manager

Addressees

-2-

Mr. James T. Highland
Federal Facilities Compliance Coordinator
U.S. Environmental Protection Agency, Region VI
1445 Ross Avenue
Dallas, Texas 75202

Mr. Dan Eden, Director
Hazardous and Solid Waste Division
Texas Water Commission
P.O. Box 13087, Capitol Station
Austin, Texas 78711

Mr. Don Manning, District Manager
Texas Water Commission
District 1 Office
3918 Canyon Drive
Amarillo, Texas 79109

Mr. Lawrence E. Pewitt, Director
Permits Division
Texas Air Control Board
6330 Highway 290 East
Austin, Texas 78723

Mr. Gerald Hudson, Regional Director
Texas Air Control Board, Region II
Briercroft South No. 1
5302 South Avenue Q
Lubbock, Texas 79412

Mr. Russell Garcia
Division of Compliance and Inspection
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, Texas 78756-3189

Mr. Robert Adcock
Texas Department of Health
Bureau of Radiation Control
Public Health Region I
WT Box 968/300 Victory Drive
Canyon, Texas 79015

AGENDA

for

"TIGER TEAM" Assessment

Pantex Plant

C. D. ALLEY
VICE PRESIDENT &
PLANT MANAGER

October 2, 1989

P. M. RAMEY
AREA MANAGER
AMARILLO AREA OFFICE

8:00 A.M.	BADGING (Bldg. 16-12)	Alice Bryan	M&H
8:30 A.M.	WELCOME and OPENING REMARKS	Bruce Twining	DOE/AL
8:35 A.M.	OPENING REMARKS	Ralph Stein	DOE/HQ
8:45 A.M.	ORIENTATION BRIEFINGS FOR VISITORS <ul style="list-style-type: none">- Safety- Security- Classification- Computer Security	Phil Kelley Carl Neff Marvin Thompson Gary Simms	M&H M&H M&H M&H
9:30 A.M.	AL ORGANIZATION & RESPONSIBILITIES	Denny Krenz	DOE/AL
9:45 A.M.	BREAK		
10:00 A.M.	PANTEX PLANT OVERVIEW <ul style="list-style-type: none">- Production Process Flows- AAO ES&H Management Issues- M&H ES&H Management Issues	Gerry Johnson Prince Ramey Clyde Alley	DOE/AAO DOE/AAO M&H
11:30 A.M.	"TIGER TEAM" MOBILIZATION (Bldg. 12-36)	Ralph Stein	DOE/HQ
12:00 NOON	Lunch		
1:00 P.M.	"TIGER TEAM" ORGANIZATION:	<u>ADMIN. COORDINATORS</u>	
	a. Management Team	Bob Gage Bob Barton	DOE/AAO M&H
	b. Environmental Team	Skip Harrell Dennis Carathers	DOE/AAO M&H
	c. NEPA Review Team	Kari Hamrick Hank Lichte	DOE/AAO M&H
	d. Safety & Health Team	Tony Ladino Jack Dennis	DOE/AAO DOE/AAO
		Bob Mulkey Attila Papp	M&H M&H
	d. OSH Team	Charles Phillips Phil Kelley	DOE/AAO M&H
		Darrell Boyer Vicky Novak	M&H M&H
4:00 P.M.	Team Conferences	"Tiger Team" Leaders	

APPENDIX D

PLANNING FOR ON-SITE ACTIVITIES

DOE SPECIAL ASSIGNMENT - ENVIRONMENTAL TEAM
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 27, 1989

	AIR	SURFACE WATER	WASTE MGMT.	RADIATION	GROUNDWATER	INACTIVE SITES	QUALITY ASSURANCE TOXIC MTRLS.
MON OCT 2							
A.M.	Briefing	Briefing	Briefing	Briefing	Briefing	Briefing	Briefing
P.M.	General Site Tour	General Site Tour	General Site Tour	General Site Tour	General Site Tour	General Site Tour	General Site Tour
TUE OCT 3							
A.M.	Document review	Site process tour - Zone 12	Waste generation, handling and treatment tour - Zone 12N.	Site process tour - Zone 12	Site process tour - Zone 12	Site process tour - Zone 12	Site process tour - Zone 12
P.M.	Air sampling and monitoring - on and off-site	Site process tour - Zone 11 and 12	Waste generation, handling and treatment tour - Zone 12N.	Air sampling and monitoring - on and off-site	Site process tour - Zone 11 and 12	Site process tour - Zone 11 and 12	Site process tour - Zone 11 and 12
WED OCT 4							
A.M.	Firing Sites and Burning Ground tour.	Firing Sites and Burning Ground tour.	Waste generation, handling and treatment tour - Zone 12S.	Firing Sites and Burning Ground tour.	Interview regarding inactive sites, environmental restoration & EPA 3008(h) corrective action order.	Interview regarding inactive sites, environmental restoration & EPA 3008(h) corrective action order.	TSCA and hazardous chemical storage records review.
P.M.	Zone 11 tour.	Document review.	Waste generation, handling and treatment tour - Zone 11.	Off-site soil and vegetation sampling.	Tour of inactive site and ground water monitoring wells.	Tour of inactive site and ground water monitoring wells.	Visit Zone 11 storage areas at 11-7, 11-36, 11-39, 11-38, and 11-51. Spot-checked electronic equipment for PCB labels.

DOE SPECIAL ASSIGNMENT - ENVIRONMENTAL TEAM
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 27, 1989

	AIR	SURFACE WATER	WASTE MGMT.	RADIATION	GROUNDWATER	INACTIVE SITES	QUALITY ASSURANCE TOXIC MTRLS.
THU OCT 5							
A.M.	Meet with Engineering	Meet with Engineering	Sick	Review tritium incident, 1988 Environmental Report, and Environmental sampling procedures.	Tour of underground and aboveground storage tanks.	Cultural/natural resources document review.	Toured hazardous chemical storage and dispensing areas in Zones 11 and 12; spot-check of transformer PCB-labeling in Zones 11 and 12.
P.M.	Telephone interviews and document request development.	Tour steam boiler and waste water treatment plant.	Sick	Environmental sampling at Bushland control location.	Document review.	Cultural/natural resources interview; spill reporting document review.	Document review.
FRI OCT 6							
A.M.	Document review.	Interview local office of Texas Water Commission personnel.	Complete inspection of waste generation, handling and treatment in Zones 11 and 12.	Meteorological computer system (ARAC) review and meteorological monitoring tower tour.	Tour of VMF, interviews regarding USTs and AGTs.	Toured VMF; interviews regarding cultural/natural resources and spill reporting procedures.	Toured VMF and Preventive Maintenance Dept. for PCB information and follow-up.
P.M.	Documents and regulations review.	Records review.	Complete inspection of waste generation, handling, and treatment in Zones 11 and 12.	Review of Texas Dept. of Health sample results, Accu-Lab contract for analytical services, and part of Pantex Emergency Plan.	Interviews regarding GW sampling procedures.	Reviewed spill reporting procedures.	Records review.

DOE SPECIAL ASSIGNMENT - ENVIRONMENTAL TEAM
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 27, 1989

D-3

	AIR	SURFACE WATER	WASTE MGMT.	RADIATION	GROUNDWATER	INACTIVE SITES	QUALITY ASSURANCE TOXIC MTRLs.
SAT OCT 7/ SUN OCT 8	Gather applicable regulations and exemptions list.	Notes and documents review.	Document review.	Regulatory review.	Document review and notes review.	Environmental restoration document review and notes review.	Document and notes review.
MON OCT 9 A.M.	Document review.	Revisit to wastewater treatment plant.	Document review.	Document review and write findings.	Tour of Pantex Lake.	Environmental restoration document review.	Document and regulations review.
P.M.	Document review.	Records review.	Document review.	Corrections to findings format.	Document review.	Environmental restoration document review.	Document and regulations review.
TUE OCT 10 A.M.	Phone/interviews and document review. indoctrination.	Inspected SPCC emergency equipment.	Zones 11 and 12 treatment facilities inspection records.	Review dose assessment data.	Interview regarding drinking water sampling/TWC discharge permit.	Interviews and record review regarding SARA Title III and spill reporting.	Interviews with Preventive Maintenance Dept. regarding PCB testing, labeling, and documentation.
P.M.	Document review. Tour of 12-11, 12-16, 17-17 (equipment room/rotocloner).	Inspected diesel tank.	Zone 4 waste storage facilities and Zone 10 active landfills and scrapyard.	Zone 4 radwaste and Zone 10 landfills.	Toured site regarding production wells. Revisited aboveground storage tanks.	Interviews and record review regarding SARA Title III.	Tour of analytical laboratories at 11-17 and 11-51, and the Industrial Hygiene and Dosimetry labs.
WED OCT 11 A.M.	Interview. Tour of burning ground, observed HE burn; tour of 12-19.	Observed surface water sampling.	Burning Grounds: trays, landfill, cages, pans, pads, tanks, truck.	Burning Grounds, HE burn.	Tour of burning ground, evaporation pans, B.G. landfill. Viewed videotape of sewer lines.	Interviews regarding SARA Title III; observation of HE burn.	Document review.
P.M.	Document review/findings development. Tour of 11-36, 12-41, 16-1, 16-4.	Viewed sewer line tape. Observed surface water sampling.	RCRA compliance interviews.	H.P. tour Zone 12.	Tour of leased lands Texas Tech Playas 1 and 2.	Interviews regarding SARA Title III, natural/cultural resources regulation review.	Observed surface water sampling.

DOE SPECIAL ASSIGNMENT - ENVIRONMENTAL TEAM
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 27, 1989

	AIR	SURFACE WATER	WASTE MGMT.	RADIATION	GROUNDWATER	INACTIVE SITES	QUALITY ASSURANCE TOXIC MTRLS.
THU OCT 12	Document review. Tour of 12-68.	Interviews of utilities personnel.	Document review.	IOPs and Safety Standards. Also reviewed scrap metal recovery procedures.	Interviews regarding sewer lines.	Interview regarding environmental restoration program; high explosives demonstration.	Document review.
P.M.	Interview and document review. Observe explosives demonstration.	Observe explosives demonstration.	Burning ground operation interview.	Groundwater sampling.	Observed groundwater monitoring well sampling.	Document review and findings development; high explosives demonstration.	Observed HE test shot and groundwater sampling.
FRI OCT 13	Document review, develop draft findings.	Document review.	11-36 Interview, 12-83 tour.	Document review.	Tour of Vehicle Maintenance Facility (VMF), interviews regarding USTs.	Document review and findings development.	Document review.
P.M.	Issues review.	Document review.	Document review.	Write findings.	Interviews regarding G.W. sampling procedures.	Findings development.	Document review.
MON OCT 16	Document review; develop draft findings.	Document review.	Document review.	Findings development.	Findings development.	Document review.	Document review.
P.M.	Document review; develop draft findings.	Toured pesticide building.	Document review, findings development.	Findings development.	Findings development.	Document review and findings development.	Document review and findings development.
TUE OCT 17- FRI OCT 27	Report development.	Report development.	Report development.	Report development.	Report development.	Report development.	Report development.

D-4

DOE SPECIAL ASSIGNMENT - ENVIRONMENTAL TEAM (NEPA TEAM)
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 27, 1989

	NEPA Orders, Overview	NEPA Recordkeeping	NEPA Management	1983 EIS	NEPA Documentation
MONDAY OCT 2	Orientation/tour; arranged interviews.	Orientation/tour; screened information provided in response to request.	Orientation/tour; screened information provided in response to request.	Orientation/tour; screened information provided in response to request.	Orientation/tour; screened information provided in response to request.
TUESDAY OCT 3	Attended meetings; reviewed AL NEPA Order, notebook of M&H/AAO/AL correspondence; interviewed Hamrick (AAO) on NEPA/RCRA/ CERCLA integration.	Reviewed records on public and agency contacts for 1983 EIS; began tracking projects through budget record system.	Interviewed Hamrick (AAO) and Gunnels and Nunley (M&H) on management of NEPA process; reviewed M&H internal operations procedures.	Reviewed 1983 EIS to determine status of projects proposed in 1983 EIS.	Began to rectify listing/ files of ADM/MTFs; started preliminary review of ADM/MTFs.
WEDNESDAY OCT 4	Attended meetings; completed interviews (Harrell, AAO) on NEPA/RCRA/CERCLA integration; wrote findings on AL NEPA Order, AL contractor appraisal.	Completed review of 1983 EIS process; continued project tracking.	Completed interviews on management of the NEPA process (Harrell, AAO; Laseter, Pankratz, Papp, M&H); began review of record on HE Machining Facility.	Continued review of 1983 EIS projects, began review of mitigation measures claimed in EIS. Reviewed classified ADM and cleared ADM review with classification officer.	Rectified listing of 70 MTFs/ADMs; reviewed 28 MTFs/ADMs.
THURSDAY OCT 5	Attended meetings; wrote draft findings on NEPA/RCRA/CERCLA, outdated AL order.	Continued to track budget records on projects (met with Nunley, Gunnels, Clifford of M&H).	Received 1983 EIS and MTF/ADM for HE Machining Facility; began to write findings on NEPA management.	Reviewed status of mitigation measures on 1983 EIS.	Completed more MTF/ADM reviews (54/70).
FRIDAY OCT 6	Attended meetings and site tour to groundproof 1983 EIS projects. Reviewed Team files on NEPA management.	Completed data gathering on projects budgeted (met with Tolk, Nunley and Clifford of M&H).	Site tour to groundproof 1983 EIS projects. Continued to write findings on NEPA management.	Site tour to groundproof 1983 EIS projects.	Completed MTF/ADM reviews.

DOE SPECIAL ASSIGNMENT - ENVIRONMENTAL TEAM (NEPA TEAM)
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 27, 1989

D-6

	NEPA Orders, Overview	NEPA Recordkeeping	NEPA Management	1983 EIS	NEPA Documentation
SATURDAY OCT 7	Reviewed material from team.	Continued to review and interpret data on projects budgeted.	Continued to review and interpret data on NEPA management and write findings draft.	Continued to review and interpret data on EIS projects.	Continued to review and interpret data on MTF/ADMs.
SUNDAY OCT 8	Reviewed material from team; validated 4 findings with Hamrick (AAO).	Continued to review and interpret data on projects budgeted; wrote draft finding on need for NEPA data base.	Wrote findings on NEPA management; wrote draft finding on HE machining facility.	Evaluated ALO NEPA determinations of MTF/ADMs.	Evaluated ALO NEPA determinations of MTF/ADM related to 1983 EIS.
MONDAY OCT 9	Discussed NEPA management findings with Environmental Team Leaders and redrafted findings; discussed NEPA/RCRA finding with Harrell (AAO) and decided to eliminate finding; reviewed team findings.	Completed table of projects and associated NEPA reviews; worked on NEPA database finding.	Wrote finding on NEPA review required for HE machining facility; conferred with Team members on evaluation of AL NEPA determinations.	Evaluated AL NEPA determinations, particularly those relying on the EIS; conferred with Environmental Team on Pantex wetlands determination.	Evaluated AL NEPA determinations, worked on database and finding for NEPA determinations.
TUESDAY OCT 10	Attended meetings; reviewed team findings; validated finding on HE Machining Facility with Hamrick (AAO) and Lichte (M&H).	Met with Gunnels, Nunley and Clifford (M&H) to verify list of Pantex projects. Worked on table and finding for need for AAO to have a NEPA database.	Redrafted finding on HE Machining Facility; worked on finding for AL NEPA determinations.	Worked on finding for AL NEPA determinations.	Worked on table and finding for AL NEPA determinations.

DOE SPECIAL ASSIGNMENT - ENVIRONMENTAL TEAM (NEPA TEAM)
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 27, 1989

	NEPA Orders, Overview	NEPA Recordkeeping	NEPA Management	1983 EIS	NEPA Documentation
WEDNESDAY OCT 11	Validated four findings with General Counsel, discussed findings with Environment Team Leaders (Boda, Nelson).	Completed and validated the finding on need for a NEPA tracking system with AAO (Hamrick), M&H (Lichte), and General Counsel. Discussed finding with Environment Team Leaders (Boda, Nelson).	Completed finding on inadequacy of AL NEPA determinations.	Completed support for finding on inadequacy of AL NEPA determinations. Completed work on-site.	Completed database for MTF/ADMs and support for finding on inadequacy of AL NEPA determinations. Completed work on-site.
THURSDAY OCT 12	Validated finding on inadequacy of NEPA determinations with AAO (Hamrick), M&H (Lichte), General Counsel and Environment Team Leaders; combined two findings concerning NEPA authority.	Prepared final version of finding on NEPA database; wrote overview for NEPA chapter; completed work on-site.	Prepared final versions of findings on AL Order and HE Machining Facility; completed work on-site.	Report development.	Report development.
FRIDAY OCT 13	Met with AAO (Gage and Hamrick) to discuss tentative NEPA findings; submitted draft report to Boda and Stein; returned to DOE-HQ.	Report development.	Report development.	Report development.	Report development.
FRIDAY OCT 14-	Report development.	Report development.	Report development.	Report development.	Report development.
FRIDAY OCT 27					

Safety and Health Team Agenda

Date	Activities	Duties	
		Areas of Investigation	Team Members
Mon. 10/02/89	Inbriefing/Badging Visitor Safety Indoctrination Meeting with Site Counterpart	Emergency Readiness Security/Safety Interface Fire Protection	Norm Davison
Tues. 10/03/89	Previous TSA Review Site Documentation Review Team Planning	Organization and Administration Operations Technical Support	Ray DiSalvo
Wed. 10/04/89 Thru 10/06/89	On-site Surveillance: Facility Inspections Operations Observations Staff Interviews	Training and Certification Nuclear Criticality Safety Radiological Protection	Leo Faust
Sat. 10/07/89 Thru 10/09/89	Team Technical Discussions Establish Initial Findings Draft of Findings	Auxiliary Systems Facility Safety Review Facility Design and Engineering	Walt Lipinski
Tues. 10/10/89 thru 10/12/89	Confirmatory Surveillance Address Selected Topics Draft Report Prepare for Closeout	Operations Maintenance Training and Certification	Larry Sherfey
Fri. 10/13/89	Finalize Report to Tiger Team Release Team		

DOE SPECIAL ASSIGNMENT - MANAGEMENT AND ORGANIZATION TEAM
AUDIT AGENDA OCTOBER 2 THROUGH OCTOBER 6, 1989

	UPCHURCH	WHITE	CLARK	McCANN	ALLEN	SCHRYER
Mon. 10/02	Orientation Doc. Review I-M Gage & Barton	Orientation Discussion w/ Gage & Barton TT Meeting MORT	Badging, Intro. Brief., Site Overview Orient. Tour	Orientation & Briefing Plant Tour Team Conf.	Brief/Present. Pantex Opers. Plant Tour TT Meeting MORT	Orientation Tour
Tues. 10/03	Staff Meet. I-M Gage I-M Paradee	I-M Gage I-M Paradee Brief. McCann on MORT	I-M Gage, Paradee Sub-Team Meeting	I-M Gage I-M Paradee Team Conf. MORT	I-M Gage I-M Paradee Sub-Team Meet.	I-M Gage I-M Paradee Sub-Team Meet.
Wed. 10/04	Staff Meet. I-M Hubbard I-M Thompson I-M Hemphill	I-M Hubbard Doc. Review AL Surety Pl. I-M Hemphill	I-M Kaltefleiter I-M R. Phillips I-M J.A. Cross I-M Hemphill Sub-Team Meeting	I-M Rutz I-M Fuqua I-M Fincher I-M Hemphill Team Conf.	I-M Rutz I-M Fuqua I-M Fincher I-M Hemphill Sub-Team Meet.	I-M Kaltefleiter I-M R. Phillips I-M J.A. Cross I-M Hemphill Sub-Team Meet.
Thurs. 10/05	Staff Meet. MORT Discus. I-M Turner I-M Hamrick	Doc. Review M & H ES&H Strategic Pl. Briefed TT on Root Cause Ana. I-M Turner I-M Hamrick	Doc. Reviews/ Schueler Disc./ I-M Moreno I-M C. Phillips I-M Dr. Lang Sub-Team Meeting	I-M Sanders I-M D. White I-M P. Gensler I-M Mitchusson Team Confer.	I-M Sanders I-M D. White I-M Gensler I-M Mitchusson Sub-Team Meet.	I-M Moreno I-M Dr. Lang I-M Phillips Sub-Team Meet.
Fri. 10/06	Staff Meet. I-M Barton	I-M Barton RCA Findings I-M Johnson I-M Turner	I-M Barton I-M Pool I-M Papp Sub-Team Meeting	I-M Barton I-M Gerber Doc. Review Team Conf.	I-M Barton I-M Gerber Doc. Review Sub-Team Meet.	I-M Barton I-M Papp I-M Pool Sub-Team Meet.

DOE SPECIAL ASSIGNMENT - MANAGEMENT AND ORGANIZATION TEAM
AUDIT AGENDA OCTOBER 9 THROUGH OCTOBER 13, 1989

	UPCHURCH	WHITE	CLARK	McCANN	ALLEN	SCHRYER
Mon. 10/09	In D.C.	Root Cause Analysis	I-M Callahan St. Anthony's I-M Howle Doc. Review Sub-Team Meet.	Meet/Hathaway to apply Root MORT/Root Cause Doc. Review Team Confernce	Root Cause Meet. Finds. Develop. Edit Interv. notes Doc. Review Sub-group meet.	I-M Howle Doc. Review Sub-Team Meet.
Tues. 10/10	Staff Meet. Interv. Write- Ups Staff Meet. Sched. & Rep. Contents Tour of Assem. Brief on Op. Surety	Root Cause Analysis I-M Valdez Meeting - Report G. Pool/OP Surety	I-M Skidmore Pool/Op Surety Tour Assembly Sub-Team Meet.	Interviews: Harrell, Churchwell, Drummond Tour Assembly Team Conference	I-M Harrell I-M Churchwell I-M Drummond Tour Assembly Sub-group meet.	I-M Skidmore G. Pool, MAA Tour Op Surety Sub-Team Meet.
Wed. 10/11	Staff Meet. Daily Report Doc. Review Find. Formul.	Brief. ES&H Plan & Budget Find. Writing I-M Clifford Find. Develop.	I-M Johnson Doc. Review Sub-Team Meet.	Interviews O. Hood Johnson R. Slape G. Johnson Sub-Group Meet	I-M Hood I-M Johnson I-M Slape I-M G. Johnson Sub-group meet.	I-M Johnson Doc. Review Sub-Team Meet.
Thurs. 10/12	Staff Meet. Daily Report Find. Formul. Doc. Review	AL Interviews: C. Troel M. Zamorski Krenz Themelis	Doc. Review Doc. Finds. Meet. E&S Explo. Demo I-M Write-Up	Doc. Interview Doc. Mgmt Finds Meet - Envir & Safety Team Lead. on Mgmt. Finds. Explosives Demo Review notes	Doc. Interview Doc. Mgmt Finds Meet - Envir & Safety Team Lead. on Mgmt. Finds. Explosives Demo Review notes	Doc. Review Doc. Findings Meet E&S Explo. Demo. I-M Write-Up
Fri. 10/13	Staff Meet. Daily Reports Finds. Formul. Doc. Review	AL Interviews: Schinkle Miller Hymer Twining	I-M Davidson I-M Hendley/ Traveler's Doc. Review	Doc. Review Finds. Devel. Sub-Group Meet.	Inter. Write-ups Doc. Review Sub-Group Meet.	I-M Davidson Doc. Review Sub-Team Meet.

APPENDIX G
DOE SPECIAL ASSIGNMENT - MANAGEMENT AND ORGANIZATION TEAM
AUDIT AGENDA OCTOBER 14 THROUGH OCTOBER 15, 1989

	UPCHURCH	WHITE	CLARK	McCANN	ALLEN	SCHRYER
Sat. 10/14	Doc. Rev. Review NEPA Draft Finds. Rev. Safety Draft Finds.		Doc. Review Dev. Findings	Doc. Review Dev. Findings	Doc. Review Dev. Findings	Doc. Review Dev. Findings
Sun. 10/15	Rev. Safety Draft Finds.				Travel/AL	Travel/AL

DOE SPECIAL ASSIGNMENT - MANAGEMENT AND ORGANIZATION TEAM
AUDIT AGENDA OCTOBER 16 THROUGH OCTOBER 20, 1989

	UPCHURCH	WHITE	CLARK	McCANN	ALLEN	SCHRYER
Mon. 10/16	Staff Meet. Review of Safety Team Draft Finds.	Root Cause Write-Up Finds. Root Cause	I-M Bell Doc. Review Dev. Finds.	Rev. Environ. Rel. O & I's Rev. MSDS Assemble doc. to support findings	In ALOO Interviews	In ALOO Interviews
Tues. 10/17	Staff Meet. Daily Report Rep. Writing	Root Cause Write-Up Finds.	I-M Phillips Draft Find. Doc. Review Sub-Team Meet.	I-M Phillips Doc. Interview Draft Find. NWQA Team Conference	In ALOO Interviews Return/Ama. Doc. Rev.	In ALOO Interviews Return/Ama. Doc. Review
Wed. 10/18	Staff Meet. Weekly Rep. Rep. Writing	Doc. Interviews Root Cause	I-M Shields Travelers/ Lubbock	Draft. Findings	Find. Devel. Info. Collect Edit I-M Comm. Draft Findings	I-M Shields Travelers/ Lubbock
Thurs. 10/19	Staff Meet. Daily Report Rep. Writing	Root Cause Root Cause- Findings	Doc. Review Draft Find. Team Meet.	Draft Findings Team Conf.	Find. Develop. Prep & edit.	Find. Devel. Doc. Review Team Meet.
Fri. 10/20	Staff Meet. Daily Report Finds. Formul. Doc. Review	Root Cause Write-Up Finds.	Doc. Review Draft Find.	Draft Findings	Find. Develop. Prep & edit.	Draft Find. Doc. Review

DOE SPECIAL ASSIGNMENT - MANAGEMENT AND ORGANIZATION TEAM
AUDIT AGENDA OCTOBER 21 THROUGH OCTOBER 22, 1989

	UPCHURCH	WHITE	CLARK	McCANN	ALLEN	SCHRYER
Sat. 10/21	I-M Ramey I-M Alley	I-M Ramey I-M Alley	I-M Ramey I-M Alley	I-M Ramey I-M Alley Draft Finds.	I-M Ramey I-M Alley	I-M Ramey I-M Alley

Sun.
10/22

DOE SPECIAL ASSIGNMENT - MANAGEMENT AND ORGANIZATION TEAM
AUDIT AGENDA OCTOBER 23, 1989

	UPCHURCH	WHITE	CLARK	McCANN	ALLEN	SCHRYER
Mon. 10/23	Staff Meet. I-M Johnson Team Meet.	Staff Meet. I-M Johnson Team Meet.	Staff Meet. I-M Johnson Draft. Finds. Team Meet.	Draft Finds. Team Meet.	Draft Finds. Team Meet.	In NV

APPENDIX E

**ROOT CAUSE DATA SHEETS
AND METHODOLOGY**

APPENDIX E. ROOT CAUSE ANALYSIS

E.1 INTRODUCTION

The purpose of the root cause analysis is to determine the underlying contributing reasons (root causes) for the deficiencies identified by the Tiger Team.

The information underlying the analysis is primarily the opinions of the Tiger Team reviewers. The conclusions result from a structured, judgmental evaluation of that information by a smaller, knowledgeable group. Therefore, the conclusions drawn about probable root causes are somewhat speculative, but are traceable to the factual information gathered by the Tiger Team.

E.2 METHODOLOGY

The Management Oversight and Risk Tree (MORT) approach provides the fundamental basis for the root cause analysis. The source document was the MORT text, "MORT - The Management Oversight and Risk Tree" (SAN 821-2), authored by W. G. (Bill) Johnson. The Tiger Team borrowed MORT's terminology and structure, but took substantial liberty with the process to accommodate the complexity of the task.

The MORT method defines 23 categories of surface causes which help provide the foundation for the subsequent identification of root causes:

* Technical Information	* Operational Readiness
* Hazard Analysis	* Maintenance
* Safety	* Inspection
* Appraisal/Audit/Review	* Supervision
* Change	* Task Performance
* Procedures	* Personnel
* Codes, Standards,
and Regulations	* Training
* Design	* Environment
* Human Factors	* Equipment
* QA/QC	* Communications
* Amelioration	* Personnel Protection
* Barriers and Controls	Equipment

Each team member first completed the Compliance Finding or Best Management Practice Finding in the proper format and depth of content. Using the structured set of questions contained in

the MORT methodology, the team member selected

and verified the surface cause(s) applicable to each finding and documented the reasons "why" the selection was made. The team member weighted his selection on a scale of 1 (least) to 5 (most) as to its importance as a causal factor for the finding.

Each team member then reviewed the generic questions in the MORT methodology pertinent to "POLICY", "POLICY IMPLEMENTATION", AND "RISK ASSESSMENT", selected the root cause category most appropriate for each finding, weighted the selection, and documented the rationale for selection. The Findings and their associated possible causes were tabulated and are summarized in this Appendix.

The first analytical process consisted of simply entering the numerical data from each individual finding onto a spread sheet and graphically portraying the results (see Attachment 1). This was done both with the data weighted as to its importance to the finding and using raw data - unweighted counts of entries. This process allowed the team to visualize which management deficiencies were the major root causes for all the findings collectively.

The arrangement of "why" statements into surface and root cause categories enabled a small group of Team members to focus on why the findings occurred rather than on the specifics of the findings themselves. Analyzing this information consisted of observing the frequency and weight placed on items, noting common threads that seemed to flow through the statements, and making professional interpretations and intuitive judgments to deduce underlying root causes for the Team's findings. Through a Delphi process of successive approximation, the team produced the conclusions in Section 2.4 of this report.

E.3 ANALYSIS

E.3.1 ROOT CAUSES

E.3.1.1 Policy

Policies and orders applicable to the Pantex site are in many cases inadequately defined. The following root cause statements exemplify the Team's concerns:

- o The policy of retaining interdictory authority by the Amarillo Area Office (AAO) Manager and

Pantex Plant Manager, and not delegating it further, with one exception, provides inadequate assurance that oversight personnel closest to the actual plant operations have the appropriate authority. (M/BMPF-7)

- o The DOE system of orders and directives is not an up-to-date, clear, self-consistent set of policies and procedures. (M/BMPF-1)
- o Examples where policies are absent, ambiguous or otherwise inadequate include the Mason & Hanger - Silas Mason Co. Inc. (M&H) workers compensation program (M/BMPF-4); the Performance Evaluation Plan used to evaluate the performance of M&H (M/BMPF-7); systems for monitoring corrective actions resulting from environment, safety and health appraisals (M/BMPF-10); compliance with Resource Conservation and Recovery Act (RCRA) (see below); keeping logs of systems status (S/BMPF-2); land use census (RAD/BMPF-3); monitoring underground storage tanks (GW/BMPF-2); labelling radwaste (RAD/BMPF-1); Environmental Compliance Agreements (IWS/BMPF-2); and National Environmental Policy Act (NEPA) determinations (NEPA/BMPF-1).
- o Site policy for identifying and ensuring compliance with RCRA regulatory requirements is inadequate. (WM/CF-6; WM/CF-4; WM/CF-9; WM/BMPF-7; WM/BMPF-5; WM/CF-12; WM/CF-5; WM/CF-6; WM/CF-13; WM/CF-8; WM/CF-63; WM/BMPF-1)
- o The impacts of new policies on available resources (e.g. staff, funding) need more careful attention so as to avoid conflicts in an organization's ability to implement change. (S/CF-1)
- o The policy of using the Albuquerque Operations Office Environmental Restoration (AL ER) program for site cleanup is not serving the needs of AAO. (IWS/BMPF-1)
- o Policies do not exist to ensure that lower priority sites receive review from regulatory agencies and within the AL ER program nor to ensure that regulatory agency comments are selected and incorporated into remedial response documents. (IWS/BMPF-3)

- o AL inappropriately defers to M&H some responsibility for NEPA determinations. (NEPA/CF-1)

E.3.1.2 Policy Implementation

Policy implementation becomes relevant after adequate statements of policy are in place. Many of the Team's concerns are rooted in the systems utilized for implementing policy. Possible inadequacies are exemplified by these root cause statements:

- o DOE, AL, and AAO Orders setting forth stop work policy and assigning authority do exist. However, the AAO Orders and the M&H directives are not fully implemented in that they do not redelegate to those oversight personnel closest to plant operations. (M/CF-1)
- o Uncertainty regarding how the NQA-1 requirements would apply to the non-weapons quality assurance program caused failure by M&H to implement the policy contained in AAO Order 5700.6B, as evidenced by the small number of approved quality assurance plans and complete audits. (M/CF-1; S/CF-4)
- o Time, training, effort and commitment are needed to implement properly the policy cited in Secretary of Energy Notice No. 11 regarding integrated planning. (M/BMPF-2)
- o DOE/AAO and M&H do not have adequate staff to accomplish the total job involving environment, safety and health as that job is currently defined. (M/BMPF-3; M/BMPF-9; S/CF-1)
- o There are 75 orders from DOE, DOE/AL, and DOE/AAO relating to environment, safety and health. The AAO and M&H managers are aware of the importance of compliance, but the process to ingrain this culture into all employees is as yet incomplete. (M/BMPF-7; M/BMP-8)
- o Neither DOE/AAO nor M&H is aggressively pursuing the requirements of the site operating contract regarding the evaluation of the contractor's performance. (M/BMPF-7)
- o DOE/AL has not complied with its own orders which

prescribe time frames and procedures for scheduling, conducting, reporting and following up on appraisals. (M/BMPF-12)

- o M&H and AAO are competing against other parts of DOE, against the commercial nuclear industry, and against the chemical process industry to acquire the services (as employees and as contracted technical support) of a finite, nationwide pool of individuals qualified in environment, safety and health. M&H and AAO have no particular competitive advantage in this competition. In fact, the M&H salary structure, the security clearance requirements, and the geographical location of the Pantex Plant may be competitive disadvantages. (S/CF-1; S/CF-10; S/CF-13)
- o Policies regarding emergency planning have not been communicated (in the form of guidance) to personnel who have a need to know. (S/CF-8)
- o Site management has not received the resources nor the guidance necessary for timely implementation of DOE 5480.11. (S/CF-10; S/CF-11; S/CF-13)
- o Responsibilities of M&H's ES&H Division are not clearly defined in terms of radiation protection. (S/CF-11)
- o Examples where M&H has inadequately implemented policies to assure compliance include the operation of the sewage treatment plant; discharge into the playas; containment of above ground storage tanks required by 40 CFR 112; Texas Water Commission (TWC) wastewater discharge; monitoring of forage crops for fluoride and atmospheric releases of fluoride; paint shop solvent hazardous waste (HW); and protecting wetlands. (SW/BMPF-2; SW/CF-1; SW/CF-2; SW/CF-3; SW/BMPF-1; AIR/CF-1; AIR/CF-2; WM/CF-10; CNR/CF-1)
- o Policy is not implemented for the Spill Prevention, Control and Countermeasures Plan, (SPCC) to address deterioration of sewer lines, minimization of Volatile Organic Carbon (VOC) releases, assure proper air monitor siting and aiming requirements. (SW/BMPF-3; SW/BMPF-4; AIR/BMPF-1; AIR/BMPF-2)

- o M&H has not implemented policy in the form of Emergency Planning and Community Right-to-Know Act (EPCRA) regulations, which provide the necessary templates and instructions. (IWS/CF-1)
- o M&H has not complied with 40 CFR 372 for reporting releases of toxic chemicals. (IWS/CF-2)
- o AAO has not complied with 40 CFR 370 dealing with hazardous chemicals and extremely hazardous substances. (IWS/CF-3; IWS/CF-4)
- o DOE/AAO and M&H have not implemented the requirements defined in the AL ER Field Office Management Plan and the Remedial Investigation/Feasibility Study (RI/FS) Work Plan. (IWS/CF-5)
- o Existing policies as expressed in DOE 5400.1, DOE 5484.1 and DOE 5700.63 have not been implemented. (QA/CF-1; QA/BMPF-1)
- o DOE NEPA procedures, as specified in the DOE NEPA guidelines, are incorrectly implemented in making NEPA determinations. (NEPA/CF-2; NEPA/CF-3)

E.3.1.3 Risk Assessment

Properly targeting policy and policy implementation depends on accurately understanding risks. Risk assessment at the Pantex Plant is inadequate to guide and direct the effective development and implementation of policy. These root cause statements exemplify the Team's concerns in terms of inadequacies in the risk assessment activities:

- o A documented technical basis which accurately portrays the relative risk presented by the various operations and facilities at the Pantex Plant would enable M&H and DOE/AAO to establish priorities more effectively. A similar basis covering the entire DOE weapons production complex would enable DOE to establish priorities more effectively at an even higher level. (S/CF-1)
- o Risks are not properly addressed prior to the

start of work process. (S/BMPF-1)

- o M&H's risk assessment of the routine manual gauging program and the leak testing program for the underground storage tanks is weak. (GW/BMPF-1; GW/BMPF-2)

E.3.2 SURFACE CAUSES

E.3.2.1 Technical Information

- o Available information for understanding the performance of the workers compensation program is not usefully organized to enable the groups involved (Personnel, Production, Legal, Medical, Safety) to complete their tasks effectively. For example, no loss-trend analysis is performed. Such analysis would enhance the prioritization of safety needs and attention. (M/BMPF-4)
- o There is inadequate technical information (e.g., untimely guidance, delays in reviews, withheld information) on how the appraisal system for environment, safety and health is working. (M/BMPF-11)
- o There is inadequate information on the hazards and relative risks of various operations on the site. (S/CF-1)
- o Inadequate technical information is available to assure compliance with RCRA and 40CFR. (WM/CF-9; WM/CF-)
- o Technical information on the regulatory definitions of surface waters under the Clean Air Act (CAA) has not been available to determine applicability of an National Pollutant Discharge Elimination System (NPDES) permit for discharges to the playas. (SW/CF-1)
- o Inadequate technical information about stormwater flow has led to exceptions to the flow limits for the Texas Water Commission (TWC) permit at the wastewater treatment plant. (SW/BMPF-1)
- o Lack of technical information about fluorides in regional forage and appropriate monitoring procedures has contributed to noncompliance with the Texas Air Control Board (TACB). (AIR/CF-1)

- o Lack of technical information has resulted in failure to undertake a program of waste minimization for Volatile Organic Compounds (VOC) (AIR/BMPF-1) and improper siting and aiming of the ambient air monitoring stations. (AIR/BMPF-2)

E.3.2.2 Hazard Analysis

- o There is inadequate guidance on how to prioritize risks and plan accordingly. (S/CF-1)
- o The Final Safety Analysis Report (FSAR) is inconsistent with the current configuration of the facility and Operational Safety Requirements (OSR) are not included in the design and maintenance procedures. (S/CF-5)
- o The implementation procedures for the Pantex Plant Emergency Plan have not been updated to reflect the appropriate emergency response to toxic hazards nor has the linkage between published emergency response levels and credible facility hazards been made in the emergency plan. (S/CF-8)
- o AAO does not appear to have complied with all the requirements for the off-site emergency medical facility due to the incomplete understanding of the potential risks involved. (S/CF-9)
- o Hazards analyses of the RCRA operating records maintenance mechanism are not being performed adequately. (WM/CF-6)
- o A hazards analysis has not been performed to recognize the need for a determination on the potentially HW sandblasting grit from painting operations in accord with 40 CFR 262.11. (WM/CF-5)

E.3.2.3 Safety

- o That portion of the safety program that should delegate to subordinate managers and staff the

authority and responsibility to stop work for ES&H reasons is, with one exception, nonexistent. (M/BMPF-5)

- o In many instances, employee performance plans and appraisals do not include standards related to safety and health. (M/BMPF-8)
- o M&H and AAO have inadequate resources to satisfy all the safety requirements simultaneously. (S/CF-1)
- o The preparation and review of the FSAR did not determine that Operational Safety Requirements for Alpha and Beta alarms were different, but the design did include this difference. (S/CF-2)
- o M&H is not providing adequate safety training to plant personnel about areas and hazards involving asbestos. (S/CF-6)
- o M&H has not identified detailed safety procedures in their emergency plan. (S/CF-8)
- o M&H and DOE/AAO safety personnel cannot and do not monitor all work to identify inadequacies. (S/CF-2; S/CF-10; S/BMPF-1)

E.3.2.4 Appraisal/Audit/Review

- o The performance of employees in environment, safety and health cannot be appraised effectively in the absence of preestablished performance standards in the employee's performance appraisal plan. (M/BMPF-8)
- o No review of the FSAR determined that there were different Operational Safety Requirements for Alpha and Beta alarms. (S/CF-2)
- o The annual review of the contract for the off site medical facility should have included a review of the contract obligations. A readiness review based on the contractual obligations might have revealed the deficiencies. (S/CF-9)
- o Past audits identifying the need for additional resources have not contributed to new resources or reallocation of resources to AAO or M&H.

(S/CF-10)

- o M&H has not taken an aggressive approach in closing out previous findings resulting from appraisals, audits and reviews of the RCRA operating records. (WM/CF-6)
- o Audits and appraisals by M&H and DOE to assure compliance with RCRA are frequently inadequate or absent; nor are their findings aggressively resolved. Examples include deficiencies in checklists (WM/BMPF-1); RCRA operating records (WM/CF-7); secondary containment of RCRA treatment facilities (WM/CF-4); quality reviews of certified documents (WM/CF-9); storage capacity (WM/CF-1); labeling of containers; RCRA/Treatment, Storage, or Disposal (TSD) facilities (WM/CF-2); and other topics related to 40 CFR (WM/CF-5; WM/CF-11; WM/CF-8).
- o A lack of review of total site VOC emissions has led to a failure to undertake a waste minimization program for VOCs. (AIR/BMPF-1)
- o Review of the consent order proposed by AAO, was not performed by HQ in a timely manner, especially in light of the tight negotiation schedule. (IWS/BMPF-2)
- o The EPA reporting forms were not reviewed by someone from M&H and AAO that was knowledgeable in the subject matter. (IWS/CF-1; IWS/CF-4)
- o M&H does not conduct a thorough review and an inventory of radioactive sources. (RAD/BMPF-2)

E.3.2.5

Change

- o There has been a major shift in emphasis from production to compliance. While there is overall understanding and acceptance of this shift, the specific actions necessary to accomplish it have not been fully implemented. (M/BMPF-6)
- o DOE management has not provided resources and budget needed to implement DOE policies and priorities fully. (S/CF-1; S/CF-11; S/CF-12)
- o The AAO filing system and data base are inadequate to track changes in project titles,

scope, or NEPA requirements. (NEPA/BMPF-2)

- o Changes in waste water discharges resulting from new and proposed projects are inadequately accounted for in NEPA considerations by DOE/AAO. (CNR/CF-1)

E.3.2.6 Procedures

- o M&H found it difficult to apply quality standard NQA-1 to their own operations, which were not specifically related to nuclear production. (M/CF-1)
- o Procedures are ineffective in facilitating a proactive, preventive ES&H program. The many audits, appraisals, reviews, follow-ups, and action plans consume time which might otherwise be available for preventive activities. The planning and budget processes are also reactive in nature and do not facilitate a proactive approach to resolving ES&H issues. (M/BMPF-3)
- o DOE management has assigned inadequate resources and budget to implement DOE policies. (M/BMPF-3)
- o Environmental responsibilities are not as well documented and/or highlighted in procedural guidance as safety and health responsibilities are. (M/BMPF-6)
- o Procedures have not been written to reflect all surveillance requirements included in the Final Safety Analysis Report. (S/CF-5)
- o The implementing procedures for the Pantex Emergency Plan have not been updated to reflect the appropriate emergency response to toxic hazards. (S/CF-8)
- o M&H is not complying with DOE Order 5480.11 in the area of procedures and actions for correcting action safety issues. (S/CF-10)
- o M&H's lockout/tagout maintenance procedures are not strictly enforced. (S/BMPF-2)
- o Procedures are absent, ineffective, incorrect or otherwise inadequate to ensure compliance with

RCRA. Examples include: maintenance of operating records (WM/CF-6); inaccuracies in certified RCRA compliance documents (WM/CF-9); storage capacity (WM/CF-1); inspections of RCRA facilities (WM/BMPF-1); labeling (W); containment of the HW contaminated string filters (WM/CF-10); remediation of RCRA/TSD inspection deficiencies (WM/CF-7); inspection of at the burning grounds (WM/CF-12); sandblasting grit from painting operations (WM/CF-5); storage areas (WM/CF-8).

- o Procedures are absent, ineffective, incorrect or otherwise inadequate to ensure that radioactive materials are properly controlled. Examples include: radiological waste labeling (RAD/BMPF-1); control and accountability of radioactive sources (RAD/BMPF-2); land use census (RAD/BMPF-3); air sample analysis frequency (RAD/BMPF-4); radiation survey results or posting requirements (RAD/BMPF-5); radioactive waste can liners (RAD/BMPF-7)
- o Procedures are absent, ineffective, incorrect or otherwise inadequate to ensure that other environmental activities are properly conducted. Examples include: EPA requirements for Quality Assurance Program Plan (QAPP) (QA/CF-1); consistency with EPA protocol and DOE or EPA administrative requirements (QA/BMPF-1); standard RCRA maintenance instructions (TS/BMPF-1); environmental sampling (QA/BMPF-3) project planning/information document (QA/BMPF-1).
- o The Spill Prevention Control Countermeasure (SPCC) Plan does not fully describe all the necessary procedures and contacts in the event of a reportable quantity spill, as described in 40 CFR 355, and DOE Orders 5484.1 and 5500.2A. (IWS/BMPF-4)
- o M&H inspection by manual gauging for underground storage tanks is being done, but the operator cannot determine if a leak has occurred because of inadequate gauging procedures. (GW/BMPF-1; GW/BMPF-2)
- o AL NEPA Order 5440.1B has not been updated and procedures are inappropriate for making NEPA determinations. (NEPA/BMPF-1)

- o The AL NEPA Order, 5440.1B, contains unclear and inappropriate directions concerning proposed actions that should be presented to the AL RSO for a NEPA determination. The result is AAO and M&H staff are inappropriately determining that a proposed action does not require a NEPA document. (NEPA/CF-1)
- o The use of a categorical exclusion by DOE/AL ("substantially the same as other actions for which the environmental effects have already been assessed in a NEPA document...") for the proposed High Explosives Machining Facility (HMEF) is unsupported. (NEPA/CF-2; NEPA/CF-3)

E.3.2.7 Codes, standards and regulations

- o A lack of specific regulations for waste minimization has resulted in the failure to undertake a program to reduce VOCs. (AIR/BMPF-1)

E.3.2.8 Design

- o There was a failure to satisfy the seismic design criteria for safety class systems and components. (S/CF-7)
- o Understanding the effects of the environment (i.e., water) on the design of safety systems, was not appreciated or considered too improbable. (S/BMPF-1)
- o The design of the sewage treatment lagoon may be inadequate to meet the requirements of the TWC permit limitations. (SW/BMPF-2)
- o The design of RCRA/TSD facilities includes security barriers which do not allow timely follow up of RCRA/TSD inspection deficiencies to comply with 40 CFR 265.35. (WM/CF-7)

E.3.2.9 Human Factors

- o Human factors were not considered when substantial changes were made in plant procedures. One such procedure had a change involving an addition of 25 pages (from 10 to

35 pages) without regard to concerns of affected personnel about risk. (S/CF-10)

E.3.2.10 Quality Assurance/Quality Control (QA/QC)

- o The Maintenance Repair Order system does not retain detailed records of components installed during repair of safety related components or equipment. (S/CF-4)
- o QA/QC staff of M&H and AAO have not verified that all surveillance requirements from the FSAR are reflected into procedures and are being met. (S/CF-5)
- o M&H QA/QC staff did not review and inspect for conformance to seismic design criteria. (S/CF-7)
- o There is no QA/QC to assure that inaccuracies do not appear in certified RCRA documents. (WM/CF-9)
- o There are no overall environmental QA monitoring and review programs in place to identify potential problems such as the land use census. (RAD/BMPF-3)

E.3.2.11 Amelioration

- o Conditions at the Pantex Plant prevent a proactive approach to resolving issues and perpetuate a situation of addressing issues only after they have been identified through audits, appraisals, or reviews. (M/BMPF-3)
- o M&H is not using risk management information prepared from workers compensation losses to improve or prevent conditions which caused such losses. (M/BMPF-4)

E.3.2.12 Barriers and Controls

- o The M&H safety organization does not identify and specify the necessary barriers and controls needed to control work processes. (S/BMPF-1)
- o Barriers and controls for security purposes

inhibit access necessary to ensure that RCRA/TSD inspection deficiencies are remedied in a timely manner. (WM/CF-7; WM/CF-11)

- o No institutional mechanism currently exists by which AAO or AL is informed of non-line-item projects at the Pantex plant that may require NEPA determinations and AAO and AL NEPA staff may be unaware of small but environmentally significant projects. (NEPA/CF-4)
- o The control of radioactive sources is inadequate to prevent unnecessary exposure. (RAD/BMPF-2)
- o M&H's lack of posting "contaminated areas" is not an adequate radiological control practice. (RAD/BMPF-5)

E.3.2.13 Operational Readiness

- o The non-weapons quality assurance program is relatively new (approximately two years). M&H underestimated the impact, complexity and time required to establish and implement DOE's Operations Quality Program. (M/CF-1)
- o M&H and DOE/AAO have the organizations in place to emphasize the shift to environment, safety and health issues, but these organizations do not have specific work processes which are operationally ready. All the upstream and downstream support requirements are not in place. (M/BMPF-6)
- o A readiness review by DOE/AAO based on the contractual obligations would have revealed the initial deficiencies. (S/CF-9)

E.3.2.14 Maintenance

- o M&H's maintenance monitoring program is not ensuring that maintenance is performed in accordance with the policies and procedures. (S/CF-4)
- o Maintenance of deteriorated sewer lines has been insufficient to prevent seepage of wastewater into the subsurface soil. (SW/BMPF-4)

E.3.2.15 Inspection

- o In-plant surveillance inspections are performed by some DOE/AAO staff who have insufficiently specialized education and experience to understand and validate fully the work of the contractor. (M/BMPF-9)
- o M&H's inspection of waste storage areas is inadequate for identifying labeling errors. (RAD/BMPF-1)
- o Inspection has been inadequate to assure unnecessary discharges of petroleum products to the ground at the cement batch plant. (SW/BMPF-3)
- o Inspections have not been performed to identify the need to provide adequate aisle space in HW storage facilities in accord with 40 CFR 265.35. (WM/CF-11)
- o Inspections are not being performed by all departments as required. (TS/CF-1)

E.3.2.16 Supervision

- o M&H does not have adequate resources to carry out their supervisory responsibilities. (M/BMPF-9; S/CF-11)
- o Supervisors are not being held accountable for environment, safety and health compliance. (M/BMPF-8)
- o Supervisors do not assign responsibilities to the procedure users for ensuring compliance with General Office Standard 015. (S/CF-3)
- o The utilities supervisors are not enforcing the procedures for properly using the lockout/tagout system. (S/BMPF-3)
- o AAO is unable to directly supervise and direct work for the ER program which is financially supported, and occurs on their facility. (IWS/BMPF-1)
- o Supervision is inadequate to assure compliance with RCRA. (WM/CF-7; WM/CF-11)

E.3.2.17 Task Performance

- o The system of orders requires many manhours at various levels and locations. The task of generating and maintaining orders is not without performance errors. (M/BMPF-1)
- o The available resources, the procedures, and the environment are not conducive to an integrated approach to resolving problems. (M/BMPF-3)
- o Those individuals who have, believe they have, or should have stop-work authority do not have task directions assigning them that authority. (M/BMPF-5)
- o DOE presents Cost Plus Award Fee (CPAF) performance standards (Initiatives and Milestones) unilaterally to the contractor, rather than through mutual consultation. The latter approach might add needed objectivity into the rating process. (M/BMPF-7)
- o In some cases the staff of M&H and AAO do not have the resources, specific experience, training, or security clearance needed to carry out their assignments. (M/BMPF-9; S/CF-10; S/CF-11)
- o Task performance has been inadequate to make a determination of whether an NPDES permit is required for discharges into playas. (SW/CF-1)
- o Inadequate task performance has resulted in the failure to report exceptions to the TWC wastewater discharge permit. (SW/CF-3)
- o Inadequate task performance has resulted in non-compliance with the fluoride monitoring requirements of the TACB. (AIR/CF-1; AIR/CF-2)
- o Following existing procedures could result in technical error and non-conformance with QAPP requirements. (QA/CF-1)
- o The current system of environmental monitoring subjects the plant to risk of producing data that could later be challenged. (QA/BMPF-1)

- o Inadequate performance of tasks has led to various deficiencies related to RCRA. Examples include aisle space in storage facilities (WM/CF-11); time limits for storing waste (WM/CF-3); and potentially hazardous solid waste streams (RCRA/CF-14).
- o EPA and state agencies could not perform their review tasks, due to limited personnel resources and other priorities. (IWS/BMPF-3)
- o Task performance is inconsistent with the guidelines in DOE Order 5484.1. (RAD/BMPF-6)
- o The AL NEPA order contains unclear and inappropriate directions concerning proposed actions that should be presented to the AL Responsible Supervisory Official (RSO) for a NEPA determination. (NEPA/CF-4)

E.3.2.18 Personnel

- o The workload generated by reporting requirements and review activities is an obstacle to accomplishing the day-to-day ES&H activities surrounding the operations of the plant. Very little effort is expended on training or preventive measures. (M/BMPF-3)
- o DOE/AAO and M&H have acquired, and continue to acquire new people to apply toward complying with environment, safety and health requirements. However, attracting an adequate number of qualified people is difficult because of pay structure and location. (M/BMPF-9)
- o Employees and supervisors can not be expected to devote significant attention to functions which are not specifically reflected in the performance standards against which they will be appraised. (M/BMPF-8)
- o There is a lack of qualified and trained personnel to cover all the requirements that involve asbestos. (S/CF-6)
- o The size and qualifications of the radiation protection staff are particularly deficient. (S/CF-10)

- o Not all of M&H's ES&H personnel are qualified or trained for their responsibilities. (S/CF-11; S/CF-12)
- o New employees have been given tasks to perform for which they have no background in the area, no clearance so they can't go into the work area, no training, and no knowledge of the right people to get information from. Their work is not reviewed by someone who is knowledgeable of the task. (IWS/CF-1; IWS/CF-2)

E.3.2.19 Training

- o Additional training is necessary in quality standard NQA-1. (M/CF-1)
- o Training has not been developed and presented to all employees responsible for implementing Secretary of Energy Notice No.11. Budget and personnel resources have not been provided to sufficiently train personnel to address environmental, safety, and health responsibilities. (M/BMPF-2; M/BMPF-9)
- o Supervisors have been inadequately trained in establishing performance appraisal standards relative to the environment, safety and health performance of their employees. (M/BMPF-8)
- o There is a need for better or more complete training in order to ensure that safety and health requirements are satisfied. Examples include asbestos awareness(S/CF-6); emergency planning (S/CF-8); Radiation Protection Technicians (S/CF-12).
- o Maintenance needs to provide more training on lockout/tagout procedures to specifically point out the hazards and enforcement consequences. (S/BMPF-2)
- o There is a need for better or more complete training in order to ensure that environmental requirements are satisfied. Examples include: land use evaluations (RAD/BMPF-3); radiological dispersion modeling (RAD/CF-1); cooling, storage and shipping of samples. (BM/BMPF-2); toxic and hazardous chemicals reporting (IWS/CF-1;

IWS/CF-2; IWS/CF-3; IWS/CF-4); assessment and regulation of wetlands (CNR/CF-1); reporting under DOE Order 5484.1 (RAD/BMPF-6); discharges to surface waters (SW/CF-1); ambient air sampling (AIR/BMPF-2); inspection requirements among the departments (TS/CF-1); to reinforce correct understanding of regulations and requirements (TS/BMPF-1),

- o Training of personnel in the understanding of regulatory definitions of the CAA for discharges to surface waters has been insufficient to assure preparation of required NPDES permit applications. (SW/CF-1)

E.3.2.20 Environment

- o M&H's work environment is reactive rather than proactive. (M/BMPF-3; S/CF-1)
- o A more proactive environment toward safety might have led to a more convincing investigation and implementation plan. (S/BMPF-1)

E.3.2.21 Equipment

- o M&H's underground tank system equipment is beginning to fail. (GW/BMPF-1)
- o Proper sewerage equipment is not in place for transporting sanitary and industrial waste to prevent seepage into the subsurface soil. (SW/BMPF-4)
- o Improperly designed storage equipment for petroleum products and hazardous materials to assure compliance with the secondary containment requirements of 40 CFR 112. (SW/CF-2)
- o Improper equipment has resulted in the failure to properly monitor sanitary treatment plant flow. This in turn led to violations of the TWC permit limitations. (SW/BMPF-1)
- o The equipment used to contain HW contaminated filters was inadequate to assure compliance. (WM/CF-10)
- o The proper equipment is unavailable for hanging up the diesel fuel fill hose after use to prevent

(SW/BMPF-3)

- o Lack of proper monitoring equipment has resulted in failure to comply with the flow limits to the TWC permit at the sewage treatment plant. (SW/BMPF-1)

E.3.2.22 Communications

- o Since the system of DOE directives is cumbersome, involving many levels of responsibility at various locations, there is often inadequate or inaccurate communication of policies, directives and procedures. (M/BMPF-1)
- o The policy cited in Secretary of Energy Notice No. 11, and the expectations of management have not been communicated to all levels who must execute the policy. (M/BMPF-2)
- o Communication among plant personnel (management, supervisors, and work force) is inadequate, particularly when changes occur. (M/BMPF-3)
- o Communications among management, supervision and workers are deficient in assigning stop work authority. Several individuals stated that they possessed such authority. However, only one individual could document that such authority had in fact been assigned to him. (M/BMPF-5)
- o The CPAF process does not communicate what is expected of M&H in terms of objective standards. The process, as operating, is a subjective evaluation of after-the-fact information compared against nebulous standards. (M/BMPF-7)
- o More effective communications between the Environment, Safety and Health Division of M&H and the Systems Division of M&H might have provided a more informative system for tracking corrective actions. (M/BMPF-11)
- o DOE/AL provides little functional or technical assistance to DOE/AAO. Face-to-face communications between the two organizations are infrequent. (M/BMPF-12)
- o There are lengthy delays between the time DOE/AAO submits corrective action plans and the time

DOE/AL responds regarding the adequacy of the plans. (M/BMPF-12)

- o Communications among HQ, AL, and AAO do not appear to reflect the practical matters associated with top-down allocation of fixed resources in an environment of increasing work requirements. (S/CF-1)
- o Better communications among operations, maintenance, and safety staff might have avoided operating incidents entirely. (S/BMPF-1)
- o There are inadequate communications between M&H management, AAO, and AL management in complying with DOE Order 5480.11. (S/CF-13)
- o Communications may not have been forceful enough between AAO and EPA/TWC to ensure that comments would be forthcoming. (IWS/BMPF-3)
- o Communications regarding ER activities must go through various channels between AAO and the subcontractor performing the work. There is no direct communications between AAO and the subcontractor. (IWS/BMPF-1)
- o Communications between AAO, AL, and HQ were inadequate in understanding the importance of a AAO negotiating strategy for a RCRA Section 3008 (h) Corrective Action Order on Consent. (IWS/BMPF-2)
- o Requirements of Standard 344.1 may not have been adequately conveyed/received to achieve full implementation. (TS/CF-1)
- o Communications have not been sufficient among site personnel such as workers, purchasing department personnel, those authorizing painting work orders, and environmental personnel to recognize the need for a HW determination on the sandblasting grit from painting operations in order to comply with 40 CFR 262.11. (WM/CF-5)
- o Communications have not taken place to inform responsible facility personnel of the applicable regulation 40 CFR 265.35 to assure proper aisle space is maintained in HW storage facilities. (WM/CF-11)

- o Communication between site personnel and management does not adequately allow for identifying regulatory requirements for identification of 90 day HW accumulation areas in accord with 40 CFR 262.34. (WM/CF-8)
- o The AL NEPA order contains unclear and inappropriate directions concerning proposed actions that should be presented to the AL RSO for a NEPA determination. (NEPA/CF-4)

E.3.2.23 Personnel protection equipment

None cited.

E.4 ROOT CAUSE CONCLUSIONS

When surface causes were weighted according to the criticalness of their impact on the individual findings, "Procedures" emerged as the prominent cause. "Task Performance", "Appraisal/Audit/Review", and "Training" were next in importance.

Inadequacies in "Policy Implementation" emerged as the most appropriate root cause category, with 54% of the findings falling in this area. "Policy" was next with approximately 38% and "Risk Assessment" followed with 8%. This information helped focus the team's attention in their root cause conclusions.

The probable root causes of the inadequacies observed by the Tiger Team are as follows:

- o ES&H policy is promulgated in many orders at the HQ, AL, and AAO level. The requirements are voluminous, confusing, duplicative, and generally inadequate to ensure their correct and timely implementation. The requirements for implementing a new policy typically do not accurately reflect the impacts on existing resources and create conflict that is not reconcilable in a practical manner.
- o The number and unconsolidated nature of external audit activities on site, the voluminous reporting requirements generated by these audits, the non-integrated planning and budgeting processes, the lack of objectivity in evaluating M&H performance including the CPAF process, and the inadequate resources available to perform the tasks as presently defined have created

a mode of operations at the Pantex Plant that is reactive in nature. The technical staff is unable to operate in a day-to-day surveillance, self-assessment mode where preventive efforts would be more proactive in improving ES&H compliance.

- o A positive ES&H culture has not been established in AAO or in M&H. Although managers and staff are aware of their responsibilities in ES&H matters, this awareness is not fully reflected in policies, procedures, functional statements, performance requirements or day-to-day activities. There is a relatively complacent approach to managing ES&H matters.
- o M&H and AAO are at a competitive disadvantage in attracting technically competent employees from the finite nationwide pool of qualified manpower. Salary structure, security requirements, and relative technical/geographical isolation are some of the disadvantages which are unlikely to be overcome by managers at Pantex Plant.
- o DOE has not assigned sufficient new or reallocated resources (people and dollars) to accomplish the ES&H mission at the Pantex Plant. The actual allocation of finite resources is starting to reflect the Secretary's increase in emphasis but is inadequate to complete the mission as defined by existing laws, regulations, policies, orders, and standards of excellence.
- o There is a lack of an objective and well documented technical basis for assessing the relative risk of facilities and operations at Pantex and throughout DOE. This deters the ability of decision makers to establish priorities and to allocate resources most effectively.
- o M&H does not approach the management of information in an integrated fashion. The support organization is primarily technology-oriented. M&H does not maintain adequate records and other program documentation. M&H does not have an integrated management information and tracking system that : (1) provides current and meaningful data for management decisions; (2) defines and displays priorities for assessing and managing risks, both internally within ES&H and relative to other program areas; (3) provides management with the means to monitor and prioritize ES&H compliance requirements, and (4) effectively communicates operational and compliance requirements throughout affected divisions. Communication has not been effective in disseminating ES&H information to the level necessary for performance.

TABLE

SUMMARY OF SURFACE AND ROOT CAUSES FOR ENVIRONMENT,
SAFETY AND HEALTH AND MANAGEMENT FINDINGS*

ITEM NO	ENVIRONMENTAL FINDINGS	MORT BASED ROOT CAUSE ANALYSIS FORM																														
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT					
	REMARKS:																															
1	IWS/CF-1	1		5		4														4		5										
2	IWS/CF-2	1				5														4		5										
3	IWS/CF-3	1				4														5		5										
4	IWS/CF-4	1				5														4		5										
5	IWS/BMPF-1	1																5							5							
6	IWS/BMPF-2	1	2			5																3			3							
7	IWS/BMPF-3	1				4														5					4							
8	IWS/BMPF-4	1						5												2												
9	CNR/CF-1		1					3														5										
10	RAD/BMPF-1	1				4		5									5															
11	RAD/BMPF-2		1			4		5						5																		
12	RAD/BMPF-3	1						5				4										3										
13	RAD/BMPF-4	1						5																								
14	RAD/BMPF-5	1						5						4																		
15	RAD/BMPF-6	1						5														5										
16	RAD/BMPF-7	1						5																								
17	RAD/CF-1		1																	5		4										
18	GW/BMPF-1	1		2													4							4								
19	GW/BMPF-2	1		2													4							4								
20	QA/BMPF-3		1					5														3										
21	QA/CF-1	1		4																2												

* Numbers represent weighting of importance assigned to each finding. See Section E-2 of this Appendix.

		MORT BASED ROOT CAUSE ANALYSIS FORM																													
		ROOT CAUSES																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSMR	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
ITEM NO	ENVIRONMENTAL TOTALS	Page 2																													
	REMARKS:																														
22	QA/BMPF-1	1		3				4											1												
23	TS/CF-1		1																5	2			2								
24	TS/BMPF-1	1						2													2										
25	AIR/CF-1		1	3															5												
26	AIR/CF-2		1																4												
27	AIR/BMPF-1		1	4		4		3																							
28	AIR/BMPF-2		1	2																	2										
29	WM/CF-1		1			4																				5					
30	WM/CF-2	1				5		5																							
31	WM/CF-3	1																	5												
32	WM/CF-4		1			5				4																					
33	WM/CF-5	1		3	5	4	3																								
34	WM/CF-6	1	2		3	3	5																								
35	WM/CF-7		1			3	4	2					1					3	5												
36	WM/CF-8		1	4	5	5	4																		3						
37	WM/CF-9	1				5																			4						
38	WM/CF-10	1	2			3	5										3	3	5					4	2						
39	WM/CF-11	1				4				1	1		1				4	3	5						3						
40	WM/CF-12	1						5																							
41	WM/CF-13	1			5	3	3																								
42	WM/BMPF-1		1			4	5																								
43	SW/BMPF-1		1							5															4						

		MORT BASED ROOT CAUSE ANALYSIS FORM																													
		ROOT CAUSES																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&P	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT				
ITEM NO	ENVIRONMENTAL TOTALS Page 3																														
REMARKS:																															
44	SW/BMPF-2	1																4						5							
45	SW/FMPF-3	1															3							5							
46	SW/CF-1	1	5																	3	2										
47	SW/CF-2	1							4															5							
48	SW/CF-3	1																	5												
49	SW/BMPF-4	1	4																					5							
50	QA/BMPF-2	1		4				5												4	2										
51	IWS/CF-5	1																	5												
52	NEPA/CF-1	1						5																							
53	NEPA/CF-2	2	1					5																							
54	NEPA/CF-3	1		5				4																							
55	NEPA/CF-4	1						5																	3						
56	NEPA/BMPF-1	1						5													3										
57	NEPA/BMPF-2	1						5													4	2		2							
58	WM/BMPF-2	1				5																									
59	TS/CP-2	2	1	3				5									4		5		3										
	Totals W/O Weight	30	35	2	12	4	0	22	22	7	3	4	1	1	0	4	0	2	6	4	22	2	17	0	8	10	0	1			
	Totals W Weight	86	100	2	46	18	0	88	81	23	12	12	1	4	0	11	0	7	24	14	98	7	58	0	36	31	0	5			

MORT BASED ROOT CAUSE ANALYSIS FORM

ITEM NO	SAFETY & HEALTH FINDINGS	ROOT CAUSES																														
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROF EQUIPMENT					
	REMARKS:																															
1	S/CF-1	1		2	3	4	3	2										4				3		5								
2	S/CF-2				1		5	5																								
3	S/CF-3	1	2						5			3						1														
4	S/CF-4		1													4																
5	S/CF-5			1				5				5																				
6	S/CF-6		1			3														5	3											
7	S/CF-7			1						5		5																				
8	S/CF-8		1		5	2	4		3											3	2											
9	S/CF-9			1		2	5	3						3		4																
10	S/CF-10	2	1				2	3		2		5									3	4										
11	S/CF-11		1					2											4		4			4								
12	S/CF-12		1				2													4	3											
13	S/CF-13		1																					5								
14	S/MBPF-1			1			5			2												1										
15	S/MBPF-2		1						3									4			4											
	Totals W/O Weight	3	9	6	2	4	7	5	0	5	0	2	1	3	1	0	1	1	0	3	1	4	6	2	0	3						
	Totals W/ Weight	8	26	17	8	13	24	15	0	18	0	7	5	13	3	0	4	4	0	9	4	15	20	4	0	14						

MORT BASED ROOT CAUSE ANALYSIS FORM

ITEM NO	MANAGEMENT FINDINGS	ROOT CAUSES																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT						
	REMARKS:																																
1	M/CF-1	1	2			3														4					5								
2	M/CF-2		1					5								5						4											
3	M/BMPF-1	1																	3	2					4								
4	M/BMPF-2		1																	4		5			4								
5	M/BMPF-3	2	1					4						5						3	5												
6	M/BMPF-4	1		2	4									2					3						5								
7	M/BMPF-5		1				5	4								5					5	5											
8	M/BMPF-6	2	1																	5					5								
9	M/BMPF-7		1			3	1												4			2											
10	M/BMPF-8		1			5				4	4							4			5												
11	M/BMPF-9		1															2		4	1	3											
12	M/BMPF-10	1																	5						4								
13	M/BMPF-11		1	1		2							4												3								
	Totals W/O Weight	6	10	0	2	0	4	2	1	3	1	1	0	1	2	0	2	0	2	4	6	4	5	0	0	7	0						
	Totals W/ Weight	16	29	0	3	0	15	3	5	13	4	4	0	4	7	0	10	0	6	15	22	16	19	0	0	30	0						

MORT BASED ROOT CAUSE ANALYSIS FORM																																
ITEM NO	REMARKS	ROOT CAUSES																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSMA	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT					
	"Totals W/O Weight"																															
	Safety & Health	3	9	6	2	4	7	5	0	5	0	2	1	3	1	0	1	1	0	3	1	4	6	2	0	3	0	0				
	Management	6	10	0	2	0	4	2	1	3	1	1	1	0	1	2	0	2	0	2	4	6	4	5	0	0	7	0				
	Environment	28	35	2	12	4	0	22	22	7	3	4	1	1	0	4	0	2	6	4	22	2	17	0	8	10	0	1				
	Totals:	37	54	8	16	8	11	29	33	5	4	7	3	4	2	6	1	5	6	9	27	12	27	7	8	13	7	1				
	"Totals W/ Weight"																															
	Safety & Health	8	26	17	8	13	24	15	0	18	0	7	5	13	3	0	4	4	0	9	4	15	20	4	0	14	0	0				
	Management	16	28	0	3	0	15	3	5	13	4	4	0	4	7	0	10	0	6	15	22	16	19	0	0	30	0	0				
	Environment	86	100	2	46	18	0	38	8	123	12	12	1	4	0	11	0	7	24	14	98	7	58	0	36	31	0	5				
	Totals:	110	155	19	57	31	39	106	13	154	16	23	6	21	10	11	14	11	30	38	124	38	97	4	36	75	0	5				

**SURFACE AND ROOT CAUSES FOR ENVIRONMENT,
SAFETY AND HEALTH AND MANAGEMENT FINDINGS**

REMARKS:

21. One of the surface causes seems to be task performance. AAO and M&H personnel were aware of the TACB requirements for forage fluoride monitoring and did perform some tests; however, the data obtained were inadequate. Thus, the task performance of following the regulations was not accomplished.
5. Another surface cause of this finding seems to be technical information. AAO and M&H personnel were aware of the TACB requirements for forage fluoride monitoring, but because there was not adequate information about fluorides in forage, the task performance of following the regulations was not accomplished.
3. The root cause is policy implementation because the TACB regulations specify policy and the plant is not implementing this policy.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒NEPA ☐S & H ☐Mgmt. ☐ITEM
NOFINDING TITLE AIR/CF-2
Fluoride Ambient Monitoring

ROOT CAUSES											SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSA	DESIGN	HUMAN FACTORS	QA/QC	AMPLIFICATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERF. PROT. EQUIPMENT					
x																	4													

REMARKS:

21. The surface cause of this finding seems to be task performance because fulfilling the regulatory monitoring requirement (or approved alternative) was not accomplished.
3. The root cause is policy implementation because the TACB regulations specify ambient monitoring requirements and the plant is not complying.

TEAM

- Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE AIR/BMPF-1
 VOC Emissions Minimization

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/OT/REVIEW	CHANGE	PROCEDURES	CMR	DESIGN	HUMAN FACTORS	QVOC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PIES NOT EQUIPMENT				
	x	4		4			3																						

REMARKS:

There are three surface causes for not developing a thorough VOC emissions reduction program with inventories for all VOC emissions, including paint.

11. The lack of applicable Codes, Standards, and Regulations has not required it.
5. A lack of technical information because the information for total site VOC emissions/use is not available.
8. A lack of audits and reviews because site review has not required it.
3. The root cause appears to be policy implementation, since resources have not been made available to accomplish these environmental management goals.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
NEPA ☐
S & H ☐
Mgmt. ☐

ITEM NO

FINDING TITLE AIR/BMPF-2
Air Sampler Siting

ROOT CAUSES

SURFACE CAUSE CATEGORIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	ALLOCATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
x	2																		2										

REMARKS:

There are two surface causes for having siting and aiming problems at some Pantex air monitoring stations.

5. One of these seems to be technical information, because M&H personnel do not consistently use the siting and aiming guidelines.

23. The other surface cause for having siting and aiming problems with some Pantex air monitoring stations seems to be training, because M&H personnel apparently have not been trained in these requirements.

3. The root cause is policy implementation because guides exist for good sampler siting criteria but implementation has not been accomplished.

TEAM		ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
ITEM NO	FINDING TITLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAP	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT				
	Env. ☒ SW CF-1																														
	NEPA ☐																														
	S & H ☐																														
	Mgmt. ☐																														
	FINDING TITLE : EPA NPDES Permit Determination	1	5																												
REMARKS:																															
<p>5. Lack of technical information regarding the extent of NPDES regulations, combined with local practice, has led to neglect in applying for or seeking direct data regarding the necessity of an NPDES permit from the EPA.</p> <p>21. Pantex should have sought a definitive opinion regarding the applicability of NPDES permits from the EPA.</p> <p>23. Site personnel may not be trained in all aspects of NPDES regulations.</p> <hr/> <p>3. The root cause appears to be policy implementation because the existing regulatory policy regarding discharge permitting has not been implemented as a result of the surface causes mentioned above.</p>																															

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒

NLEPA ☐

S & H ☐

Mgmt. ☐

SW/CF-2

ITEM
NO

FINDING TITLE Inadequate

Containment of Aboveground

REMARKS: Tanks and Drums

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QWOC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
3								4														5							

25. The equipment, including curbs, gutters, etc., which should be available to contain an oil spill are not present.
 11. The structures necessary for spill containment, as required by 40 CFR 112 (Environmental Protection Agency Regulations on Oil Pollution Prevention), are not present.
-
3. The root cause of this finding is policy implementation. Since it is the policy of DOE to comply with environmental protection regulations, this policy is not being implemented in this case due to nonconformance with the spill prevention and containment regulations (40 CFR 112).

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

SW/BMPF-1

ITEM
NO

FINDING TITLE : Inadequate
 Wastewater Treatment in
 Pantex Sewer Lagoon

ROOT CAUSES					SURFACE CAUSE CATEGORIES																													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&P	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT									
3								5													4													

REMARKS:

12. The design of the wastewater treatment lagoon appears inadequate to treat effectively either excessive flows or BOD coming to the plant.
 25. The equipment, the wastewater treatment plant, may not be adequate to achieve permitted effluent standards, as set by the TWC wastewater discharge permit.
-
3. As it is DOE policy to comply with environmental regulations, this policy is not being implemented due to excursions from permitted values.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

SW/CF-3

ITEM
NO

FINDING TITLE :Untimely
 Reporting of TWC Wastewater

REMARKS: Discharge Permit Exceedances

ROOT CAUSES											SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSMP	DESIGN	HUMAN FACTORS	QVOC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	TECHNICAL EQUIPMENT					
	3																	5												

21. The task performance of reporting permit violations, as required by the Texas Water Commission, was not performed in a timely manner.

3. The root cause appears to be policy implementation. If the policy (TWC permit conditions) had been implemented, the TWC would have been notified in a timely manner and no finding would have resulted.

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

SW/BMPF-2

ROOT CAUSES

SURFACE CAUSE CATEGORIES

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AVAILABILITY	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT			
2															4					5								

ITEM NO

FINDING TITLE: Unnecessary

Diesel Releases at Cement

REMARKS: Plant

25. There is inadequate equipment to control fueling operations spills at the cement batch plant.
 19. Routine inspections of the facility may have identified the concern and avoid serious compromises to the environment.
-
3. The policy, the Spill Prevention, Containment and Countermeasure plan was not implemented to the fullest extent at this facility.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒

NEPA ☐

S & H ☐

Mgmt. ☐

SW/BMPF-3

ITEM
NO

FINDING TITLE: Deterioration
of Sewer Lines

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSMP	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERIS PROOT EQUIPMENT				
1															3						5								

REMARKS:

25. The sewer lines (equipment) are damaged through use and some are badly in need of replacement.
 18. Although plans have been made and, in many cases, underway for the rehabilitation of the sewer system, continual maintenance is required on the deteriorated portions.
-
3. It is the policy of the DOE to comply with those policies which may have an impact on the environment. Although the sewer system was built 40 to 50 years ago, many portions do not meet current codes and should be replaced. The Tiger Team recognizes that plans to accomplish this are currently underway but have not been completely implemented.

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

SW/BMPF-4

ROOT CAUSES

SUPFACE CAUSE CATEGORIES

ITEM
NO

FINDING TITLE: Unrepresentative

Wastewater Flow

Measurement

REMARKS:

25 & 5. Lack of the proper technical equipment needed to isolate sanitary and industrial discharges from stormwater runoff is resulting in incorrect technical data being reported to the TWC.

3. The root cause of this finding is policy implementation. The Pantex policy of complying with environmental regulations is not being implemented with regard to the TWC permit conditions.

MONTH BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒

NEPA ☐

S & H ☐

Mgmt. ☐

ITEM NO

FINDING TITLE GW/BMPF-1

Inadequate Groundwater Monitoring

REMARKS:

5. The surface cause of this finding appears to be a lack of technical information which results in an insufficient understanding of the groundwater regime although the site is preparing an overall groundwater and sampling plan under contract.
4. The root cause is risk assessment, since without information regarding groundwater conditions, risks cannot be assessed.

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERMITS	PROD EQUIPMENT			
		X	5																										

TEAM

Env. ☒

NEPA ☐

S & H ☐

Mgmt. ☐

ITEM NO

FINDING TITLE GW/BMPF-2

Unknown Integrity of
Underground Storage Tank and Pipes

REMARKS:

ROOT CAUSES										SURFACE CAUSE CATEGORIES																				
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/DIY REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT				
X		X														4						4								

- 25., The surface causes which resulted in this finding appear to be equipment and inspection.
19. The underground tank system equipment is beginning to fail. The inspection by manual gauging is being done, but the operator can not determine if a leak has occurred because of inadequate gauging procedures.
- 2., As a result of inadequate equipment and inspection surface causes, the root cause
4. appears to be inadequate policy and risk assessment which could strengthen the routine manual gauging program and expedite the leak testing program.

ROOT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE WM/CF-1

Storage of Hazardous Waste

In Non-Interim Status Facilities for Longer than 90 Days

ROOT CAUSES					SURFACE CAUSE CATEGORIES																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS. PROT. EQUIPMENT	Planning				
X					4																					5				

REMARKS:

28. The site was not effectively planned to provide adequate hazardous waste storage capacity.
8. The site does not have an adequate audit mechanism to identify regulatory requirements.
3. The root cause of this finding is inadequate site policy implementation in that RCRA regulatory requirements have not been effectively implemented.

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE WM/CF-2
 Inadequate Labeling of

Hazardous and Mixed Waste Containers

REMARKS:

8.& The site does not have adequate procedures or an effective appraisal mechanism to
 10. maintain container labeling in accordance with the regulatory requirements.

2. The root cause of this finding is inadequate site policy in that RCRA regulatory requirements have not been fully addressed in site policy.

ROOT CAUSES					SURFACE CAUSE CATEGORIES																									
	2	1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	TECHNICAL EQUIPMENT					
X				5		5																								

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒

NEPA ☐

S & H ☐

Mgmt. ☐

ITEM
NO

FINDING TITLE WM/CF-3

Extended Storage of
Land-Disposal-Restricted Hazardous Waste

REMARKS:

21. The surface cause for this finding is task performance. The site is not managing LDR waste in accordance with the regulatory requirements.
2. The root cause for this finding is policy. The site does not have an effective policy to manage LDR waste in accordance with regulatory requirements.

ROOT CAUSES

SURFACE CAUSE CATEGORIES

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	ALLOCATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT			
																			21									

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM
NO

FINDING TITLE WM/CF-4

Inadequate Secondary

Containment for RCRA Treatment Facility Hazardous Waste Tanks

REMARKS:

- 8.& 12. The site does not have an adequate auditing program to identify facility design deficiencies such as the lack of RCRA-required secondary containment of tanks more than fifteen years old.
3. The root cause of this finding is the site's lack of policy implementation in that RCRA regulatory requirements have not been fully implemented.

WASTE MANAGEMENT SYSTEMS (WMS) ROOT CAUSE ANALYSIS FORM

ROOT CAUSES					SURFACE CAUSE CATEGORIES																									
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
X				5				4																						

ROOT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE WM/CF-5

Lack of Waste
 Characterization

ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/VIEW	CHANGE	PROCEDURES	COM	DESIGN	HUMAN FACTORS	QA/QC	AVAILABILITY	BARRELS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	ASAP PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PPE	PROT EQUIPMENT			
X		3	5	4		3																	3						

REMARKS:

10. The site lacks procedures requiring a hazardous waste determination on old paint that is to be sandblasted.
5. Technical information on the potentially hazardous characteristics of the old paint has not been compiled by the site.
- 6., 8.& 26. The site's internal appraisals and hazard analyses of site activities and communications between site workers and environmental protection personnel have not identified this issue as a potential noncompliance with applicable regulations.
2. The root cause for this finding is inadequate site policy for providing required hazardous waste determinations.

TEAM

Env. ☒
 NUPA ☐
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE WM/CF-6

Inadequate Operating Records
 at RCRA Treatment and Storage Facilities

REMARKS:

ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
	2	1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/DICTIONARY	CHANGE	PROCEDURES	CSAP	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TECH PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS	PROT EQUIPMENT		
X	X		3	3		5																							

10. Adequate procedures are not in place to maintain operating records in accordance with regulatory requirements.
- 6.& Adequate appraisals or hazards analyses by site management of the operating records
8. maintenance mechanism are not being performed.
- 2.& The root cause for this finding is inadequate site policy and site policy implementation
3. in that RCRA regulatory requirements have not been identified and implemented.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM
NO

FINDING TITLE WM/CF-7

Inadequate Follow-up of
 Inspection Deficiencies

REMARKS:

- 10., Site management does not have a formal procedure for remediating inspection
 8., deficiencies and is not adequately supervising, auditing, or enforcing the existing
 20. mechanism for remediation of inspection deficiencies.
21. The site is not effectively performing follow-up of task performance deficiencies
 identified in inspections of the 4-19B.
- 12., In addition, the 4-19B facility design includes physical barriers (necessary for
 16. security purposes) which discourage access to the facility to correct deficiencies.
3. The root cause of this finding is inadequate policy implementation. The existing policy
 requiring remediation of inspection deficiencies is not being effectively implemented.

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE WM/CF-8

Inadequate Identification of RCRA Hazardous Waste 90-Day Accumulation Areas

REMARKS:

10. Effective procedures for ensuring identification of potential 90-day accumulation areas are not in place.
5. Inadequate technical information and recognition of the regulatory requirements have prevented the site from meeting the regulatory requirements.
- 6., 8., 26. In addition, existing practices for appraisals and hazards analyses of site activities and communication between site personnel and management did not allow for identifying the applicable regulatory requirements.
3. The root cause for this finding is inadequate policy implementation since the applicable regulatory requirements were not implemented.

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSRP	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT				
	X	4	5	5	4																	3							

ROOT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
NEPA ☐
S & H ☐
Mgmt. ☐

ITEM
NO

FINDING TITLE WM/CF-9
Minor Inaccuracies in

RCRA Documents

ROOT CAUSES					SURFACE CAUSE CATEGORIES																													
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QUALC	ANALOGATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT									
X				5																		4												

REMARKS:

8. The site does not review regulatory submittals to adequately ensure regulatory compliance.
26. In addition, there is not adequate communication of technical information between site personnel and management.
2. The root cause of this finding is inadequate site policy for ensuring accuracy in RCRA documents.

TEAM

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 Mgmt. ☐

(ITEM NO)

FINDING TITLE WM/CF-10

Open Hazardous Waste
 Containers - Paint Shop

REMARKS:

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT					
	X			3											3	3	5					2							

21. The procedure for maintaining closed hazardous waste accumulation containers in the satellite accumulation areas was not being performed.
- 19., There was not adequate supervision of personnel, inspection of the work area, or audit
- 20., of adherence to the applicable procedure to identify improper task performance.
- 8.
26. The requirements of the regulation had not been effectively communicated from management to the personnel in the work area.
10. The site procedure for adherence to the regulation had not considered full containment of the spent string filters during storage and transport.
25. The equipment (i.e., containers) used to store and transport the spent filters does not permit adequate compliance with the regulatory requirement.
3. For the paint shop solvents, the environmental protection policies are adequate but are not being implemented through enforcement of procedures.
2. For the string filters, an adequate policy has not been developed.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM NO

FINDING TITLE WM/CF-11

Inadequate Aisle Space at [] X [] [] [] [] 4 []
Interim Status Hazardous Waste Storage Facility

REMARKS:

8., The site management's appraisals, inspections, and supervision have not effectively
19., followed up to remedy the inadequate task performance (i.e., inadequate facility
20., maintenance).
21.

26. The site management has not effectively communicated the requirements of the applicable regulations to the appropriate responsible personnel.

12., In addition, the design of the facility does not allow sufficient storage capacity for
13., proper maintenance of aisle space and has not adequately balanced the inadequate human
16. factors concern (i.e., ready access to the facility) with the greater concern for
building security (this facility stores classified waste and is physically difficult
to access). The imbalance of these concerns has resulted in a barrier that discourages
access to the facility.

2. The root cause of this finding is inadequate site policy. An effective site policy for correcting this deficiency has not been developed.

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ROOT CAUSES

SURFACE CAUSE CATEGORIES

2	1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	AVIATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERF PROT EQUIPMENT			
								5																				

ITEM NO

FINDING TITLE WM/CF-12
 Inspections of Evaporation
 Pans Not Performed Daily

REMARKS:

10. The procedure for operation of the burning ground does not address inspections (WM-5).
 The site had not adequately identified the regulatory requirements applicable to the evaporation pans, and therefore the inspections were not being carried out in accordance with the correct regulatory requirements.
2. The root cause for this finding is inadequate site policy for identifying regulatory requirements.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM NO

FINDING TITLE WM/CF-13

Inadequate Sign Posting at
 RCRA Treatment Facilities

REMARKS:

ROOT CAUSES					SURFACE CAUSE CATEGORIES																													
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
	POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT								
X			5		3		3																											

6. The regulatory requirement for adequate signs at the facility as long as a hazard is present has not been identified by the site.
- 8., The site does not have an effective mechanism (e.g., a procedure) to identify and
10. appraise the facilities and activities that result in the application of regulatory requirement.
2. The root cause of this finding is inadequate site policy for identifying regulatory requirements.

MOOT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM NO

FINDING TITLE WM/BMPF-1

Inadequate RCRA Inspection Checklists

REMARKS:

10. Procedures have not been developed for thorough inspections of RCRA facilities that include facility-specific technical information and human factors considerations (i.e., design the inspection form such that the inspector is forced to perform a proper inspection).
8. Audits of the current inspection process have not effectively identified any deficiencies.
3. The root cause for this finding is inadequate policy implementation. Policy for appraisal and improvement of the inspection process has not been fully developed and implemented.

ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
	2	1	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT			
X						4		5																					

NOTE BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM NO

FINDING TITLE TS/CF-1

Nonconformance with

Chemical Storage Area Inspection Requirements

REMARKS :

21. Inspections are not being performed by all departments as required.
23. Training may be needed to familiarize/reinforce inspection requirements among the departments.
26. The requirements of Standard 344.1 may not have been adequately conveyed/received to achieve full implementation.
-
3. The existing plant policy has not been fully implemented.

TEAM

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NO.

FINDING TITLE	TS/BMPF-1

PCB Item Labeling and

REMARKS: Documentation Inconsistencies

RISK CAUSES						SURFACE CAUSE CATEGORIES																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY																														
POLICY IMPLEMENTATION																														
RISK ASSESSMENT																														
TECHNICAL INFO																														
HAZARD ANALYSIS																														
SAFETY																														
APPRAISAL/REVIEW																														
CHANGE																														
PROCEDURES																														
CSAR																														
DESIGN																														
HUMAN FACTORS																														
QA/QC																														
AMPLIFICATION																														
BARRIERS & CONTROLS																														
OPER READINESS																														
MAINTENANCE																														
INSPECTION																														
SUPERVISION																														
TASK PERFORMANCE																														
PERSONNEL																														
TRAINING																														
ENVIRONMENT																														
EQUIPMENT																														
COMMUNICATIONS																														
PERS PROT EQUIPMENT																														

10. **Standard Maintenance Instructions** No.305 contains wrong definition of PCB Items per 40CFR761;
Standard Work Orders do not include checking transformer labels.

23. Need to reinforce correct understanding of regulations and requirements.

2. Existing policy contains errors and could lead to inaccurate documentation/labeling.

MORT BASED ROOT CAUSE ANALYSIS FORM

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ITEM
NO

FINDING TITLE QA/CF-1
Lack of Quality Assurance

REMARKS: Project Plans

ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	ANALOGY	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERMITS	PROT EQUIPMENT			
1	4					4												2											

5. Existing procedures contain insufficient information to serve as a basis for a quality assurance project plan (QAPP).
 10. Existing procedures do not conform with EPA requirements for a QAPP.
 21. Following existing procedures could result in technical error and nonconformance with QAPP requirements.
-
3. Policy Implementation - existing policy from two DOE Orders (5700.6B & 5484.1) has not been implemented.

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ITEM
NO

FINDING TITLE QA/BMPF-1

Lack of a written

Environmental Monitoring Plan

REMARKS:

5. Existing operating procedures contain insufficient technical information to serve as an adequate project planning/implementation document.
 10. The procedures contain several deficiencies in technical protocol and are not fully consistent with EPA protocols. They also do not include DOE or EPA administrative requirements.
 21. Performance of environmental monitoring under the present system subjects the plant to risk of producing data that could later be challenged.
-
3. An existing policy (DOE Order 5400.1) has not yet been implemented.

ROOT CAUSE CATEGORIES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSA	DESIGN	HUMAN FACTORS	QA/QC	ANALOGY	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERMITS	EQUIPMENT			
1		3					4											1											

MORT BASED ROOT CAUSE ANALYSIS FORM

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ITEM
NO

FINDING TITLE QA/BMPF-2

Inadequate Sampling

REMARKS: Protocols

ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
1			4				5											4		2									

Surface Cause

- Existing operating procedures (IOP 3405) contain inadequacies in technical information, thereby limiting their utility as effective sampling protocols.
- Existing procedures contain technical deficiencies and do not include many procedures necessary to meet technical or regulatory requirements or best practices.
- Implementation of correct protocols will require additional training of sampling personnel and supervisors.
- Performance of sampling per existing protocols contributes to procedural errors and creates risk of generating data of questionable quality.

Root Cause

- Policy - existing "policy" (sampling protocols in IOP 3405) contains technical deficiencies and does not include many necessary procedures.

TEAM

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NO

FINDING TITLE QA/BMPF-3

Inadequate Sampling

REMARKS: Techniques

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/TIME REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	ANALOGY	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PER. PROT. EQUIPMENT				
1								5											3										

10. Procedures (IOP 3405) are, in several aspects of environmental sampling, lacking or not in compliance with best management practices. See also Finding QA/BMPF-2.
23. The sampling personnel and supervisors have not been fully trained in the need for insuring proper cooling, storing, and shipping of samples.
-
3. Policy Implementation - The DOE policy of compliance with all aspects of environmental best management practices is not being met.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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 Mgmt. ☐

ITEM
NO

FINDING TITLE RAD/CF-1
 ARAC Operators

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRELS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT				
1							5												5										

REMARKS:

10. There is an inadequate number of trained personnel to perform the computer modeling.
23. A training program to qualify additional operators does not exist.
2. The root cause appears to be inadequate M&H policy since the number of personnel trained to operate the ARAC computer has not been designated.

TEAM

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ITEM NO

FINDING TITLE RAD/BMPF-1
Radiological Waste Labeling

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
1				4		5										5													

REMARKS:

10. The procedures for radiological waste labeling are inadequate.
19. Inspection of waste storage areas is deficient for identifying labeling errors.
8. Waste records reviews are not conducted which does not allow identification of problems.
2. The root cause appears to be inadequate M&H and DOE policies since the regulation does not specifically state when the waste must be labeled prior to shipment.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM
NO

FINDING TITLE RAD/BMPF-2

Identification of Check

Sources

REMARKS:

10. The procedure for control and accountability of radioactive sources is inadequate to identify all sources.
16. The current controls for radioactive sources are not adequate to prevent potential unnecessary personnel exposures.
8. A reliable source inventory records review is not conducted.
3. The root cause appears to be inconsistent site policy implementation since the vast majority of the radioactive sources at Pantex meet the control and accountability criteria.

ITEM NO	TEAM	ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Env. ☒ NEPA ☐ S & H ☐ Mgmt. ☐																														
	FINDING TITLE RAD/BMPF-3																														
	Land Use Census	1					5				4									3											

REMARKS:

10. There is no procedure developed for a land use census.
14. There are no overall environmental QA and review programs in place to allow identification of problems.
23. The lack of training in the areas of land use evaluations affects the monitoring program.
2. The root cause appears to be inadequate site policy. There is currently no site policy in effect concerning the use of a land use census.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM
NO

FINDING TITLE RAD/BMPF-4
Inadequate Air Sample
Analysis

MORT BASED ROOT CAUSE ANALYSIS FORM																													
ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&P	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERT PROT EQUIPMENT				
1						5																							

REMARKS:

- The current procedure does not adequately address the proper sample analysis frequency for environmental air samples.
- The root cause appears to be inadequate site policy since the sample analysis frequency is not specifically identified or justified.

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 Mgmt. ☐

ITEM NO.

FINDING TITLE RAD/BMPF-5
 Posting Requirements

ROOT CAUSES											SURFACE CAUSE CATEGORIES																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	Q/ROC	ANALOGATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TSR PERFORMANCE	PERSONNEL TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS ROOT EQUIPMENT						
1							5						4																

REMARKS:

10. The standard for radiation protection surveys does not address survey results or posting requirements.
16. The lack of posting contaminated areas is not an adequate radiological control practice.
2. The root cause appears to be inadequate policy since the M&H standard does not include posting criteria.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM NO

FINDING TITLE RAD/BMPF-6

Environmental Report

Inadequacies

ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERMITS	PROT EQUIPMENT			
1																		5		4									

REMARKS:

- Task performance is not consistent with the guidelines in the regulation and is affected by lack of training.
- The lack of training on report preparation affects the final product.
- The root cause appears to be policy implementation since DOE policy exists but is not currently being implemented by AAO.

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ROOT CAUSES

SURFACE CAUSE CATEGORIES

ITEM
NO

FINDING TITLE RAD/BMPF-7

Radiological Waste Container

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	ANALOGATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
1							5																						

REMARKS:

10. The procedure for the collection and removal of radioactive wastes does not address the use of liners for the containers.
2. The root cause appears to be inadequate policy since the M&H Safety Standard (RAD-13) does not specifically address the current practice of using lined waste containers.

MORT BASED ROOT CAUSE ANALYSIS FORM

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ITEM NO.

FINDING TITLE IWS/CF-1

Under Reporting of

REMARKS: Chemical Releases and Inventories

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSRA	DESIGN	HUMAN FACTORS	QA/QC	ALLOCATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PLTS AND EQUIPMENT				
X	5		4															4	5										

Surface Cause

1. Under reporting of toxic chemical releases on EPA Form R

5 - The employee responsible for compiling information and completing Form R was new and did not have a clearance. Therefore, he did not have access to the Plant and knowledge of the processes which would provide him with the necessary technical information.

8 - EPA Form R was not reviewed by someone knowledgeable in the subject.

21 - Because of the above, task performance was in error.

23 - This employee was also not trained in toxic chemical release reporting methods and requirements.

2. Incorrect reporting on Tier Two Form

21 - Personnel completing the form had the proper information, but a task performance error was made when an incorrect number was entered on the form.

8 - The error was not discovered and corrected in a review cycle, if one even occurred.

Root Cause

Policy implementation - The policy in the form of EPCRA regulations, which provide the templates and instructions for completing the forms, was available but not implemented.

TEAM

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(#)

FINDING TITLE IWS/CF-2

Inadequate Toxic Chemical
REMARKS: Release Documentation

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/VIEW	CHANGE	PROCEDURES	CSAP	DESIGN	HUMAN FACTORS	QA/QC	AMELICATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	TESTS/PROT. EQUIPMENT				
X				5														4	5										

Surface Cause

5. There has been no review of the documentation and records to determine adequacy.
21. As a result, task performance was not conducted properly.
23. Personnel assigned to this task were not trained in the requirements of 40CFR372 with regard to documentation and record keeping.

Root Cause

3. Policy implementation - existing policy in the form of the implementing regulation was not followed.

ROOT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE IWS/CF-3

Lack of Hazardous Chemical

REMARKS: List Updates

ROOT CAUSES											SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSA	DESIGN	HUMAN FACTORS	QA/QC	ANALOGY	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERIS. PROT. EQUIPMENT					
X				4															5		5									

Surface Cause

7. The inventory was not periodically reviewed to determine whether modifications to the list were needed.
21. As a result of 23 & 7, task performance errors resulted.
23. Personnel assigned to this task were not trained in the requirements of 40CFR370.

Root Cause

3. Policy implementation - existing policy in the form of the implementing regulation was not followed.

TEAM

Env. ☒

NEPA ☐

S & H ☐

Mgmt. ☐

ITEM NO.

FINDING TITLE IWS/CF-4

Incomplete Distribution of

REMARKS: EPCRA Reports

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL MFD	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QAOCC	AVIATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERF PROT EQUIPMENT				
	X			5														4	5										

Surface Cause

5. There was no review of the distribution to determine adequacy.
21. As a result of the above, tasks were not performed properly.
23. Personnel assigned to this task were not trained in the requirements of 40CFR370 with regard to distribution of reports.

Root Cause

3. Policy implementation - existing policy in the form of the regulations (40CFR370) was not implemented.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
NEPA ☐
S & H ☐
Mgmt. ☐

ITEM NO

FINDING TITLE IWS/BMPF-1

Lack of

ROOT CAUSES					SURFACE CAUSE CATEGORIES																									
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QWOC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT					
X																		5					5							

REMARKS: Environmental Restoration Oversight

Surface Cause

20. AAO is not directly supervising and directing work which it is financially supporting and which occurs on its facility.
26. Communications regarding environmental restoration activities must go through several links between AAO and the subcontractor performing these activities.

Root Cause

2. Policy - the practice of using the AL ER Program TSO for site cleanup is probably not best serving the needs of AAO.

TEAM

Env. ☒NEPA ☐S & H ☐Mgmt. ☐ITEM
NO

FINDING TITLE IWS/BMPF-2

Lack of Timely DOE HQ

REMARKS: Approval

ROOT CAUSES					SURFACE CAUSE CATEGORIES																															
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30								
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS. PROT. EQUIPMENT											
X	X				5															3			3													

Surface Cause

5. Review of the proposed consent order was not performed by DOE HQ and AL in a timely manner, especially in light of the negotiation schedule.
23. DOE HQ may not be trained on the meaning of the Secretary of Energy's policy on environmental compliance agreements. This is indicated by a hand-written note on the DOE HQ Approval to Negotiate from a representative of the Special Assistant to the Secretary for Coordination of DOE Waste Management, which stated that prior approval to negotiate is not required; this directly contradicts the Secretary's policy.
26. Communications may be inadequate in that HQ may not have been informed of the Secretary's policy and may not have been informed of or understood the importance of timely review.

Root Cause

2. Policy - the policy, as stated in the Secretary of Energy's memo on environmental compliance agreements, may not be clear with regard to the importance of timely reviews.
3. Policy implementation - the policy was not implemented in a timely manner.

TEAM		SURFACE CAUSE CATEGORIES																													
		ROOT CAUSES																													
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&P	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS. PROT. EQUIPMENT				
ITEM NO	FINDING TITLE IWS- CF-5																														
	Inadequate Community	X																		5											

REMARKS: Relations Activities

Surface Cause

21. The AL ER Field Office Management Plan and the applicable RI/FS work plan state that a community relations plan is to be developed and implemented by AAO and M&H. This task has not been performed to date.

Root Cause

3. Policy implementation - the requirements defined in the AL ER Field Office Management Plan and the RI/FS work plan have not been implemented.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒
 NEPA ☐
 S & H ☐
 Mgmt. ☐

ITEM
NO

FINDING TITLE IWS/BMPF-4

Incomplete Spill Reporting

REMARKS: Procedure

Surface Cause

10. Not all Federal regulations and DOE Orders for spill reporting were identified in the SPCC Plan procedures.

21. The development of the SPCC Plan was not performed adequately.

Root Cause

2. Policy - the policy for reporting spills as described in the Pantex Plant SPCC Plan is inadequate.

TEAMEnv. ☒NEPA ☐S & H ☐Mgmt. ☐ITEM
NO

FINDING TITLE CNR/CF-1

Lack of Wetlands

REMARKS: Environmental Review

ROOT CAUSES					SURFACE CAUSE CATEGORIES																																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30								
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERMITS	PROT EQUIPMENT											
X						3														5																	

Surface Cause

9. Changes in wastewater discharges resulting from new and proposed projects are not adequately accounted for in NEPA considerations.
23. Personnel are not trained in wetlands assessments and the wetlands regulations.

Root Cause

3. Policy implementation - DOE regulations for protecting wetlands are not properly implemented.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐NEPA ☒S & H ☐Mgmt. ☐ITEM
NO

FINDING TITLE NEPA/CF-1

Inappropriate Use of NEPA

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD INFO	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	AVAILABILITY	BARriers & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	CONJUNCTIONS	FEAS. PLOT EQUIPMENT				
1						5																							

REMARKS: Determinations Process by the Albuquerque Operations Office

Surface Cause

10. Albuquerque Operations Office NEPA procedures do not accurately reflect all possible determinations delegated to the responsible supervisory official.

Root Cause

3. DOE Headquarters NEPA Guidelines and Order are not accurately reflected in AL's NEPA determination procedures.

TEAM

Env. ☐
 NEPA ☒
 S & H ☐
 Mgmt. ☐

ITEM NO

FINDING TITLE NEPA/CP-2

Unsupported Albuquerque

REMARKS: Operations Office NEPA Determinations

ROOT CAUSES					SURFACE CAUSE CATEGORIES																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	COMAR	DESIGN	HUMAN FACTORS	QA/QC	INSTALLATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TECH. PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERIS. PROT. EQUIPMENT					
2	1						5																							

Surface Cause

10. Albuquerque Operations Office (AL) NEPA procedures do not follow DOE Headquarters Guidelines and the DOE Order, resulting in inadequate support for AL NEPA determinations.

Root Causes

2. AL policy is inadequate to assure fully supported NEPA determinations.
3. AL implementation of DOE NEPA policy is inadequate.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐

NEPA ☒

S & H ☐

Mgmt. ☐

ITEM
NO

FINDING TITLE NEPA/CF-3

Inappropriate NEPA

ROOT CAUSES					SURFACE CAUSE CATEGORIES																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSA	DESIGN	HUMAN FACTORS	QA/QC	ALLOCATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERF PROF EQUIPMENT					
1		5					4																							

REMARKS: Categorical Exclusion of the High Explosive Machining Facility (HEMF)

Surface Causes

- There is insufficient technical information in the EIS about impacts of either operating the new facility or decontaminating and demolishing the existing buildings.
- The procedures used in making this NEPA determination did not address criteria for the categorical exclusion that was used for the HEMF.

Root Cause

- Criteria in the DOE Headquarters NEPA Guidelines that need to be met, under the DOE Headquarters NEPA Order, were not addressed in making the NEPA determination.

Mgmt. ☐

Inadequate Albuquerque

REMARKS: Operations Office NEPA Directions

[illegible]

10. Procedures in the Albuquerque Operations Order (AL) are not based on the DOE Order. In addition, personnel using the procedures may be confused by the incomplete information.
26. Procedures are not communicated correctly. For example, a change in procedure, such as in paperwork channels, should be institutionalized in an Order, not in a memorandum.

2. The AL NEPA Order does not specifically identify which actions require a NEPA determination and is not clear and understandable in this regard. Further, the AL Order is not consistent with the DOE Headquarters Order.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐
 NEPA ☒
 S & H ☐
 Mgmt. ☐

ITEM
NO

FINDING TITLE NEPA/BMPF-1

Outdated Albuquerque

REMARKS: Operations Office NEPA Supplemental Order

ROOT CAUSES

SURFACE CAUSE CATEGORIES

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/VIEW	CHANGE	PROCEDURES	CSAP	DESIGN	HUMAN FACTORS	QUALC	ANALOGATION	BARRELS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	RISK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERMITS EQUIPMENT			
1								5											3									

Surface Causes

- The Albuquerque Operations Office (AL) NEPA Supplemental Order is not current.
- Staff are not tasked or may not be available to update the Order.

Root Cause

- Changes in Headquarters policy and in AL procedures have not been incorporated into the AL Order.

TEAM

Env. ☐
NEPA ☒
S & H ☐
Mgmt. ☐

ROOT CAUSES

SURFACE CAUSE CATEGORIES

ITEM NO

FINDING TITLE NEPA/BMPF-2

Inadequate Amarillo Area

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	ALLOCATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	FIELD PROT. EQUIPMENT			
1						5												4	2			2						

REMARKS: Office NEPA Records

Surface Causes

9. Changes in project titles, scope, or NEPA requirements are not identified for NEPA review purposes. No filing system or database has been available to track these changes.
22. Interviews with site personnel indicate the workload in the AAO does not allow a sharp focus on NEPA compliance.
23. AAO and personnel have not had adequate training in recordkeeping or procedures needed to assure NEPA reviews are completed prior to project authorization or capital equipment purchase and installation.
26. Lack of communication among M&H, AAO, and AL about recordkeeping may affect the adequacy of the NEPA tracking system.

Root Cause

2. Procedures and policies for NEPA recordkeeping have not been established.

HURT BASED ROOT CAUSE ANALYSIS FORM																																
TEAM			HURT CAUSES										ROOT CAUSE CATEGORIES																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
			Policy	Policy Implementation	Procedures	Technical Info	Human Factors	Communication	Change	Procedures	Cost	Design	Human Factors	DOE	Information	Analysis & Controls	Open Address	Management	Inspection	Supervision	Self Performance	Procedures	Training	Environment	Equipment	Communication	Top Mgt. Oversight					
ITEM NO	FINDING TITLE	S/CF-1	1	2	3	4	3	2										4				3		5								
	Imbalance of Resources																															
REMARKS:																																
<p>5. There is inadequate information on the hazards and relative risks of various operations on the site.</p> <p>6. There is inadequate guidance on how to prioritize risks and plan accordingly.</p> <p>7. Site staff do not have all resources available to satisfy all requirements simultaneously.</p> <p>8. Repeat findings by appraisal teams seldom contribute to DOE's authorization of new or reallocated resources.</p> <p>20. There are inadequate resources for supervision to carry out their responsibilities.</p> <p>24. The work environment is reactive rather than proactive.</p> <p>26. Communications among DOE/HQ, DOE/AL and DOE/AAO do not appear to reflect the practical matters associated with top-down allocation of fixed resources in an environment of increasing work requirements.</p> <p>2. The impacts of new policies and their implementation on resources (e.g. staff, funding) available to the system need more careful attention. Otherwise there is an immediate conflict in the ability of the affected organization to implement change.</p> <p>4. A documented technical basis which accurately portrays the relative risk presented by the various operations and facilities at Pantex would enable Mason & Hanger and DOE to establish priorities more effectively.</p>																																

TIME

Div. ☐

NESA ☐

S & H ☒

Mgmt. ☐

ROOT CAUSE CATEGORIES

ROOT CAUSE CATEGORIES

FINDING TITLE S/CF-2

Safety Inspections

REMARKS:

6. The Final Safety Analysis Report (FSAR) is not consistent with facility configuration and Operational Safety Requirements (OSR) included in the design and maintenance procedures.

8. The FSAR review did not determine that there were different OSR requirements for Alpha and Beta alarms.

4. The preparation and review of the FSAR did not determine that OSR requirements for Alpha and Beta alarms were different, but the design did include this difference.

TEAM

Div. ☐
 NIA ☐
 S & H ☒
 Mgmt. ☐

ROOT CAUSE CATEGORIES

ROOT CAUSE CATEGORIES

FINDING TITLE

S/CF-3

Modified Operating Procedures

REMARKS:

10. Procedures do not contain best management practices.
14. QA/QC does not review compliance with this policy.
20. Procedure-user Supervision is not assigned responsibility for ensuring compliance with General Office Standard 015.
2. Policy on the formalization of log keeping and the use of check sheets to monitor equipment has not been developed or implemented.
3. Site management has not been provided with the resources to implement the policy. There is no evidence of management enforcement of this policy.

TEAM		REF ID		ROOT CAUSE CATEGORIES																											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		Policy	Policy Implementation	Policy Management	Technical Support	Human Resources	Support	Appropriation	Control	Procedures	Class	Design	Human Factors	QC/QC	Material	Supplier Control	Design Control	Manufacturing	Inspection	Acceptance	Test Procedures	Reliability	Training	Environment	Equipment	Construction	Test Procedures				
18	FINDING TITLE S/CF-4																														
	Unrecorded Repair Orders	1														4															
REMARKS:																															
<p>18. The monitoring program is not ensuring that maintenance is performed in accordance with the policies and procedures.</p> <p>-----</p> <p>3. NQA-1 has not been fully implemented.</p>																															

TEAM

Div. ☐
 MIA ☐
 S & H ☒
 Mgmt. ☐

ROOT CAUSE

ROOT CAUSE CATEGORIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	PROC. ASSURANCE	TECHNICAL INFO	TRAINING	ANALYSIS	ASSESSMENT	CAUSE	PROCEDURE	CLAR	DESIGN	PLANNING	QA/QC	MAINTENANCE	SAFETY & CONTROL	QA/QC	MAINTENANCE	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY	SAFETY
	1					5				5																			

FINDING TITLE S/CF-5

Maintenance vs. Surveillance

REMARKS:

10. The preventive maintenance work order selected as a sample (Building 12-104) to verify that FSAR surveillance requirements were implemented, showed that not all surveillance requirements were met.

14. Quality Assurance/Quality Control should independently verify that all FSAR surveillance requirements are implemented.

4. The inclusion of Final Safety Analysis Report surveillance requirements into maintenance test procedures was not done.

TEAM

Div. ☐NIA ☐S & H ☒Mgmt. ☐

DEFENSE

ROOT CAUSE CATEGORIES

FINDING TITLE S/CF-6

Asbestos Program

REMARKS:

7. There is inadequate safety training for areas and hazards involving asbestos.
22. There is a lack of qualified and trained personnel to cover all the requirements that involved asbestos.
23. The training program is weak in the area of asbestos awareness. Independent monitoring of Hazardous Material training is needed to keep up with the OSHA requirements.
3. Management needs to enforce and implement policies to adhere to regulations.

TEAM		FINDING TITLE		ROOT CAUSE CATEGORIES	
Div.	MIA	S & H	Mgmt.	1	2
☐	☐	☒	☐	1	5
Seismic Review				1	5
<p>ISSUES:</p> <p>12. The Final Safety Analysis Report specifies a seismic design criteria, but inspection of electrical equipment critical to safety appears not to meet the criteria.</p> <p>14. Quality Assurance/Quality Control did not review and inspect for conformance to seismic design criteria.</p> <p>-----</p> <p>4. The safety of the facility is compromised, if systems critical to safety do not meet FSAR design criteria.</p>					

11/AM

Div. ☐
 NEJA ☐
 S & H ☒
 Mgmt. ☐

DOE ORDER 6430-1

ROOT CAUSE CATEGORIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Policy	Policy Implementation	Policy Implementation	Technical Help	Training	Support	Administrative Review	Guidance	Procedures	Check	Human Factors	Design	Reliability	Design / Controls	Design / Controls	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors	Human Factors

FINDING TITLE S/CF-8

Emergency Plans

1 5 2 4 3 3 2

REMARKS:

5. This a compliance finding. The DOE order is old enough so that the operations office or headquarters could have provided detailed technical guidance to aid its implementation.

6. Hazard analysis is basic to this finding however the lack of understanding of the hazards is not the problem but rather the formal codification of site credible hazards.

7. Without the proper document procedures safety may be in danger during an emergency.

10. Incomplete supporting procedures is the topic of this finding.

22. It would have reinforced the safety culture on the site if the site personnel would have performed this task rather than contracting for off-site help. Personnel should have requested this assignment.

23. Timely training should be provided for changes rather than integrating into a routine training schedule.

3. The policies have not been communicated (guidance) to personnel who have a need to know.

TEAM		REF (NRES)		ROOT CAUSE CATEGORIES																											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		PLC	PLC Implementation	PLC Maintenance	PLC Repair	PLC Safety	PLC Performance	PLC Reliability	PLC Availability	PLC Capacity	PLC Flexibility	PLC Scalability	PLC Interoperability	PLC Security	PLC Compliance	PLC Standards	PLC Best Practices	PLC Innovation	PLC Leadership	PLC Collaboration	PLC Communication	PLC Training	PLC Development	PLC Testing	PLC Deployment	PLC Monitoring	PLC Evaluation	PLC Improvement	PLC Sustainability	PLC Resilience	PLC Adaptability
ITEM NO	FINDING TITLE S/CF-9																														
	Off-Site Medical Facility		1	2	5	3								3	4																
REMARKS:																															
<p>6. An understanding of the potential risks involved may have contributed to the lack of compliance to the contract.</p> <p>7. These deficiencies could endanger the general public.</p> <p>8. The annual review of the contract should have included a review of its obligations.</p> <p>15. The appropriate incident amelioration resources are not in place.</p> <p>17. A readiness review based on the contractual obligations would have revealed the initial deficiencies.</p> <p>4. The risk plan has not adequately evaluated the contract.</p>																															

TIME

Div. ☐
 NEPA ☐
 S & H ☒
 Mgmt. ☐

ROOT CAUSE CATEGORIES

ROOT CAUSE CATEGORIES

ITEM NO

FINDING TITLE S/CF-10

Non compliance with 5480.11

REMARKS:

7. Safety personnel staffing cannot and do not monitor all work to identify inadequacies. Safety personnel do not provide safety training when needed by personnel, its "catch as catch can".
8. Audits, appraisals and reviews are not lacking, however, the corrective actions are.
10. Procedures addressing safety issues are not lacking, however, the corrective actions are.
13. There is some evidence that human factors were not considered when substantial changes were made in procedures. One such procedure had a change involving an addition of 25 pages (from 10 to 35 pages) without regard to affected personnel concerns about risk.
22. Not all ES&H personnel are qualified or tested.
23. There are inadequate resources for radiation safety training.

2. The policies are not controlling the work process.
3. Management is not enforcing the policies and lack of resources have been provided

E-97

TEAM		ROOT CAUSE CATEGORIES	
		1	2
Div. ☐			
NDA ☐			
S & H ☒			
Mgmt. ☐			
FINDING TITLE S/CF 11			
Radiation Protection Audit		1	2

REMARKS:

8. Responsibilities have not been clearly defined.

21. The staff does not have the resources to carry out their assignments, i.e. lack of experience and security clearances.

23. There are inadequate resources for training of technical staff.

26. Communications are inadequate. Changes in procedures have been made which are safety related with out safety staff awareness.

3. Management has not provided the resources and budget to implement the policies. Policies have not been implemented in a timely manner

TEAM

Div. ☐

MIA ☐

S & H ☒

Mgmt. ☐

DEF (AREA)

ROOT CAUSE CATEGORIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PLC	PLC M (ELECTRIC)	PLC M (MECHANICAL)	TECHNICAL MPT	TRAINING MPT	MPT	APPROPRIATE MPT	CAUSE	INTELLIGENCE	CAUSE	CAUSE	PLANNING ACTING	CAUSE	INTELLIGENCE	CAUSE & CORRECT	CAUSE & CORRECT	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE	INTELLIGENCE

NEW
NO

FINDING TITLE S/CF-12

RPT Training

1	2																													
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REMARKS:

7. - Safety training is not provided to RPTs in their technical area.

22. There is no retraining of RPTs.

23. There are inadequate resources to conduct meaningful technical training for RPTs

3. Management is not enforcing policy and has not provided the resources and budget for implementations of the policies.

TEAM		ROOT CAUSE CATEGORIES																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL	DOE/AL
FINDING TITLE S/CF-13																															
Inability to Comply w/5480.11																															
REMARKS:																															
26. Inadequate communications between M&H management and DOE/AL management.																															
3. There is a total lack of guidance regarding already submitted implementation plans for DOE 5480.11.																															

TEAM

Div. ☐NDA ☐S & H ☒Mgmt. ☐

ROOT CAUSE CATEGORIES

ROOT CAUSE CATEGORIES

FINDING TITLE S/BEPE-1

Operating Experience Reviews

REMARKS:

7. Safety organization does not identify and specify the necessary barriers and controls needed to control work processes.
12. Understanding the effects of the environment (i.e., water) on safety systems was unappreciated or considered improbable.
23. A more proactive environment toward safety might have led to a more convincing investigation and implementation plan.
26. Better communications among operations maintenance, and safety staff might have avoided the operating incidents entirely.
4. Risks were not properly addressed prior to start of work process,

TEAM		ROOT CAUSE CATEGORIES																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
		20/0	20/1	20/2	20/3	20/4	20/5	20/6	20/7	20/8	20/9	20/10	20/11	20/12	20/13	20/14	20/15	20/16	20/17	20/18	20/19	20/20	20/21	20/22	20/23	20/24	20/25	20/26	20/27	20/28	20/29	20/30
TEAM																																
Div.	☐																															
NIA	☐																															
S & H	☒																															
Mgmt.	☐																															
FINDING TITLE	S/BIAPF-2																															
	Lockout/Tagout	1						3										4			4											
REMARKS:																																
10. Procedural enforcement is not specific as to the consequence of violation of the procedure.																																
20. Utilities supervisors are not enforcing the procedure.																																
23. Training on this procedure may need to place more emphasis on the hazards involved and the enforcement consequences.																																
3. There is an apparent lack of knowledge on the intent of the policy possibly due to a lack of management expectations.																																

TEAM		ROOT CAUSES										ROOT CAUSE CATEGORIES																			
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
ITEM NO	FINDING TITLE	M/CF-1																													
	Non-Weapons QA	1							5						5							4									

REMARKS:

SURFACE CAUSE CATEGORIES

10. Procedures: The non-weapons quality assurance program is predicated on ANSI/ASME NQA-1, "Quality Assurance Program Requirements for Nuclear Facilities." NQA-1 was developed specifically for nuclear production facilities. M&H found it difficult to apply NQA-1 standards to their own operations which specifically are not nuclear production related.
17. Operational Readiness: Weapons quality assurance existed for a very long time at M&H and there is a cultural and historical appreciation for the importance of that program. Also, there is familiarity with weapons quality assurance standards (i.e., QC-1 standards). However, the non-weapons quality assurance program is relatively new (approximately 2 years). M&H management did not recognize the impact, complexity, and time which would be required to establish and implement DOE's Operations Quality Program.
23. Training: Because NQA-1 standards were new to M&H, and because the standards did not specifically apply to M&H operations, there was a need for personnel to become knowledgeable in this new area. While some training was obtained, M&H acknowledged that additional training was necessary.

ROOT CAUSE

2. Policy Implementation: Due to uncertainty as to how the NQA-1 requirements would apply to the non-weapons quality assurance program, M&H management did not implement the policy contained in AAO Order 5700.6B. The small number of quality assurance plans which have actually been approved, and the small number of completed audits, evidence that lack of policy implementation.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐
NEPA ☐
S & H ☐
Mgmt. ☒

ITEM NO

FINDING TITLE M/BMPF-1

DOE ES&H Mgmt. Pol. Dir.

REMARKS:

SURFACE CAUSE CATEGORIES

20. Supervision: The cumbersome system of orders within the Department, leaves the system open to misinterpretations, slow responsiveness, is duplicative, and requires too much time to maintain.
21. Task Performance: The system of orders require many manhours, using various levels of personnel and at various locations. The task assignments of order generation and maintenance is not without performance errors.
26. Communication: Since the system is cumbersome, requiring multiple levels of responsibility and at a number of facilities, it leads and has lead to inadequate communication of policies, directives, and procedures.

ROOT CAUSE

2. Policy: The DOE directive system is not up-to-date. The policies are not always clear and understandable. AAO policy is not always consistent with AL policy, nor is AL policy always consistent with DOE policy.

TEAM

Env. ☐NEPA ☐S & H ☐Mgmt. ☒ITEM
NO

FINDING TITLE M/BMPF-2

Integrated Planning

REMARKS:

SURFACE CAUSE CATEGORIES

21. Task Performance: This a new policy which has yet to be implemented. Personnel will have to be trained and educated before they are able to carry out this policy.
23. Training: Training on how to accomplish this task will have to be developed and presented to all employees involved.
26. Communications: This policy and its expectations will have to be communicated to all levels of management to facilitate understanding.

ROOT CAUSE

3. Policy Implementation: The policy was spelled out in SEN-11 but only recently. Time, training and effort will be required for proper implementation. Commitment will be the key to success.

ROOT CAUSES					SURFACE CAUSE CATEGORIES																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	Q/ACC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	TEKS PROT EQUIPMENT					
1																			4	5		4								

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐
 NEPA ☐
 S & H ☐
 Mgmt. ☒

ITEM
NO

FINDING TITLE M/BMPF-3

Proactive vs. Reactive

ROOT CAUSES

SURFACE CAUSE CATEGORIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSMR	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
2	1					4					5							3	5										

REMARKS:

SURFACE CAUSE CATEGORIES

- Procedures: The present procedures are not effective in facilitating a proactive, preventive ES&H program. The available staff are relegated to responding to audits, appraisals, and reviews with action plans and follow-up reports to the point that 10-15% of their time is available for preventive activities. The planning and budget process are also reactive in nature and do not facilitate a proactive approach to resolving ES&H issues.
- Amelioration: The conditions that exist prevent a proactive approach to resolving issues before the fact and perpetuate a situation of identifying issues after they have occurred through audits, appraisals or reviews.
- Task Performance: The resources available, the procedures and the environment are not conducive to an integrated approach to problem resolution.
- Personnel: The workload generated by reporting requirements and review activities is an obstacle to accomplishing the day-to-day ES&H activities surrounding the operations of the plant. Very little effort is expended on training or preventive measures.

ROOT CAUSE

- Policy Implementation: Insufficient staff are provided to do the total job in ES&H as it is presently defined. The present method of oversight by DOE, the non-integrated planning, and the reactive budget process create a large workload of reporting to the exclusion of more proactive activities such as day-to-day observation of plant operations, planning, training, etc.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐
 NEPA ☐
 S & H ☐
 Mgmt. ☒

ITEM NO

FINDING TITLE M/BMPF-4

Increasing Workers Comp

REMARKS:

SURFACE CAUSE CATEGORIES

5. Technical Information: Currently there is no system for understanding the performance of the workers compensation program. Information is available, however the information is not organized in usable form for those groups involved (personnel, production, legal, medical, and safety) to assist them in carrying out their tasks in the work process.
7. Safety: No loss-trend analysis is done on workers compensation losses. Such analysis could allow a prioritization of safety needs and attention. Workers compensation losses are not returned as program budget reductions to areas that generated the losses. Doing so can increase safety awareness and can also create the atmosphere and pride of a safe workplace.
15. Amelioration: No risk management information, prepared from workers compensation losses, is currently being used to improve or prevent conditions that caused such losses. In addition to risk management reports, analysis as mentioned in 7. above could be helpful.
20. Supervision: At present, there are not adequate resources to carry out their responsibilities. Supervision in all the departments of the system (personnel, production, legal, medical, and safety) do not function together. Communications do not readily flow back and forth from top management through supervision to the workers.
26. Communications: Communications between management, supervision, and personnel is not adequate. Communications between workers is not adequate. There are not adequate communications to all personnel when changes occur.

ROOT CAUSE

2. Policy: There are no written policies that address the work processes necessary in the system. Adequate technical information is available to establish such a system.

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CSAR	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
1		2	4								2					3						5							

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐
 NEPA ☐
 S & H ☐
 Mgmt. ☒

ITEM
NO

FINDING TITLE M/BMPF-5

Stop Work Authority

REMARKS:

SURFACE CAUSE CATEGORIES

7. Safety: That portion of the "Safety" program that should delegate to subordinate managers and staff the authority and responsibility to stop work for ES&H reasons is, with one exception, non-existent.
21. Task Performance: Those individuals who have, believe they have, or should have, stop work authority do not have task directions assigning them that authority.
26. Communications: Communications between management, supervision, and workers is deficient in the area of assigning stop work authority. This is demonstrated by the statement of several individuals that they possessed such authority. However, only one individual could document that such authority had in fact been assigned to him.

ROOT CAUSE

1. Policy: The AAO policy not to delegate, with one exception, stop work authority below the level of the AAO Manager's office, within the AAO is inadequate. It does not provide the Federal oversight personnel closest to the actual plant operations with the immediate authority they need to prevent an ES&H calamity. The M&H policy not to clearly redelegate stop work authority below the plant manager poses the same threat.
2. Policy Implementation: DOE, AL, and AAO Orders setting forth stop work policy and assigning authority do exist. However, the AAO Orders and the M&H directives are not fully implemented in that they do not redelegate within the AAO and M&H organizations.

ROOT CAUSES

SURFACE CAUSE CATEGORIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CSAP	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PEPS PROT EQUIPMENT				
1	2	3															4				5								

TEAM

Env. ☐
 NEPA ☐
 S & H ☐
 Mgmt. ☒

ITEM
NO

FINDING TITLE M/BMPF-6

ES&H Culture

REMARKS:

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/DITREVIEW	CHANGE	PROCEDURES	CS&P	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
1						5	4							5					5	5									

SURFACE CAUSE CATEGORIES

9. Change: There has been a major change in emphasis from one of production to that of ES&H issues. This change requires new and specialized expertise, particularly in the area of environment. While there is an overall acceptance and understanding of this new emphasis, the specific actions necessary to implement this change throughout AAO and M&H have not been fully implemented.
10. Procedures: Safety and health responsibilities have long been a responsibility and are well documented in policy and procedural guidance. However, environmental responsibilities have not yet been adequately documented and/or highlighted in procedural guidance.
17. Operational Readiness: While ES&H responsibilities are to be line management responsibilities, the focus of effort to date has been the establishment of ES&H staff organizations within AAO and M&H. The work processes are not operationally ready to put into place the ES&H requirements. All upstream and downstream support requirements were not in place. The ES&H staff organization is in place to allow independent review, but reviews and corrections are not complete.
22. Personnel: Both AAO and M&H have been acquiring, and continue to acquire, new people with the technical expertise necessary to ensure that ES&H requirements are complied with. However, this is an on-going process and there are problems in attracting qualified people to the Amarillo area because of its physical location. Similarly, there are systemic problems with grade and pay levels.
23. Training: Based on interviews and reviews of training documentation, there is a lack of available training in the environmental area. The majority of training is in the safety and health areas which are long established responsibility areas for line management.

ROOT CAUSE

1. Policy Implementation: There are a total of 75 DOE, AL and AAO Orders relating to the ES&H area. While AAO and M&H managers and staff are aware of the importance of ES&H compliance, the process which is necessary to fully ingrain the ES&H culture into all employees has not yet been achieved. The major change in emphasis from one which primarily focuses on production to one which now emphasizes ES&H issues has been affected by the availability of technically qualified personnel,

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

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ITEM NO

FINDING TITLE M/BMPF-6

ES&H Culture

ROOT CAUSES					SURFACE CAUSE CATEGORIES																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERM PROT EQUIPMENT				
1						5	4							5					5	5									

REMARKS:

1. (cont'd.) the availability of training, fully incorporating environmental responsibilities into ES&H procedural guidance, incorporating ES&H requirements into employee performance standards, and the reactive mode in which ES&H staff must operate because of the large volume of reports and review findings which must be addressed.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐
NEPA ☐
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Mgmt. ☒

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELORATION	BARRIERS & CONTROLS	OPER. READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS. PROT. EQUIPMENT				
	2	1															5					5							

FINDING TITLE M/BMPF-7

CPAF Initiatives & Milest.

REMARKS:

SURFACE CAUSE CATEGORIES

21. Task Performance: The CPAF process includes the development of standards (Initiatives and Milestones) to be used in evaluating the performance of the contractor. This is to be done through consultation with the contractor. The standards are presented to M&H unilaterally without any significant consultation to incorporate objectivity into the rating process.
26. Communications: The CPAF process should communicate what is expected of the contractor in terms of objective standards. The process, as operating, is a subjective evaluation of after the fact information compared against nebulus standards.

ROOT CAUSE

2. Policy: The "policy" is the contract which doesn't provide any "how to" instructions. The "how to" is provided in the "Handbook for Award Fee Performance Evaluation and Review Process" published by AL in 1977. This document also is inadequate in providing detailed instructions concerning the development of initiatives and milestones.
3. Policy Implementation: "Evaluation of the Contractor's performance shall be based upon the Performance Evaluation Plan established for the evaluation period by the Albuquerque Fee Determination Official, after consultation with the Contractor." (Appendix D, Contract DE-AC04-76DP00487, Modification No. 118, Pg. 1) This policy is not aggressively pursued by management of either the AAO or M&H.

Env. ☐
NEPA ☐
S & H ☐
Mgmt. ☒

Performance Appraisals

SURFACE CAUSE CATEGORIES

7. Safety: An individuals's safety performance as one component of ES&H, program performance is not adequately tracked since in many instances it is not part of his/her performance appraisal standards.
8. Appraisals/Audits/Reviews: AAO cannot perform an effective internal appraisal of functions that were not included when the appraisal standards were set.
10. Procedures and (23) Training: Both the training of supervisors and the provision of appropriate procedures to assist them in establishing and measuring the ES&H performance of their subordinates is lacking.
20. Supervision: There is insufficient documentation to indicate that supervisors are being held responsible for ES&H compliance.
22. Personnel: In view of the above findings, it is unrealistic to expect employees and supervisors to devote significant attention to functions that are not reflected in the standards against which they will be appraised.

ROOT CAUSE

1. **Policy Implementation:** Despite voluminous policy statements and documents, the implementation of the policy which states that ES&H concerns are a line management responsibility has not yet taken place. A policy is not implemented until compliance with it is included among the things for which people are appraised, rewarded or punished.

TEAM

ROOT CAUSES

MORT BASED ROOT CAUSE ANALYSIS FORM

SURFACE CAUSE CATEGORIES

TEAM

Env. ☐NEPA ☐S & H ☐Mgmt. ☒ITEM
NO

FINDING TITLE M/BMPF-9

Technical Qualifications of

REMARKS: Professional Staff

ROOT CAUSES					SURFACE CAUSE CATEGORIES																													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
	POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QA/QC	AMELIORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT								
1				5					4	4						4				5														

SURFACE CAUSE CATEGORIES

7. Safety: The M&H staff lacks sufficient numbers of technically qualified ES&H professionals. As a result, there are concerns about the technical adequacy of safety analyses, particularly those that can only be performed by technically qualified engineering personnel.
11. Codes, Standards and Regulations: The degree of compliance with relevant technical codes, standards, and regulations can only be determined by technically qualified personnel.
12. Design: Design reviews for technical ES&H adequacy can only be performed by technically qualified personnel.
19. Inspection: Inspections to determine whether "as built" conforms with design can only be performed by technically qualified personnel.
22. Personnel: It appears that insufficient attention is being paid to selecting fully qualified individuals for positions that require the application of directly relevant technical knowledge.

ROOT CAUSE

1. Policy Implementation: DOE policy requiring technical review of designs, plans and specifications is being inadequately implemented by M&H. The staff of their oversight organization, the ES&H Division, lacks a sufficient number of individuals with technical qualifications directly relevant to their duties.

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☐
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 Mgmt. ☐

ITEM NO

FINDING TITLE M/BMPF-12

ES&H Tech. Assistance

REMARKS:

ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/TIMEVIEW	CHANGE	PROCEDURES	CSMR	DESIGN	HUMAN FACTORS	QVOC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
1	5	4									3											2							

SURFACE CAUSE CATEGORIES

- There has been less than adequate technical information on how the system is working. AAO receives technical and functional guidance through the appraisal process. However, the guidance and technical direction provided by appraisal findings are not timely. Delays are incurred by AL in reviewing and approving implementation plans and appraisal findings. The result is withholding of technical information that is needed to insure that findings are adequately resolved.
- AL does not have a fully adequate feedback system for informing AAO how ES&H activities are functioning. Feedback is received primarily through approval of appraisal findings, however delays in approving the actions necessary to complete appraisal findings results in feedback that is not current. AAO cannot be assured that local implementation of findings is appropriate until months after the appraisal report was received.
- Appraisals, audits, and reviews are not always acted upon in an effective and timely manner. In some cases appraisal reports were not completed within time frames prescribed by DOE orders. Some implementation plans have yet to be approved, and some were not approved for weeks after the proposed plan had been submitted by AAO. Corrective actions identified in the appraisals cannot be approved until the implementation plans are approved.
- Communications between AL ES&H staff and the AAO branch is less than adequate. Communications are primarily by telephone or written responses to proposed corrective actions from appraisal findings. The lack of functional and technical site assistance by AL results in little or no close communication to resolve issues.

ROOT CAUSE

- AL ES&H staff has not complied with AL orders which prescribe the time frames and procedures for scheduling, conducting, reporting, and follow-up of appraisal findings. AL policy which provides for technical and functional guidance to area offices when needed has not been applied except through formal appraisal reports.

TEAM		ROOT CAUSES										SURFACE CAUSE CATEGORIES																			
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
		POLICY	POLICY IMPLEMENTATION	RISK ASSESSMENT	TECHNICAL INFO	HAZARD ANALYSIS	SAFETY	APPRAISAL/AUDIT/REVIEW	CHANGE	PROCEDURES	CS&R	DESIGN	HUMAN FACTORS	QM/QC	AMELORATION	BARRIERS & CONTROLS	OPER READINESS	MAINTENANCE	INSPECTION	SUPERVISION	TASK PERFORMANCE	PERSONNEL	TRAINING	ENVIRONMENT	EQUIPMENT	COMMUNICATIONS	PERS PROT EQUIPMENT				
ITEM NO	FINDING TITLE TS/CF-2	2	1	3					5							4		5		3											
	Chemical Storage In																														
REMARKS: Defective Containers																															
<p>10. Existing written procedures do not address the maximum periods of time over which chemicals may be stored safely and without loss of usefulness.</p> <p>18. Although storage inspection forms provide for documentation of actions taken to correct defective storage conditions, there are no specified maintenance procedures that are to be followed other than general instructions for drum placement to reduce defect occurrence.</p> <p>21. Repackaging of defective drums has not been performed as required.</p> <p>23. Additional training to reinforce awareness of the environmental, safety, and economic consequences of deteriorating storage conditions and/or aging chemicals appears to be needed.</p>																															
<p>3. Policy Implementation. The existing policies for protecting and repacking drums are not followed.</p> <p>2. Policy. The drum storage policies as currently written do not address such issues as specific maintenance requirements for drum storage areas, mandatory corrective actions as follow-up to routine inspections, or time periods for storing large quantities of chemicals.</p> <p>4. Risk Assessment. The long-term storage of chemicals in defective drums indicates that the environmental, safety, and economic risks associated with such storage have not been fully assessed or understood at all levels of personnel responsible for use or storage of chemicals.</p>																															

MORT BASED ROOT CAUSE ANALYSIS FORM

TEAM

Env. ☒

NEPA ☐

S & H ☐

Mgmt. ☐

ROOT CAUSES

SURFACE CAUSE CATEGORIES

ITEM
NO

FINDING TITLE WM/BMPF-2

Lack of Timely Disposition

REMARKS: of Potential Hazardous Mixed Waste

8. Audits or appraisals of the management of classified materials and waste are not performed.
2. The root cause for this finding is inadequate policy. The site does not have adequate policies for the audit or appraisal of classified materials management, and does not have adequate instructions (i.e., policies) for disposition of classified materials.

APPENDIX F

OSHA

Status Report
1B Data Sheets

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Willful

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of asphyxiation due to the potential presence of an oxygen deficient atmosphere:

- a. Paint Storage Area, Building 12-25, a liquid nitrogen cylinder filling station consisting of two filling lines and an open-ended valved line was located in the area. If the line(s) were to leak, nitrogen would be introduced into the area, potentially creating an oxygen deficient atmosphere. Analyzers equipped with alarms were not installed in the area to measure the oxygen content (Reference Compressed Gas Association pamphlet P-12).

A feasible and useful abatement method for reducing this hazard, among others is:

1. Install an oxygen monitor in Building 12-25. The oxygen monitor alarms should be positioned to warn employees of the presence of an oxygen deficient atmosphere prior to entering the work area.

NOTE: On July 24, 1986, a nitrogen transmission line composed of PVC piping, which is not approved for such usage, failed/ruptured in Building 12-25. The Mason & Hanger Safety Department conducted an investigation of this incident and their report stated: "In a building as enclosed as 12-25 or in any bay or cell, the potential for a nitrogen leak displacing oxygen to below breathable limits is

great." It further stated: "In areas where an undetected or large gas leak could result in the displacement of atmospheric oxygen to less than breathable limits, oxygen monitors should be installed. " Although this report passed through the Safety Director, the Division Manager, S&FP and was sent to Plant Engineering with copies to Manufacturing Engineering, Quality, Development and Manufacturing, an oxygen monitor was never installed in Building 12-25.

- b. Development Formulation, Building 12-19 and Ramp, Building 12-17, a nitrogen transmission line composed of PVC piping distributes nitrogen from a liquid nitrogen storage tank located outside of Building 12-10, under a roadway, through a ramp in Building 12-17 and into Building 12-19 for use as an inerting agent. This PVC nitrogen transmission piping was exposed inside Buildings 12-17 and 12-19 and was therefore subject to damage which would result in a nitrogen leak, potentially creating an oxygen deficient atmosphere. ANSI B31.8 (in particular paragraphs 842.43, 849.5b, 849.521a, and 849.521b) requires that plastic service lines (i.e., PVC piping used for a nitrogen transmission line) be "completely enclosed in a metal tube or metal pipe of sufficient strength to provide protection from damage" and that "the plastic service line shall not be exposed inside the building."

Feasible and useful abatement methods for reducing this hazard, among others are:

1. Remove the PVC nitrogen gas transmission piping from the areas noted (as well as any other areas of the plant where such piping may be located) and replace it with approved piping.
2. Modify the current PVC nitrogen gas transmission piping to meet ANSI B31.8 requirements.

NOTE: On July 24, 1986, a nitrogen gas transmission line composed of PVC piping, failed/ruptured in Building 12-25 and a nitrogen gas drop line in Bay 14 of Building 12-64 was broken when it was struck by a tester cart which was being moved by an assembly operator. The Mason & Hanger Safety Department conducted an investigation of these incidents and their report stated: "Installation of PVC lines above ground and/or into buildings shall be in accordance with ANSI B31.8 especially paragraphs 849.5b, 849.521a, 849.521b and inside building installations of PVC line shall be 'completely enclosed in a metal tube or metal pipe of sufficient strength to provide protection from damage.' It is further required that 'the plastic service line shall not be exposed inside the building.'" Their report further stated: "All gas distribution systems utilizing PVC piping shall be in compliance with applicable ANSI regulations or shall be removed from service." Although this report passed through the Safety Director, the Division Manager, S&FP and

was sent to Plant Engineering, with copies to Manufacturing Engineering, Quality, Development and Manufacturing, the PVC nitrogen gas transmission piping had not been removed from service or modified to meet ANSI standards.

Location

- a. Building 12-25
- b. Building 12-19 and ramp, Building 12-17

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or were likely to cause death or serious physical harm to employees in that employees were exposed to the hazards of over pressurization/failure of pressure vessels and/or pressure piping such as fractures, puncture wounds (from missiles released) or death:

- a. Building 11-36, outdoor liquid nitrogen storage tank and nitrogen lines; safety relief valves were not inspected (pop pressure verified) annually in accordance with the Pantex Preventive Maintenance requirements.
- b. Building 11-51, outdoor liquid nitrogen storage tank and nitrogen lines; safety relief valves were not inspected (pop pressure verified) annually in accordance with the Pantex Preventive Maintenance requirements.
- c. Building 11-5, the two outdoor liquid nitrogen storage tanks and nitrogen lines; safety relief valves were not inspected (pop pressure verified) annually in accordance with the Pantex Preventive Maintenance requirements.
- d. Building 12-10, Dry Air Bottling; safety relief valve on the nitrogen purging system was not inspected (pop pressure verified) annually in accordance with the Pantex Preventive Maintenance requirements.

Location

- a. Building 11-36
- b. Building 11-51
- c. Building 11-5
- d. Building 12-10

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or were likely to cause death or serious physical harm to employees in that employees were exposed to amputation, laceration and crushing hazards in the event that machines are started or energized during normal operations:

- a. Building 12-19, Formulation Department, a main power lock-out program was not implemented for employees during cleaning operations on all machines and equipment.
 - Feasible and useful abatement methods, among other methods would be to provide protection of positive main power lock-out procedures which would include the following essentials;
 1. Open and lock-out main power disconnect for the machine and bleed off any residual energy prior to performing cleaning and/or maintenance operations.
 2. Provide each potentially exposed employee working in the area with separate lock and key to be placed on the lock-out means.
 3. Install automatic braking devices, when appropriate, which will stop all movement of machinery immediately upon interruption of power to the machine.

4. Install interlock devices which will prevent any access doors from being opened before the machine has come to a complete stop or install jog mode or "inch" buttons when access is necessary for certain operations.
5. Establish a written policy including procedures to be followed and training for all affected employees.
6. Periodically evaluate the program and strictly enforce all of its provisions.

Location

- a. Building 12-19

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that: the employer did not assure that decontamination (the removal of HE) was properly performed to ensure that employees using the decontaminated materials (i.e. shipping drums) are not exposed to an explosion hazard which could result in burns, death, etc. (i.e. if they were to perform hot work on the materials):

- a. Building 12-73, HE Decontamination, when the item to be decontaminated has tight places where explosives may remain following normal cleaning procedures (i.e., shipping drums which have seams), the employee performing the decontamination would use a plastic card to scrape out the HE which was lodged in the tight places (i.e. seams), rather than following the DOE Explosives Safety Manual, Chapter II, paragraph 18.4, Final Decontamination and Disposal of Equipment which requires that such items be subjected to final decontamination techniques. Final decontamination may be accomplished by thermal techniques or by immersing the item in a chemical cleaning agent.
- The inadequacy of the current decontamination procedures was exemplified in Building 12-5C, sheet metal shop where fifteen 25-gallon metal containers were located, waiting for a hole drilling operation. These containers had been inspected by the safety department on 9/7/89 and had been rated as "XXXXX," which is defined as "item is entirely safe and may be released for general use." The safety department later (10/19/89) changed the rating for the container to "XXX," which is defined as "item is approved for handling and transfer but should not be subjected

to heat or flame and should not be considered toxicologically safe. A safe work permit is required for disassembly or repair," under the premise that the hole drilling operations would not subject the containers to heat or flame. The containers, on 10/23/89, were removed from Building 12-5C and returned for further decontamination.

Location

- a. Building 12-73

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of being infected with HBV and/or HIV through direct contact with blood or other body fluids:

- a. Medical facility, Building 12-2, nurses and med techs; Fire department, Building 12-39, EMTs and paramedics; Laundry, Building 12-1A, laundry attendants: These employees had either not been provided training or had been provided inadequate training in the area of occupational exposure to Hepatitis B virus (HBV) and Human Immuno-deficiency virus (HIV).

One feasible and acceptable abatement method for reducing this hazard, among others is:

- Establish and implement a training program, which will be included in the facility's written Infection Control Plan, which provides the affected employees with the necessary training, in accordance with CDC guidelines. Through this training program the affected employees shall receive education on precautionary measures, epidemiology, modes of transmission and prevention of HBV/HIV. The affected employees shall be counseled regarding possible risks to the fetus from HBV/HIV and other associated infectious agents. In addition, the affected employees must receive training regarding the location and proper use of personal protective equipment. They shall be trained concerning proper work practices and, if the facility has implemented them, shall understand the concept of "universal precau-

tions" as it applies to their work practices. They shall be trained about the meaning of color coding or other methods (except tags) used to designate contaminated articles or infectious waste. Where tags are used, training about tags and precautions to be used in handling contaminated articles or infectious waste is governed by 29 CFR 1910.145(f).

Workers shall receive training about procedures to be used if they are exposed to needlestick or to body fluids.

Location

- a. Building 12-2, Building 12-39, and Building 12-1A

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause serious physical harm to employees in that employees were exposed to the hazard of heat exhaustion, heat stress and/or heat stroke:

- a. On or about 9/16/89, two employees were treated for heat exhaustion, with one of the employees having passed out, after alodining material in the spray painting area, Building 12-41. The employees were required to wear protective clothing which impeded sweat evaporation and a permissible heat exposure limit had not been established.

Feasible and acceptable abatement methods for reducing this hazard, among others are:

- For each job category where special clothing (i.e. clothing that is heavier or has higher insulating value than light summer clothing, or that impedes sweat evaporation) is required, the permissible heat exposure limit shall be established by an expert, in accordance with the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for heat stress. This permissible heat exposure limit shall then be complied with by means of administrative controls (i.e. job rotation or time of exposure limitation) or other methods.
- Substitution of the presently utilized personal protective equipment (rubber suits) with personal protective equipment which is provided with cooling air, i.e., suits equipped with supplied air which passes through a vortex tube.

Location

- a. Building 12-41

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of exposure to non-ionizing radiation:

- a. Interlock switch not operating on sharp commercial microwave oven, no serial number, tray return area, kitchen, Building 12-70. This would allow the microwave oven to operate with its door open.

Location

- a. Building 12-70

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of asphyxiation due to the potential presence of an oxygen deficient atmosphere:

- a. Paint Storage Area, Building 12-25, a service line for the outside liquid nitrogen tank, equipped with a safety relief valve (and a valve on either side of the safety relief valve) vented to the inside of Building 12-25. If the two valves were opened or failed, nitrogen would be introduced into Building 12-25. This line had serviced an unapproved PVC distribution line which failed/ruptured in 1986. The PVC piping was not reconnected, but the open ended service line was left in place.

Feasible and useful abatement methods for reducing this hazard, among others, are:

- Remove the piping in question
 - Blank/cap the piping in question
- b. Dry Air Bottling, Building 12-10, an open-ended valve was connected to the feed line from the liquid nitrogen storage tank. If the valve was opened or failed, nitrogen would be introduced into Building 12-10. This line had serviced equipment which was removed from service over a year ago.

Feasible and useful abatement methods for reducing this hazard, among others, are:

- Remove the valve in question
- Blank/cap the valve in question
- c. Nitrogen Filling Room, Building 11-17, a 6000 gallon liquid nitrogen cylinder filling station consisting of one filling line was located in the area. If the line were to leak, nitrogen would be introduced into the area, potentially creating an oxygen deficient atmosphere. Analyzers equipped with alarms were not installed in the area to measure the oxygen content. (Reference Compressed Gas Association pamphlet P-12).

A feasible and useful abatement method for reducing this hazard, among others is:

- Install analyzers equipped with alarms to measure the oxygen content in the area.

Location

- a. Building 12-25
- b. Building 12-10
- c. Building 11-17

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or were likely to cause death or serious physical harm to employees in that employees were exposed to the hazards of severe burns concussions, multiple traumatic injuries and/or death due to the potential over pressurization/failure of reactor vessels:

- a. Building 11-36, Synthesis Plant, a pilot plant operation, extremely exothermic reactions (nitrations) have been conducted and may be conducted in the future, while mild exothermic reactions (aminations) are presently conducted and adequate operational and safety controls have not been provided for the reactor vessels.

Among other methods, one feasible and acceptable abatement method to correct this hazard is to establish administrative and engineering controls ignore the work being performed that will include, but not necessarily be limited to, the following provisions:

1 Chemical Process Hazard Review

Conduct a chemical process system safety hazard review that will identify process deficiencies and upsets plus estimate their frequency and probable consequences. Operating parameters, procedures and/or process control instrumentation determined to be critical for the safe processing of the various materials processed shall be designed and constructed for either redundancy or back-up to assure maximum feasible safety to employees. This review shall be of a type generally recognized in chemical processing industries (such as What If, Cause/Consequence, FMEA,

Hazop, Fault Tress, etc.) and shall include, but not necessarily be limited to, the following:

- Preparation and review of process flow sheets to determine possible emergencies during start-up, normal operating and shutdown conditions and to evaluate the consequences of excessive temperature and pressures or variations in material controls.
- Preparation and review of a piping and instrumentation (P & ID) to assure that controls and instrumentation will detect unusual conditions and that the system will automatically shut down or can be safely shut down in the event of operator or equipment error.
- Review of operating equipment used in the processing of the materials considering the adequacy of design and fabrication; effects of corrosion, erosion and metal fatigue; potential for exceeding design limitations; equipment leaks and spills; equipment malfunctions and failures; plus maintenance, repair and replacement programs.
- Review of operating design and potential for operations errors considering detailed operating descriptions and Standard Operating Procedures; accuracy and readability of control instrumentation and operator training in process chemistry, hazards and operational procedures.

2. Operational and Safety Controls

Install the following operational and/or safety controls for the exothermic reactions in reaction vessels:

- An effective display indicating whether heating systems or cooling systems are being applied to the reactor vessels.
- An effective display indicating whether or not reactor vessel cooling systems are being applied.
- Fail-safe agitator and cooling system failure alarms or warning devices for reactor vessels.
- Suitable process temperature monitors connected to fail-safe high temperature alarms protected by a secured enclosure or other means to prevent them from being inadvertently disengaged or turned off by operators during operations.

- Adequate emergency relief devices and vent lines sufficiently rated and designed to carry off the maximum generated or supplied quantity of liquid and/or vapor based on the physical phenomenon of two phase flow, while permitting no more than a ten percent rise above the maximum allowable working pressure within the vessel when these devices are blowing. For example, the 100 gallon high pressure vessel located on the second floor does not have a vent line which is as straight and short as possible - this vent line contains seven 90 degree elbows and approximately 60 feet of pipe.
- Appropriately designed cooling jackets for the reactor vessels. For example, the current design of the cooling jackets may allow for air to be trapped within the jackets, thus reducing the cooling efficiency of the jackets in an emergency situation.

Location

- a. Building 11-36

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of being infected by HBV and/or HIV through possible direct contact with blood or other body fluids:

- a. Medical Department Building 12-2 - Nurses who come in contact with blood and body fluids and get their clothing contaminated take their clothing home to be laundered.

Feasible and useful abatement methods for reducing this hazard, among others are:

- 1. Contaminated clothing should be properly bagged and sent to the laundry where cleaning should take place following the Center for Disease Control (CDC) guidelines for laundering

Location

- a. Building 12-2

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of being infected with HBV and/or HIV through potential direct contact with blood or other body fluids:

- a. Medical department, Building 12-2, nurses who may come in contact with potentially infectious blood and body fluids had not been offered hepatitis B vaccinations in accordance with CDC guidelines.

Feasible and useful abatement methods for reducing this hazard, among others are:

1. The facility's Infection Control policy (which should be a written policy) regarding Hepatitis B vaccinations shall address all circumstances warranting such vaccinations and shall identify employees at substantial risk of directly contacting body fluids. All such employees shall be offered hepatitis B vaccinations in amounts and at times prescribed by standard medical practice.
- b. Medical department, Building 12-2, no follow-up procedures after possible exposure to HBV/HIV had been established for nurses and med techs in accordance with CDC guidelines.

Feasible and useful abatement methods for reducing this hazard among others are:

1. The facility's Infection Control policy (which should be a written policy) shall address follow-up procedures after possible exposure to HBV/HIV. These procedures shall include the following:

-If a health care worker has a percutaneous (needlestick or cut) or mucous membrane (splash to eye, nasal mucosa, or mouth) exposure to body fluids or has a cutaneous exposure to blood when the worker's skin is chapped, abraded, or otherwise nonintact, the source patient shall be informed of the incident and tested for HIV and HBV infections, after consent is obtained.

-If patient consent is refused or if the source patient tests positive, the health care worker shall be evaluated clinically and by HIV antibody testing as soon as possible and advised to report and seek medical evaluation of any acute febrile illness that occurs within 12 weeks after exposure. HIV seronegative workers shall be retested 6 weeks post-exposure and on a periodic basis thereafter (12 weeks and 6 months after exposure).

-Follow up procedures shall be taken for health care workers exposed or potentially exposed to HBV. The types of procedures depends on the immunization status of the worker (i.e., whether HBV vaccination has been received and antibody response is adequate) and the HBV serologic status of the source patient. The CDC Immunization Practices Advisory Committee has published its recommendations regarding HBV postexposure prophylaxis in table format in the June 7, 1985, Morbidity and Mortality Weekly Report.

-In an employee refuses to submit to the procedures in (b) or (c) above when such procedures are medically indicated, no adverse action can be taken on that ground alone since the procedures are designed for the benefit of the exposed employee.

Location

- a. Building 12-2
- b. Building 12-2

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of incompatible chemical storage which could result in the formation of toxic gases:

- a. Building 12-9, a one gallon bottle of Nitric acid and one gallon bottle of sulfuric acid were stored in a flammable storage cabinet with a one gallon can of alodine containing 60% chromic acid thereby creating the potential for hydrogen cyanide generated from intermixing.
- b. Chem Lab, Building 12-59, two (2) pints of perchloric acid were stored with glacial acetic acid and phosphoric acid in the flammable storage cabinet. The perchloric acid bottle had an organic rubber stopper in it
- c. Acid Storage, Building 11-34, 250 one gallon bottles of Clorox liquid bleach (a base) was stored in close proximity to strong acids (i.e. 12 fifteen gallon containers of hydrochloric acid) and glacial acetic acid was stored in close proximity to strong oxidizers (sodium nitrate and perchloric acid) which if mixed may result in a fire.

General method of control applicable in these circumstances include, but are not limited to the following:

1. Store incompatible chemicals separately

Location

- a. Building 12-9
- b. Building 12-59
- c. Building 11-34

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to potential musculoskeletal injuries from performing lifting tasks in excess of the National Institute for Occupational Safety and Health (NIOSH) recommended limits:

- a. General Storage, Building 12-5A, an employee was required to manually lift a box of copy paper weighing 53 lbs from a four (4) inch high pallet to a twenty-four (24) inch high bicycle platform. The lift was in excess of the NIOSH action limit (17.2 lbs) and the maximum permissible limit (51.7 lbs)
- b. General Storage, Building 12-5A, an employee was required to manually lift a box of copy paper weighing 65 lbs. from a four (4) inch high pallet to a twenty-four (24) inch high bicycle platform. The lift was in excess of the NIOSH action limit (18.7 lbs.) and the maximum permissible limit (56.1 lbs.)
- c. High explosive pressing, Building 12-63, Bay 2, an employee is required to lift a high explosive mold filled with HE (combined weight of 61 lbs) from the filling station to a mobile cart. This lift exceeded the (NIOSH) National Institute for Occupational Safety and Health action limit of 31.4 lbs.

The following steps should be taken to reduce this hazard:

- Step 1: Effective administrative protection, such as employee training, physical assessment, etc. shall be provided as an interim protective measure until feasible engineering or administrative controls can be implemented or whenever such controls fail to reduce employee exposure to nominal risk.
- Step 2: A written detailed plan of abatement outlining a schedule for the implementation of engineering or administrative measures to control employee injury due to manual lifting tasks shall be developed. Engineering controls to reduce musculoskeletal stresses include, but are not limited to job redesign, reduction of the horizontal and vertical load distance from the body, or weight, and use of mechanical lifting aids (i.e. scissor lifts). The following actions shall be taken:
- a. Evaluation of the conditions, locations and manual lifting activities that the employees are performing which are resulting in musculoskeletal injuries.
 - b. Evaluation of applicable measure(s).
 - c. Procurement, installation and operation of selected control measures.
 - d. Monitoring to assure effective utilization of the control measure(s).

Location

- a. Building 12-5A
- b. Building 12-5A
- c. Building 12-63

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): The employer did not furnish a place which was free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that employees were exposed to the hazard of explosive type reactions which could result in burns, death, etc., in that incompatible materials were stored in close proximity to each other:

- a. In the laundry area, Building 12-1A, Oxy-Brite, an oxidizing agent and Rohm and Haas Amberlite IR-122 resin, a cation exchange resin, which when mixed can cause explosive type reactions

One feasible abatement method is to ensure that such incompatible materials are not stored near one another

Location

- a. Building 12-1A

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

Section 5 (a)(1)

Description

Section 5 (a)(1): Of the Occupational Safety and Health Act of 1970: The employer did not furnish employment and a place of employment which were free from recognized hazards that were causing or likely to cause death or serious physical harm to employees in that the employer did not ensure that a main power lock-out program was followed and/or implemented thus exposing employees to electric shock and crushing type hazards in the event that equipment is started or energized during normal operations.

- a. Dry air bottling, Building 12-10, an automatic bleed solenoid valve had been removed for repair from the Corblin Diaphragm Compressor; wire caps were placed on the exposed wires, but a lockout device had not been affixed to the energy isolating device, thus exposing the employees to electrocution hazards in the event that the compressor is energized while working on it.

Feasible and useful methods of abatement, among other methods, would be to provide protection of positive main power lock-out procedure, which would include the following essentials:

1. Open and lock-out main power disconnect for the compressor.
2. Provide each potentially exposed employee working in the area with separate lock and key to be placed on the lock-out means.
3. Establish an effective written policy including procedures to be followed and training for all affected employees.

4. Periodically evaluate the program and strictly enforce all of its provisions.
- b. Production Component Warehouse, Building 12-79, when employees enter the robotic warehousing unit for cleaning, retrieval of fallen parts, etc. a lock-out is not affixed to the energy isolating device, thus exposing employees to crushing type hazards in the event that the robotic unit should be energized during this operation.

Feasible and useful methods of abatement, among others, would be to provide protection of positive main power lock-out procedure, which would include the following essentials:

1. Open and lock-out main power disconnect for the robotic unit.
2. Provide each potentially exposed employee working in the area with separate lock and key to be placed on the lock-out means.
3. Establish an effective written policy including procedures to be followed and training for all affected employees.
4. Periodically evaluate the program and strictly enforce all of its provisions.

Location

- a. Building 12-10
- b. Building 12-79

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Other

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1904.2(a)

Description

29 CFR 1904.2(a): Each recordable injury and illness was not recorded within six (6) working days after receiving information that a recordable injury or illness had occurred:

- a. All DOE recordable injuries and illnesses were recorded at the end of the month and not within six (6) working days of occurrence
- b. On 6/18/89, a security investigator injured his right knee while doing a qualifying run. This injury was not entered on the log until September when it was discovered that he had been on restricted activity for 10 days.

Location

- a. Pantex Facility
- b. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1904.2(a)

Description

29 CFR 1904.2(a): The log and summary of occupational injuries and illnesses (OSHA) Form No. 200 or its equivalent) was not completed in the detail provided in the form and the instructions contained therein:

- a. An electrician injured his right arm and shoulder June 1, 1989, missed 4 days of work and was not recorded on the log
- b. A security inspector injured his right heel on August 21, 1989, received a series of whirlpools and was not recorded on the log.
- c. An engineering technician injured a right groin on August 1, 1989, and was limited until August 29, 1989, was not recorded on the log
- d. A toolmaker was diagnosed as having dermatitis on August 4, 1989, and was not recorded on the log.
- e. A production technician received an allergic reaction to Sylguard on August 7, 1989, was placed on limitation (no exposure to Sylguard) and was not recorded on the log.
- f. A laundry and change house attendant received a back injury from lifting clothing out of a basket on August 3, 1989, was placed on limited duty (folding towels), and was not recorded on the log.

- g. A material handler cut his hand on August 7, 1989, and received sutures in his hand, was not recorded on the log.
- h. A production technician injured his right hand on August 15, 1989 and received medical treatment (drilled hole in nail to relieve pressure) was not recorded on the log.
- i. A janitor injured his sciatica on July 17, 1989 and was placed on limited duty of not lifting, pushing or pulling over 25 lbs. until August 24, 1989, was not recorded on the log.
- j. A production technician lacerated his right index finger, August 30, 1989, and received a steri strip, was not recorded on the log.
- k. A material handler injured his foot on a rotatable on August 23, 1989, was limited to performing bench work and was not recorded on the log.
- l. A security inspector injured his knee and thigh on August 6, 1989 and was placed on limited duty of not exercising until August 28, 1989, was not recorded on the log.
- m. A chemical technician received irritation of the right forearm from exposure to silver nitrate on August 1, 1989, was placed on limitation of not using her right hand to handle chemicals and was not recorded on the log.
- n. A material handler jammed his right index finger while loading on July 14, 1989, received several warm soaks and was not recorded.
- o. A Senior Engineer twisted her ankle on July 27, 1989 and was placed on limited duty until August 10, 1989, was not recorded on the log.
- p. A production technician injured his right knee on July 27, 1989, and received several whirlpool treatments, was not recorded on the log.
- q. A laundry and change house attendant contacted dermatitis on both arms from using detergent booster on July 18, 1989, was not recorded on the log.
- r. A garage mechanic got his hand caught between the truck wheel well and the tire and was placed on limited duty for two weeks (don't use right arm) was not recorded on the log.
- s. A pipe fitter injured his right leg on July 10, 1989 and was limited to performing bench work for three weeks, was not recorded on the log.

- t. A security inspector received a contusion of the left elbow on July 12, 1989, and received whirlpool treatments on July 18 and July 20, 1989, was not recorded on the log.
- u. A production technician cut his left hand on a butcher knife on July 12, 1989 and received two skin clips, was not recorded on the log.
- v. A tool maker cut his finger on a grinding wheel on July 5, 1989, and received two sutures, was not recorded on the log.
- w. A production technician strained his knee getting off of a fork-truck on July 14, 1989, received several whirlpool treatments ending July 28, 1989 and was not recorded on the log.
- x. A tool maker contacted dermatitis while cutting some fibrous material on August 4, 1989, was not recorded on the log.
- y. A security investigator hurt his leg on August 11, 1989, and was put on restricted duty until October 16, 1989. The limitation was to not push, pull or lift over 15 lbs. This incident was not recorded on the log.
- z. A production technician received an injured back on August 1, 1989, was placed on limited duty (do not push, pull, lift over 35 lbs), received several hydrotherapy treatments and was not recorded on the log.
- aa. An armorer received an acute muscle strain on August 11, 1989, was given two hydrotherapy treatments and was not recorded on the log.
- bb. An employee injured his right shoulder on September 18, 1989, when he was struck by a door, was placed on restricted duty, not to use his right arm, and the injury was logged as no lost no lost work day or restricted activity.
- cc. A chemical technician developed dermatitis while working with isocyanates on 9/16/89, was not recorded on the log.
- dd. A pipefitter on 9/25/89, injured his back while lifting some equipment, was treated with Flynn exercises, prescribed Parafon Forte and restricted to avoid bending or twisting and do not lift, push or pull over 50 lbs. The incident was not recorded on the log.
- ee. A supervisor working with chemicals on 9/21 and 9/22/89 contacted dermatitis of his eyelids. This was not recorded on the log.

- ff. A production technician contacted dermatitis of both hands while working in Building 12-52B (was retreated on 9/7/89). This was not recorded on the log.
- gg. A production technician reported dermatitis from working with HE on 9/1/89, was placed on restricted duty of not working with HE. This was not recorded on the log.
- hh. An assembler was diagnosed as having an occupational allergic sensitivity to sand/dust, was placed on restricted duty (not to work around paint bay or in and around sanding dust). This was not recorded on the log.
- ii. The record keeping form for recording occupational injuries and illnesses contained only one column for illnesses - information concerning the type of illness (i.e. respiratory conditions due to toxic agents), which is important for tracking trends was not included.

Location

- a - ii. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.20(d)(1)(ii)

Description

29 CFR 1910.20(d)(1)(ii): Employee exposure records were not preserved and maintained for at least thirty (30) years:

- a. Records were not maintained of dpm readings for clothing, hair and nasal swipes of one of the three employees who was exposed to depleted uranium during a weapon teardown operation conducted in Bay 26, Building 12-26
- b. Records were not maintained of dpm readings taken for employees who were involved in the clean-up of Bay 26, Building 12-26

Location

- a. Building 12-26
- b. Building 12-26

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.20(g)(1)(i)

Description

29 CFR 1910.20(g)(1)(i): Employee(s) exposed to toxic substance or harmful physical agents were not informed of the existence, location and availability of records pertaining to such exposure:

- a. Exposure and medical records were located at the Pantex facility and employees were not annually informed of the existence, location and availability of those records.

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.20(g)(1)(ii)

Description

29 CFR 1910.20(g)(1)(ii): Employee(s) exposed to toxic substances or harmful physical agents were not informed of the person responsible for maintaining and providing access to the records pertaining to such exposure:

- a. Exposure and medical records were located at the Pantex facility and employees were not made aware of the person responsible for maintaining and providing access to these records on an annual basis.

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.20(g)(1)(iii)

Description

29 CFR 1910.20(g)(1)(iii): Employee(s) exposed to toxic substances or harmful physical agents were not informed of their rights to access to records pertaining to such exposure:

- a. Exposure and medical records were located at the Pantex facility and employees were not made aware of their right of access to these records on an annual basis.

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Other

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.20(g)(2)

Description

29 CFR 1910.20(g)(2): A copy of 29 CFR 1910.20 and its appendices was not made readily available to employees:

- a. Pantex Facility, Amarillo, Texas

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.22(a)(1)

Description

29 CFR 1910.22(a)(1): Places of employment were not kept clean and orderly, or in a sanitary condition:

- a. Medical facility, Building 12-2, work surfaces contaminated with blood and body fluids were cleaned with soap and water instead of the required 5.25% sodium Hypochlorite solution (household bleach)

Location

- a. Building 12-2

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.23(c)(1)

Description

29 CFR 1910.23(c)(1): Open sided floor(s) or platform(s) four (4) feet or more above adjacent floor or ground level were not guarded by standard railings [or the equivalent as specified in 29 CFR 1910.23 (e)(3), on all open sides:

- a. Mid rail and toe boards not provided, blast recovery work platform, sand blast area, Building 16-4
- b. Storage area located above locker room, Boiler House, Building 12-4

Location

- a. Building 16-4
- b. Building 12-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.23(c)(2)

Description

29 CFR 1910.23(c)(2): Runway(s) were not guarded by standard railing(s) [or the equivalent as specified in 29 CFR 1910.23 (e)(3)] on all open sides 4 feet or more above the ground level:

- a. Runway above Elmes press, top rail at 32 inches, Bay 2, Building 11-15
- b. Runway adjacent to vessels, top rail at 32 inches, no mid rail, Bay 21, Building 11-36.
- c. Fire escape landing, top rail at 37 inches, north side, Building 11-36
- d. Fire escape landing, top rail at 37 inches, east side, Building 11-36
- e. Top rail at 48 inches, mid rail not provided, access to 200 gallon mixing reactor north, Building 11-36

Location

- a. Building 11-15
- b. Building 11-36
- c. Building 11-36
- d. Building 11-36
- e. Building 11-36

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.24(e)

Description

29 CFR 1910.24(e): Fixed stairs were installed at an angle to the horizontal greater than 50 degrees:

- a. Access to Runway adjacent to vessels, Bay 21, Building 11-36
- b. Access to 200 gallon mixing reactor north, work platform, Building 11-36

Location

- a. Building 11-36
- b. Building 11-36

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.26(c)(2)(iv)

Description

29 CFR 1910.26(c)(2)(iv): Ladders were not maintained in good usable condition at all times:

- a. Shot Blast, Building 16-4, The 9 step mobile platform ladder had a broken handrail

Location

- a. Building 16-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.67(c)(2)(v)

Description

29 CFR 1910.67(c)(2)(v): A body belt was not with a lanyard attached to the boom or basket when working from an aerial lift:

- a. Two employees working at a height of approximately 30 feet measuring "I" beam, Rail Shop, Building 16-1

Location

- a. Building 16-1

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.94(a)(3)(i)(e)(1)

Description

29 CFR 1910.94(a)(3)(i)(e)(1): Doors on the blast cleaning enclosure were not flanged and tight when closed:

- a. Shot blast Building 16-4, the outside roll-up door maintained a two-inch opening at the bottom when closed
- b. Shot blast Building 16-4, the two entrance doors were missing stripping from the upper corners of the doors

Location

- a. Shot Blast Building 16-4
- b. Shot Blast Building 16-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.95(b)(1)

Description

29 CFR 1910.95(b)(1): Employees were subjected to sound levels exceeding those listed in Table G-16 of subpart G of 29 CFR 1910 and feasible administrative or engineering controls were not utilized to reduce sound levels:

- a. Carpenter Shop, Building 12-111, the employee operating the Paslode pneumatic staple gun was exposed to noise in excess of the allowable limits.

General methods of control applicable in this circumstance include, but are not limited to the following:

- Install a muffler on the Paslode pneumatic stapler
- Replace the Paslode pneumatic stapler with a quieter model
- Job rotation, to reduce each individual employee's exposure to noise to less than the allowable limit.

Location

- a. Building 12-111

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.95(e)

Description

29 CFR 1910.95(e): Employees exposed at or above an 8-hour time-weighted average of 85 dBA were not notified of the results of monitoring:

- a. Employees were not notified of the noise levels which were representative of their exposure

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.95(g)(5)(iv)

Description

29 CFR 1910.95(g)(5)(iv): The employer did not notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric evaluation:

- a. Employees are not informed of the need to avoid non-occupational noise exposure prior to receiving an audiometric test

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.95(g)(8)(ii)(B)

Description

29 CFR 1910.95(g)(8)(ii)(B): Employees were not refitted and provided hearing protectors which offer greater attenuation when a comparison of the annual and baseline audiograms indicated a standard threshold shift had occurred:

- a. A security instructor suffered an STS and the use of hearing protection with a greater attenuation was not required, Firing Range.
- b. Three security inspectors suffered an STS and the use of hearing protection with a greater attenuation was not required, Firing Range.

Location

- a. Firing Range
- b. Firing Range

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.95(g)(8)(iii)(C)

Description

29 CFR 1910.95(g)(8)(iii)(C): Employees were not appropriately referred for further evaluation when a standard threshold shift occurred in the audiogram:

- a. Three security inspectors suffered an STS in 1988 and an appropriate referral was not made, Firing Range.
- b. A security instructor suffered an STS and an appropriate referral was not made, Firing Range.

Location

- a. Firing Range
- b. Firing Range

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.95(l)(1)

Description

29 CFR 1910.95(l)(1): A copy of 29 CFR 1910.95 was not made available to affected employees or their representatives and a copy was not posted in the work place:

- a. Pantex Facility, Amarillo, Texas

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Serious

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.106(d)(4)(iv)

Description

29 CFR 1910.106(d)(4)(iv): The mechanical exhaust ventilation system(s) and lighting fixture(s) inside flammable or combustible liquid storage room(s) were not operated by switch(es) located outside the room(s):

- a. The switch for the mechanical exhaust ventilation system and lighting fixtures for the flammable and combustible liquid storage/dispensing room in Building 12-25 was located inside the room
- b. The switch for the mechanical ventilation system and lighting fixtures for the flammable and combustible liquid storage room in Building 12-34 was located inside the room

Location

- a. Building 12-25
- b. Building 12-34

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.106(e)(6)(ii)

Description

29 CFR 1910.106(e)(6)(ii): Class I flammable liquid(s) were dispensed into vehicles without electrically interconnecting the nozzle and the vehicle:

- a. Fuel dispensing vehicle, yard area, Building 16-1
- b. Fuel dispensing, air compressor, Yard Area, Building 12-4

Location

- a. Building 16-1
- b. Building 12-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.106(h)(4)(ii)

Description

29 CFR 1910.106(h)(4)(ii): Piping, valves and fittings were not in accordance with paragraph (c) of this section:

- a. Solvent Pumping Area, Building 11-36, an open-ended gate valve and two open-ended stop cock valves were attached to the flammable liquid piping connected to the centrifugal pump, which if open(ed) when solvent was pumped, would release solvent creating a potential fire/explosion hazard, as well as the hazard of employees being sprayed with solvent. These stop cock valves had been used for attachment to underground solvent storage tanks which were removed approximately one year ago. The gate valve was not used and its original purpose was not known.

Location

- a. Building 11-36

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.106(h)(4)(iv)

Description

29 CFR 1910.106(h)(4)(iv): Equipment was not designed and arranged to prevent the unintentional escape of liquids and vapors and to minimize the quantity escaping in the event of accidental release:

- a. Outside Solvent Storage Area, Building 11-36, acetone was dispensed from a 55 gallon drum by means of a gate valve, a valve which is not self-closing, and thus could allow the accidental release of the acetone. Feasible methods to control this hazard are to dispense the acetone (as well as any other flammable or combustible liquids) from 55 gallon drums by means of a device drawing through the top, or by gravity through an approved self-closing valve.

Location

- a. Building 11-36

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.107(b)(5)(i)

Description

29 CFR 1910.107(b)(5)(i): Visible gauge(s) (manometers) installed on paint spray booth(s) to indicate or insure that the required air velocity was maintained were inoperative:

- a. North and south paint booths, paint shop, Building 12-110

Location

- a. Building 12-110

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.107(b)(5)(iv)

Description

29 CFR 1910.107(b)(5)(iv): Space within the spray booth(s) on the downstream side was not protected with approved automatic sprinklers:

- a. Devilbiss paint booth, Building 12-5

Location

- a. Building 12-5

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.107(g)(2)

Description

29 CFR 1910.107(g)(2): Spraying area(s) were not kept free of combustibles:

- a. Cardboard and paper on floor(s), north and south paint booths, paint shop, Building 12-110

Location

- a. Building 12-110

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.120(l)(1)(ii)(g)

Description

29 CFR 1910.120(l)(1)(ii)(g): The emergency response plan for off site emergencies did not adequately address decontamination:

- a. The program specified that decontamination be conducted in a wash pad or building equipped with a floor drain and isolated pump. To date, an area as specified in the program had not been determined and the equipment to build a wash pad (pools, buckets, scrubbing brushes, etc.) has not been purchased.

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.120(l)(1)(ii)(k)

Description

29 CFR 1910.120(l)(1)(ii)(k): The emergency response plan for off site emergencies did not adequately address PPE and emergency equipment:

- a. The program failed to specify a person or group of persons who would characterize a spill to determine what level of protection would be needed.

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.120(l)(3)(i)

Description

29 CFR 1910.120(l)(3)(i): Training for handling off site emergency responses involving hazardous substances was not conducted monthly for a total of at least 24 hours annually:

- a. Employees on the hazardous waste team were not training monthly. They received a 40 hour course in 1988 and then received an 8 hour refresher course in 1989.

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.132(a)

Description

29 CFR 1910.132(a): Protective equipment was not maintained in a sanitary and reliable condition:

- a. Heat Treat, Building 12-68, The glass bead blaster was equipped with a protective right hand glove that had a big hole in the middle finger
- b. Physical lab, Building 12-5B, the gloves which are used to handle objects from the oven had several holes in each hand.

Location

- a. Building 12-68
- b. Building 12-5B

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.132(a)

Description

29 CFR 1910.132(a): Protective equipment was not used where it was necessary by reason of hazards encountered in a manner capable of causing injury or impairment of any part of the body:

- a. In the Medical Facility, the nurses do not wear protective gloves when they are exposed to potentially infectious blood, i.e., when dealing with bleeding patients
- b. Instrument Repair Shop, Building 12-5, employees empty mercury from Stokes anemometers and do not wear gloves
- c. Solvent storage area, Building 12-25, an employee who filled liquid nitrogen cylinders, was not provided and required to wear insulated gloves. Such gloves must be worn when handling anything that comes in contact with cold liquids and vapor, and should be loose fitting so that they can be removed quickly if liquids are spilled into them. (Reference Compressed Gas Association Pamphlet P-12-1987, Safe Handling of Cryogenic Liquids).

Location

- a. Building 12-2
- b. Building 12-5
- c. Building 12-25

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.133(a)(1)

Description

29 CFR 1910.133(a)(1): Protective eye equipment was not required where there was a reasonable probability of injury that could be prevented by such equipment:

- a. In the laundry area, an employee was not provided with and required to wear chemical splash-proof goggles when changing containers of laundry chemicals including Ecolab Star VII, a corrosive liquid
- b. In Building 12-41, an employee who was grinding on radar nose cones was wearing safety glasses without side shields
- c. In the Chem Lab, Building 12-59, employees working with various types of chemicals were not required to wear goggles
- d. Film processing lab, Building FS-24, an employee was required to place a film holder into a bath of acetic acid and goggles or a face shield were not utilized.
- e. Chemical lab, Building 11-17, employees were required to work with solvent and acids and chemical splash-proof goggles were not utilized.

Location

- a. Building 12-1

- b. Building 12-41
- c. Building 12-59
- d. Building FS-24
- e. Building 11-17

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(b)(5)

Description

29 CFR 1910.134(b)(5): Respirators were not regularly cleaned and disinfected:

- a. Employees who worked in Building 12-41, and who were required to wear respiratory protection did not regularly clean and disinfect their respirators - they were only cleaned monthly
- b. The employees who worked in Buildings 12-41A and 12-25 would wear their respirators for one month without cleaning them
- c. Paint Shop, Building 12-110, the painter would wear his respirator for one month without cleaning it

Location

- a. Building 12-41
- b. Building 12-41A and 12-25
- c. Building 12-110

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(b)(6)

Description

29 CFR 1910.134(b)(6): Respirators were not stored in a convenient, clean and sanitary location:

- a. In the spray painting area, Building 12-41, respirators used by employees were stored overnight in a metal cabinet (i.e., not in a plastic bag), and at least one respirator between uses was stored on top of a desk surface which was subject to accumulations of grinding dust
- b. Shot blast, Building 16-4, the supplied air respirator is stored in the general work area

Location

- a. Building 12-41
- b. Building 16-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(b)(8)

Description

29 CFR 1910.134(b)(8): Appropriate surveillance of work area conditions and degree of employee exposure or stress was not maintained:

- a. In Building 12-41, two employees who were manually grinding radar nose cones were required to wear respiratory protection while a third employee who did not wear respiratory protection was working in close proximity to the grinding operation and in the direct path of the grinding dust. The degree of exposure for the third employee had not been determined

Location

- a. Building 12-41

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(b)(11)

Description

29 CFR 1910.134(b)(11): Approved or accepted respirators were not used when they were available:

- a. Employees who participated in the live fire fighting training session conducted in July did not wear SCBAs

NOTE: The Mason & Hanger IOP for this operation requires the use of SCBAs

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(d)(2)(ii)

Description

29 CFR 1910.134(d)(2)(ii): Only a high-temperature alarm was used on oil lubricated compressor(s) and the air from the compressor was not frequently tested for carbon monoxide to ensure that it met the requirements of the specification for grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1966:

- a. In the spray painting area, Building 12-41, the air from the compressor which supplied the abrasive blasting respirators was not frequently tested for carbon monoxide nor was there a carbon monoxide alarm on the air line (an alternative to frequent testing)
- b. Paint Shop, Building 12-110, the Le Roi oil filled compressor, used for supplying breathing air to the abrasive blaster, was not equipped with a carbon monoxide alarm on the air line, nor was the air frequently tested for carbon monoxide.

Location

- a. Building 12-41
- b. Building 12-110

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(e)(2)

Description

29 CFR 1910.134(e)(2): The correct respirator was not specified for each job:

- a. The IOPs (i.e., the IOP for a weapon teardown operation) only specified the type of respirator which was required to be worn (i.e., 1/2 mask or full face piece) and did not specify the particular cartridge which was required (an earlier version of the IOP for this weapon teardown procedure had allowed the use of a dust mask, an inappropriate level of protection)
- b. Synthesis area, Building 11-36, the correct respirator was not specified for the amination process which utilizes ammonia, as evidenced by the fact that employees would use a full-face gas mask with a canister which is approved for exposures to chlorine, dusts and mists, but not for ammonia.

Location

- a. Pantex Facility
- b. Building 11-36

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(e)(4)

Description

29 CFR 1910.134(e)(4): Frequent random inspections were not conducted by a *qualified* individual to assure that respirators were properly selected, used, cleaned and maintained:

- a. For the respirators used by employees in Building 12-41 and 12-41A.
- b. For the respirator used by the employees in Building 12-25

Location

- a. Building 12-41 and 12-41A
- b. Building 12-25

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(e)(5)

Description

29 CFR 1910.134(e)(5): Both supervisor(s) and worker(s) were not instructed in the proper selection, use and maintenance of respirators by a competent person(s):

- a. Employees in Building 12-41 were not provided the specified training as evidenced by the fact that the respirators were not inspected daily and were not regularly cleaned and disinfected - only monthly when turned in for cleaning
- b. The employee working in Building 12-25 was not provided the specified training as evidenced by the fact that their respirator was not inspected daily and was not regularly cleaned and disinfected - only monthly when turned in for cleaning

Location

- a. Building 12-41
- b. Building 12-25

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.134(f)(2)(i)

Description

29 CFR 1910.134(f)(2)(i): All respirators were not inspected routinely before and after each use:

- a. Respirators worn by employees in Building 12-41 were not inspected before and after each use - they were only inspected monthly
- b. Respirators worn by employees in Buildings 12-41A and 12-25 were not inspected before and after each use - they were only inspected monthly

Location

- a. Building 12-41
- b. Building 12-25 and 12-41A

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.141(g)(2)

Description

29 CFR 1910.141(g)(2): Employees were permitted to consume food or beverage in area(s) exposed to toxic materials:

- a. Instrument Repair Shop, Building 12-5, employees ate lunch at the desk where lead soldering was being performed
- b. Electronic Shop, Building 12-112, employees ate lunch at the desk where lead soldering was being performed

Location

- a. Building 12-5
- b. Building 12-112

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.145(f)(8)

Description

29 CFR 1910.145(f)(8): Biological hazard tags were not used to identify the potential presence of a biological hazard:

- a. Medical Facility, Building 12-2, towels and bedding which are contaminated with potentially infectious (HBV/HIV) blood are placed into an unlabeled water soluble bag and sent to the laundry.
- b. Fire Department, Building 12-39, the EMT's and paramedics place potentially HBV/HIV contaminated gloves, gauze and towels into unlabeled plastic garbage bags and send them to the environmental waste department
- c. Fire Department, Building 12-39, the paramedics place potentially HBV/HIV contaminated work clothing into unlabeled plastic garbage bags and then send them to be laundered

Location

- a. Building 12-2
- b. Building 12-39
- c. Building 12-39

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Serious

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.151(c)

Description

29 CFR 1910.151(c): Where employees were exposed to injurious corrosive materials, suitable facilities for flushing of the eyes was not provided within the work area for immediate emergency use:

- a. Chemical lab, Acid Storage Room, Building 11-17, Employees were required to handle bottles of acid and an eye wash was not provided which would be capable of supplying flushing of the eyes for 15 minutes.
- b. Film processing lab, Building FS-24, Employees were required to work with acids and the Guardian Equipment eye wash was set at 65 PSI thus exceeding the 25 PSI maximum allowable pressure (reference ANSI standard).
- c. Outside Solvent Storage Area, Building 11-36, employees dispensed propionic acid, a corrosive liquid, from a 55-gallon drum, and no emergency eyewash facilities were available.
- d. Physical lab, Building 12-5B, An unapproved, single eye, no name eye wash was being relied upon to provide protection to the employees.
- e. Chemical Storage room, Building 12-5B, A Hawes portable eye wash was available in the room but was located 60 feet from where the employee was dispensing chemicals.

- f. Plastics shop, Building 12-16A, The Hawes eye wash and shower was not suitable in that it was not tested weekly as required by ANSI Z 358.1-1981 which states that plumbed eyewash units shall be actuated weekly to flush the line and to verify proper operation.
- g. Photo Processing lab, Building FS-24, A suitable eyewash was not present when employees were exposed to acids. A Nalgene emergency eye wash was available but would not provide for a 15 minute flush.

Location

- a. Building 11-17
- b. Building FS-24
- c. Building 11-36
- d. Building 12-5B
- e. Building 12-5B
- f. Building 12-16A
- g. Building FS-24

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.157(g)(2)

Description

29 CFR 1910.157(g)(2): The educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting was not provided to all employees upon initial employment, and at least annually thereafter:

- a. Plant wide, Pantex Facility, employees would use fire extinguishers to fight fires; they had not been trained initially or annually.

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.179(j)(2)(iii)

Description

29 CFR 1910.179(j)(2)(iii): Monthly inspections of hooks, with signed reports were not performed:

- a. Cranes located throughout the Pantex Plant

Location

- a. Throughout the Pantex Plant

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Serious

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1901.179(m)(1)

Description

29 CFR 1910.179(m)(1): Thorough monthly inspections of rope conditions with written, dated and signed reports were not performed on running ropes:

- a. Cranes located throughout the Pantex Plant

Location

- a. Throughout the Pantex Plant

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.184(e)(1)

Description

29 CFR 1910.184(e)(1): Alloy steel sling(s) did not have permanently affixed durable identification stating size, grade, rated capacity and reach:

- a. 8 foot single leg sling, sand blast room, Building 16-4

Location

- a. Building 16-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.184(e)(3)(ii)

Description

29 CFR 1910.184(e)(3)(ii): Records of the most recent month in which each alloy steel chain sling was thoroughly inspected were not available for examination:

- a. 8 foot single leg sling, Sand Blast Room, Building 16-4

Location

- a. Building 16-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.212(a)(1)

Description

29 CFR 1910.212(a)(1): Machine guarding was not provided to protect operator(s) and other employees from hazard(s) created by ingoing nip points and rotating parts:

- a. Building 12-19, Bay 9, barrier guards or equivalent protection were not provided for the Charles Ross vertical mixer and the pebble mill to protect employees from the rotating agitators and rotating drum.
- b. Interlock not provided on door, thermatic dryer Serial Number 799-2755, Laundry, Building 12-1A
- c. Hobart Mixer, Serial Number 799-3554, Kitchen, Building 12-70
- d. Hobart Mixer, Serial Number 799-3549, Kitchen, Building 12-70
- e. Groen Mixer, Serial Number 735-3520, Kitchen, Building 12-70
- f. Chuck not provided with guard, Monarch Lathe, serial number 735-4587, Machine Shop, Building 12-9A
- g. Chuck not provided with guard, Hardinge Lathe, serial number 735-8836, Machine Shop, Building 12-9A
- h. Chuck not provided with guard, Monarch Lathe, serial number 735-3833, Machine Shop, Building 12-9A

- i. Emergency trip bar/switch not provided, Day Roll Mill, serial number 735-6800, Bay 2, Building 12-62
- j. Spindle adapter guard not provided, Monarch Lathe, serial number 735-3822, Bay 2, Building 12-24 North
- k. Spindle adapter guard not provided, Monarch Lathe, serial number 755-1614, Bay 15, Building 12-24 North
- l. Unused portion of the blade was not provided with a guard, Horizontal band saw, Bay 3, Building 11-50.
- m. Chuck guard not provided, Rockwell Lathe, serial number 735-9440, Bay 11, Building 11-20
- n. Chuck guard not provided, Monarch Lathe, serial number 755-1459, Bay 11, Building 11-20
- o. Unused portion of blade not guarded, Rockwell Horizontal Band Saw, serial number 738-8010, Bay 11, Building 11-20

Location

- a. Building 12-19
- b. Building 12-1A
- c. Building 12-70
- d. Building 12-70
- e. Building 12-70
- f. Building 12-9A
- g. Building 12-9A
- h. Building 12-9A
- i. Building 12-62

- j. Building 12-24
- k. Building 12-24
- l. Building 11-50
- m. Building 11-20
- n. Building 11-20
- o. Building 11-20

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.212(a)(3)(ii)

Description

29 CFR 1910.212(a)(3)(ii): Point(s) of operation of machinery were not guarded to prevent employee(s) from having any part of their body in the danger zone(s) during operating cycle(s):

- a. Roto-Die Press Brake, Sheet Metal Shop, Building 12-5C
- b. Pacific Press Brake, number 755-1796, Boiler Shop, Building 12-5C
- c. Interlock not provided on barrier guard door, Microtone, serial number 736-0098, Room 102, Building 12-8
- d. Interlock not provided on barrier guard door, Carver 20 ton, HE press, Bay 5, Building 11-20
- e. High Explosive pressing - Building 12-17, Bay 6, A boom box which is used once per year for electrical components testing was not equipped with an interlock for its door.
- f. Pressing, Machining, testing - Building 11-20, Bay 6, A no name 7 ton combination press was not equipped with an interlock to prevent the operation of the press without the protective shield in place.
- g. Chemical lab - Building 11-17, Bay 3, Microtoning was being performed with 25 grams of high explosive and the protective shield was not interlocked to prevent the operation of the microtone without the protective shield in place.

- h. Building 12-19, Bay 10, the Planetron and Baker Perkins vertical mixers were not provided with a point of operation barrier guard or equivalent safeguarding device to protect employees from the pinch/shear point hazard created during the operating cycle.
- i. Needle guard not provided, Singer sewing machine, serial number 799-2999, laundry, Building 12-1A

Location

- a. Building 12-5C
- b. Building 12-5C
- c. Building 12-8
- d. Building 11-20
- e. Building 12-17
- f. Building 11-20
- g. Building 11-17
- h. Building 12-19
- i. Building 12-1A

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.213(b)(3)

Description

29 CFR 1910.213(b)(3): Provisions were not made to prevent woodworking machine(s) from automatically restarting upon restoration of power after power failure:

- a. DARRA - LAMES, 10 inch table saw, Plastics Shop, Building 12-16
- b. Craftsman 10 inch table saw, serial number 680-3215, Plastics Shop, Building 12-16
- c. Delta Jointer, serial number 680-3217, Plastics Shop, Building 12-16
- d. Craftsman Table saw, serial number 680-1193, Bay 10, Building 11-20

Location

- a. Building 12-16
- b. Building 12-16
- c. Building 12-16
- d. Building 11-20

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.215(b)(9)

Description

29 CFR 1910.215(b)(9): Guard for abrasive wheel machine where the operator stands in front of the machine was not constructed so that the peripheral projecting member could be adjusted to the constantly decreasing diameter of the wheel:

- a. Baldor bench grinder, serial number F874, Body Shop, Building 16-1
- b. Van Dorn pedestal grinder, serial number D846804, Bay 2 south, Vehicle Maintenance, Building 16-1
- c. Black and Decker pedestal grinder, serial number H3417141, Building 12-35
- d. All Trade bench grinder, serial number 1719, Electronic Security Maintenance, Building 12-112
- e. Utility Ballbearing pedestal grinder, serial number 50128, Heat Treat area, Building 12-68
- f. Utility Ballbearing pedestal grinder, serial number EMC744, Tool and Die Shop, Building 12-68
- g. Black and Decker Bench grinder, serial number 4360065, Boiler Shop, Building 12-5C
- h. Bench grinder, no name or serial number, Boiler Shop, Building 12-5C

Location

- a. Building 16-1
- b. Building 16-1
- c. Building 12-35
- d. Building 12-112
- e. Building 12-68
- f. Building 12-68
- g. Building 12-5C
- h. Building 12-5C

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.219(d)(1)

Description

29 CFR 1910.219(d)(1): Pulley(s) with part(s) seven feet or less from the floor were not guarded in accordance with the requirements specified in 29 CFR 1910.219 (m) and (o):

- a. Honeywell air compressor, serial number 108-28-129698-L, equipment room, Vehicle Maintenance, Building 16-1
- b. Singer sewing machine, serial number 799-2999, Laundry, Building 12-1A
- c. Blower Drive, local exhaust, serial number 680-3942, Cell 2, Mechanical Room, Building 12-98
- d. Blower Drive, local exhaust, serial number 680-3929, Cell 1, Mechanical Room, Building 12-98

Location

- a. Building 16-1
- b. Building 12-1A
- c. Building 12-98
- d. Building 12-98

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.219(e)(1)(i)

Description

29 CFR 1910.219(e)(1)(i): Horizontal belts were not fully enclosed by guards conforming to requirements specified in 29 CFR 1910.219 (m) and (0):

- a. Drive belt, Sibley drill press, serial number 755-1345, Plastics Shop, Building 12-16

Location

- a. Building 12-16

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.219(e)(3)(i)

Description

29 CFR 1910.219(e)(3)(i): Vertical or inclined belt(s) were not enclosed by guard(s) conforming to the requirements specified in 29 CFR 1910.219 (m) and (o):

- a. Honeywell air compressor, serial number 108-28-129698-L, equipment room, Vehicle Maintenance, Building 16-1
- b. Singer sewing machine, serial number 799-2999, Laundry, Building 12-1A
- c. Blower Drive, local exhaust, serial number 680-3942, Cell 2, Mechanical Room, Building 12-98
- d. Blower Drive, local exhaust, serial number 680-3929, Cell 1, Mechanical Room, Building 12-98

Location

- a. Building 16-1
- b. Building 12-1A
- c. Building 12-98
- d. Building 12-98

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.243(c)(3)

Description

29 CFR 1910.243(c)(3): Abrasive wheels used on vertical portable grinder(s) (right angle head grinders) were not provided with safety guard(s):

- a. Milwaukee right angle grinder, serial number 0071714759, North side heat treat area, Building 12-68.
- b. Milwaukee right angle grinder, serial number 627224834, Boiler Shop, Building 12-5C

Location

- a. Building 12-68
- b. Building 12-5C

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.243(e)(1)(ii)

Description

29 CFR 1910.243(e)(1)(ii): Power take off shafts, including rear, mid., or side mounted shafts were not guarded:

- a. Coldwell mower, serial number 710-0094, Building 16-1, Yard Area
- b. Pesticide spray rig, no name or serial number, Building 16-1, Yard Area

Location

- a. Building 16-1
- b. Building 16-1

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.252(a)(2)(iv)(c)

Description

29 CFR 1910.252(a)(2)(iv)(c): Oxygen cylinder(s) in storage were not separated from fuel-gas cylinder(s) by a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour:

- a. 15 oxygen and 12 fuel gas cylinders located in the storage area, Building 16-1

Location

- a. Building 16-1

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.252(e)(2)(iii)

Description

29 CFR 1910.252(e)(2)(iii): Workers adjacent to welding operations were not protected from the rays by noncombustible flame proof screens or shields, nor were they required to wear appropriate goggles:

- a. Welding Area, Boiler Shop, Building 12-5C

Location

- a. Building 12-5C

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.303(f)

Description

29 CFR 1910.303(f): Each disconnecting means for motors were not marked to communicate its purpose:

- a. Switch gear located in the heat treat area, Building 12-68

Location

- a. Building 12-68

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.303(g)(2)(i)

Description

29 CFR 1910.303(g)(2)(i): Live parts of electric equipment operating at 50 volts or more were not guarded against accidental contact by approved cabinets or other forms of approved enclosures, or other means listed under this provision:

- a. Paris chest type freezer, serial number 3776, Heat Treat Area, Building 12-68
- b. In Building 12-81, battery charger #13 had been pulled from its electrical cord. The conductors, which were live and visible, had been taped and left lying on the rack

Location

- a. Building 12-68
- b. Building 12-81

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.303(g)(2)(ii)

Description

29 CFR 1910.303(g)(2)(ii): Electrical equipment exposed to physical damage were not guarded:

- a. Overhead florescent tubes, walk-in freezer, Kitchen, Building 12-70
- b. Overhead florescent tubes, walk-in refrigerator, Kitchen, Building 12-70

Location

- a. Building 12-70
- b. Building 12-70

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.304(a)(2)

Description

29 CFR 1910.304(a)(2): Grounded conductors were attached to terminals or leads so as to reverse polarity:

- a. 10 outlet station, Zamoras Area, Building 12-112
- b. Eighteen inch explosion proof pig tail adapter, Building 12-17, Electrical Shop use
- c. 115V AC Explosion proof outlets in all bays of Building 11-50, where high explosives were machined.
- d. Explosion proof receptacle, north wall, Bay 11, Building 12-21

Location

- a. Building 12-112
- b. Building 12-17
- c. Building 11-50
- d. Building 12-21

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Serious

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.304(f)(4)

Description

29 CFR 1910.304(f)(4): The path to ground from circuits, equipment and enclosures was not permanent and continuous:

- a. Snack machine, number 799-3451 and coke machine, no number, Vehicle Maintenance, Building 16-1
- b. High impedance to ground, 15 outlet station, Camera Room 103, Building 12-N2
- c. Kelvinator Refrigerator, no serial number, Machine Tool Shop, Building 12-5
- d. Duplex Receptacles, sewing machine area, Sheet Metal Shop, Building 12-5C
- e. Duplex Receptacle, coopers area, Carpenter Shop, Building 12-111
- f. Seventh outlet from left on 12 outlet receptacle strip station, Electricians work bench, Area C, Building 12-49
- g. Sixth outlet from left on 6 outlet receptacle strip station, Motor testing bench, Area C, Building 12-49
- h. Compactor, serial number 799-4927, Kitchen, Building 12-70
- i. Singer sewing machine, serial number 799-2999, Laundry, Building 12-1A

- j. High impedance to ground, duplex receptacles K-22, B-22, and B-24, Machine Shop, Building, 12-9A
- k. High impedance to ground, duplex receptacle L-2, power house, Building 12-4
- l. High impedance to ground, duplex receptacle, will call area, Building 12-5
- m. High impedance to ground, all duplex receptacles, located in the west chamber, Building 12-52C
- n. High impedance to ground, four (4) duplex receptacles, west wall, T494 Room, Building 12-52A
- o. High impedance to ground, duplex receptacles, west and center floor area, main Lab, Building 12-52
- p. High impedance to ground, duplex receptacles located in three ventilation hoods, Room 105, Building 12-59
- q. High impedance to ground, duplex receptacles located in three ventilation hoods, Room 107, Building 12-59
- r. High impedance to ground, duplex receptacles located in two ventilation hoods, Room 102, Building 12-59
- s. High impedance to ground, duplex receptacles located in two ventilation hoods, Room 101, Building 12-59
- t. High impedance to ground, duplex receptacles located in ventilation hood, Room 106, Building 12-59
- u. Quad receptacle number E-3, Bay 3, Building 11-17
- v. Explosion proof outlet, LI-10, Bay 2, Building 12-32
- w. High impedance to ground, receptacles V-9, V-14, Bay 11, Building 11-20
- x. High impedance to ground, Duplex receptacle D-11, Bay 11, Building 11-20

Location

- a. Building 16-1
- b. Building 12-N2
- c. Building 12-5
- d. Building 12-5C
- e. Building 12-111
- f. Building 12-49
- g. Building 12-49
- h. Building 12-70
- i. Building 12-1A
- j. Building 12-9A
- k. Building 12-4
- l. Building 12-5
- m. Building 12-52C
- n. Building 12-52A
- o. Building 12-52
- p. Building 12-59
- q. Building 12-59
- r. Building 12-59
- s. Building 12-59
- t. Building 12-59
- u. Building 11-17

v. Building 12-32

w. Building 11-20

x. Building 11-20

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.304(f)(5)(v)

Description

29 CFR 1910.304(f)(5)(v): Exposed noncurrent carrying metal parts of cord and plug connected equipment were not grounded:

- a. Milwaukee 1/2 inch drill, serial number 041108032, Tool Crib, Building 12-35.
- b. Hunter Table Fan, work bench number one, Area Mechanic Shop, Building 12-35.
- c. Hunter Pedestal Fan, no serial number, Area Mechanic Shop, Building 12-35.
- d. Hunter Table Fan, serial number "E", Heat Treat Area, Building 12-68.
- e. Kelvinator refrigerator no serial number, Zone 11, Maintenance Shop, Building 11-48.
- f. Hobart slicer, serial number 1658132, Kitchen, Building 12-70

Location

- a. Building 12-35
- b. Building 12-35
- c. Building 12-35

- d. Building 12-68
- e. Building 11-48
- f. Building 12-70

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.305(g)(1)(iii)

Description

29 CFR 1910.304(g)(1)(iii): Flexible cords and cables were used for purposes prohibited by subparagraphs (a) through (e) of this paragraph:

- a. Flexible cord used to supply power to pedestal fan run over boiler house piping system, Boiler House, Building 12-4.

Location

- a. Building 12-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.307(b)

Description

29 CFR 1910.307(b): Equipment, wiring methods, and installations of equipment in hazardous (classified) locations were not intrinsically safe, or approved for the hazardous (classified) location, or safe for the hazardous (classified) location:

- a. Sign and speaker system, Bay 1, Building 11-42

Location

- a. Building 11-42

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1001(d)(3)

Description

29 CFR 1910.1001(d)(3): Monitoring was not performed at least every six months for employees whose exposure to asbestos was in excess of the action level:

- a. Vehicle maintenance building 16-1, asbestos monitoring for employees performing brake jobs was conducted in November of 1988 and has not been repeated since

Location

- a. Building 16-1

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1001(d)(7)(i)

Description

29 CFR 1910.1001(d)(7)(i): The employer did not inform affected employees of the results of any monitoring performed under this standard within 15 working days after the receipt of the results:

- a. Vehicle Maintenance, Building 16-1, employees were not informed of the results of monitoring for asbestos when performing brake jobs

Location

- a. Building 16-1

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1017(d)(1)

Description

29 CFR 1910.1017(d)(1): An initial monitoring program was not undertaken to determine if there is any employee exposed in excess of the action limit:

- a. Plastics Shop, Building 12-16A, a plastic welder welds PVC and initial monitoring was not performed for vinyl chloride
- b. Plastic Shop, Building 12-16A, the AAA plastic machine operator form molds sheets of PVC and initial monitoring was not performed for vinyl chloride

Location

- a. Building 12-16A
- b. Building 12-16A

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1017(j)

Description

29 CFR 1910.1017(j): Employees engaged in vinyl chloride or polyvinyl chloride operations were not provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use:

- a. Plastic Shop, Building 12-16A, a plastic welder welds PVC and was not provided training on the hazards of vinyl chloride.
- b. Plastic Shop, Building 12-16A, the AAA plastic machine operator form molds sheets of PVC and was not provided training on the hazards of vinyl chloride.

Location

- a. Building 12-16A
- b. Building 12-16A

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Serious

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1025(d)(2)

Description

29 CFR 1910.1025(d)(2): An initial determination was not made to determine if any employee may be exposed to lead at or above the action level:

- a. Vehicle Spray Paint Booth, Building 16-4, employee spray paints with Dupont Imron which contains lead and initial monitoring was not performed
- b. Paint Shop, Building 12-110, employees spray paint with Dupont Centari enamel which contains lead and initial monitoring was not performed
- c. Paint Shop, Building 12-110, Employees spray paint with traffic yellow which contains lead and initial monitoring was not performed
- d. Building 12-41, spray paint area, employees spray paint with Dupont white Alkyd Primer which contains lead and initial monitoring was not conducted

Location

- a. Building 16-4
- b. Building 12-110
- c. Building 12-110
- d. Building 12-41

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Other

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1025(d)(8)(i)

Description

29 CFR 1910.1025(d)(8)(i): Within five working days after the receipt of exposure monitoring results, each employee was not notified in writing of the results which represented that employees' exposure to lead:

- a. The sampled employee is not informed of the results within five working days
- b. Other employees (i.e., those performing the same job as the sampled employee) whose exposures are represented by the monitoring results, are not informed of the results

Location

Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1025(d)(8)(ii)

Description

29 CFR 1910.1025(d)(8)(ii): When the results of exposure monitoring indicated that the representative employee exposure to lead, without regard to respirators, exceeded the permissible exposure limit, the written notification did not include a statement that the permissible exposure limit was exceeded and a description of the corrective action taken, or to be taken, to reduce exposure to or below the permissible exposure limit:

- a. The sampled employees, when informed of the monitoring results, are not informed in writing of the corrective action to be taken to reduce the employees' exposure to below the permissible exposure limit

Location

Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1025(j)(2)(iii)

Description

29 CFR 1910.1025(j)(2)(iii): Blood lead level sampling and analysis was not conducted by a laboratory which received a satisfactory grade in blood lead proficiency testing from the Center for Disease Control (CDC) in the prior twelve months:

- a. Security trainer, security inspectors, and production technicians received blood lead testing which was analyzed by a laboratory (National lab) which was not approved by the CDC for performing such analyses, Pantex Plant

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1025(l)(1)(i)

Description

29 CFR 1910.1025(l)(1)(i): The employer had a work place in which there was a potential exposure to lead and did not inform employees of the content of appendices A and B:

- a. Vehicle spray paint booth, Building 16-4, for employees who spray painted with Dupont Imron paint which contained lead
- b. Paint Shop, Building 12-110, for employees who spray paint with Dupont Centari enamel which contains lead
- c. Paint Shop, Building 12-110, for employees who spray paint with traffic yellow which contains lead
- d. Spray paint area, Building 12-41, for employees who spray paint with Dupont White Alkyd Primer which contains lead.

Location

- a. Building 16-4
- b. Building 12-110
- c. Building 12-110
- d. Building 12-41

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1025(l)(2)(i)

Description

29 CFR 1910.1025(l)(2)(i): The employer did not make readily available a copy of this standard and its appendices:

- a. Vehicle spray paint booth, Building 16-4, for employees who spray painted with Dupont Imron paint which contained lead
- b. Paint Shop, Building 12-110, for employees who spray paint with Dupont Centari enamel which contains lead
- c. Paint Shop, Building 12-110, for employees who spray paint with traffic yellow which contains lead
- d. Spray paint area, Building 12-41, for employees who spray paint with Dupont White Alkyd Primer which contains lead

Location

- a. Building 16-4
- b. Building 12-110
- c. Building 12-110
- d. Building 12 41

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(e)(2)(i)

Description

29 CFR 1910.1200(e)(2)(i): The written hazard communication program did not address the method the employer will use to provide the other employer (i.e. outside contractor) with a copy of the Material Safety Data Sheet, or to make it available at a central location in the work place:

- a. Pantex Facility, Amarillo, Texas

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(e)(2)(ii)

Description

29 CFR 1910.1200(e)(2)(ii): The written hazard communication program did not include the methods the employer will use to inform the other employer (i.e. outside contractor) of any precautionary measures that need to be taken to protect his employees during the work place's normal operating conditions and in foreseeable emergencies:

- a. Pantex Facility, Amarillo, Texas

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Other

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(e)(2)(iii)

Description

29 CFR 1910.1200(e)(2)(iii): The written hazard communications program did not address the method the employer will use to inform the other employer (i.e. outside contractor) of the labeling system used in the work place:

- a. Pantex Facility, Amarillo, Texas

Location

- a. Pantex Facility

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(f)(5)

Description

29 CFR 1910.1200(f)(5): The employer did not ensure that each container of hazardous chemicals in the work place is labeled, tagged or marked with the identify of the hazardous chemical and an appropriate hazard warning:

- a. Shot blast, Building 16-4, two 55-gallon drums of new blasting grit were not labeled
- b. Paint Shop, Building 12-110, five 5-gallon containers of traffic yellow were not labeled
- c. Paint Shop, Building 12-110, south booth, the lacquer thinner cleaning bath was not labeled
- d. Film processing lab, Building FS-24 - the bath of Kodak D-19 developer was not labeled
- e. Film processing lab, Building FS-24 - the bath of Kodak Fixer was not labeled
- f. Film processing lab, Building FS-24 - the bath of Kodak stop bath was not labeled
- g. Building 11-39, flammable liquid storage room, a 5-gallon safety can stored in a flammable liquid storage cabinet was not labeled as to its identity or the appropriate hazard warning.

Location

- a. Building 16-4
- b. Building 12-110
- c. Building 12-110
- d. Building FS-24
- e. Building FS-24
- f. Building FS-24
- g. Building 11-39

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(f)(5)(i)

Description

29 CFR 1910.1200(f)(5)(i): Container of hazardous chemical was not marked with the identity of the chemical contained therein:

- a. 3 gallon metal can containing automatic transmission fluid, Bay 3, center, Vehicle Maintenance, Building 16-1
- b. Building 11-14, a 5-gallon safety can stored in the special mechanics flammable liquid storage cabinet was only labeled as SOLVENT, an inadequate identity.

Location

- a. Building 16-1
- b. Building 11-14

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Serious

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(f)(5)(ii)

Description

29 CFR 1910.1200(f)(5)(ii): The employer did not ensure that each container of hazardous chemicals in the work place is labeled, tagged, or marked specifying the appropriate hazard warning:

- a. Shot Blast, Building 16-4, a 150 lb compressed gas cylinder of carbon monoxide was not labeled with an appropriate hazard warning
- b. Waste water treatment, Building 13-47, and water treatment, Building 15-29, approximately twenty 150 lb compressed gas cylinders of chlorine were not labeled with an appropriate hazard warning
- c. Building 11-39, flammable liquid storage area, a 5-gallon safety can, stored in a flammable liquid storage cabinet, was only labeled with its identity - acetonitrile
- d. Building 11-39, flammable liquid storage area, a 5-gallon safety can, stored in a flammable liquid storage cabinet, was only labeled with its identity - hexaline
- e. Building 11-39, flammable liquid storage area, a 5-gallon safety can, stored in a flammable liquid storage cabinet, was only labeled with its identity - dichloromethane
- f. Building 11-39, flammable liquid storage area, a 5-gallon safety can, stored in a flammable liquid storage cabinet, was only labeled with its identity - DME/acetone

- g. Building 11-17, the 6000-gallon nitrogen storage tank (50,000 ft³) was not labeled with a warning hazard
- h. Building 11-5, the two liquid nitrogen storage tanks, serial numbers 1425 and 500-3, were not labeled with hazard warnings
- i. Building 11-16, the liquid nitrogen storage tank, serial number 1129189, was not labeled with a hazard warning.
- j. Building 11-36, the liquid nitrogen storage tank, serial number 6501, was not labeled with a hazard warning.
- k. Building 11-51, the liquid nitrogen storage tank, serial number C1335, was not labeled with a hazard warning

Location

- a. Building 16-4
- b. Buildings 13-47 and 15-29
- c. Building 11-39
- d. Building 11-39
- e. Building 11-39
- f. Building 11-39
- g. Building 11-17
- h. Building 11-5
- i. Building 11-16
- j. Building 11-36
- k. Building 11-51

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(f)(9)

Description

29 CFR 1910.1200(f)(9): Employer did not ensure that labels or other forms of warnings are legible, in English and prominently displayed on the container or readily available in the work area throughout each work shift:

- a. Heat treat, Building 12-68, the inhouse labels on the dye vats were illegible

Location

- a. Building 12-68

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(g)(1)

Description

29 CFR 1910.1200(g)(1): Employer did not have a Material Safety Data Sheet for each hazardous chemical used in the work place:

- a. Shot blast, Building 16-4, a Material Safety Data Sheet was not available for the #40 grit used in the blasting operation, October 6, 1989
- b. Carpenter Shop, Building 12-111, a Material Safety Data Sheet was not available for Rubatex Adhesive
- c. Boilermaker Shop, Building 12-5C, a Material Safety Data Sheet was not available for N.D.S. gas
- d. Film processing lab, Building FS-24, a material safety data sheet for Kodak D-19 developer was not available.
- e. Film processing lab, Building FS-24, a material safety data sheet for Kodak fixer was not available

Location

- a. Building 16-4
- b. Building 12-111

- c. Building 12-5C
- d. Building FS-24
- e. Building FS-24

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(g)(10)

Description

29 CFR 1910.1200(g)(10): Material Safety Data Sheets were not readily accessible during each work shift to employees when they were in their work areas:

- a. Shot blast, Building 16-4, an MSDS for a compressed gas cylinder of carbon monoxide was not available in the work area, October 6, 1989

Location

- a. Building 16-4

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Inspection Site

Serious

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1910.1200(h)(2)(ii)

Description

29 CFR 1910.1200(h)(2)(ii): Employee training did not include the physical and health hazards of chemicals in the work area:

- a. Vehicle spray paint booth, Building 16-4, the spray painter did not receive training on the specific hazards of the chemicals being utilized, i.e., urethane, lead and chromates.
- b. Shot blast, Building 16-4, the shot blaster did not receive training on the specific hazards of the chemicals being used, i.e., grit #40
- c. Plastics Shop, Building 12-16A, Employees who perform PVC welding did not receive training on the specific hazards of the chemical.
- d. Plastics Shop, Building 12-16A, Employees who worked with cyanacure did not receive training on the specific hazards of the chemical.
- e. Paint Shop, Building 12-110, Employees who perform spray painting did not receive training on the specific hazards of the paints.
- f. Boilermaker, Building 12-5C, Employees who perform build up and stainless steel welding did not receive training on the specific hazards associated with various welding rods.
- g. Plastic Shop, Building 12-16A, AAA plastic machine operator form molds sheets of PVC and did not receive training on the specific hazards of the chemical.

- h. Waste water treatment, Building 13-47, the utility operator is required to change 150 lb cylinders of chlorine and did not receive training on the specific hazards of the chemical.
- i. Film processing lab, Building FS-24, Employees were working with Kodak D-19 Developer, Fixer and stop bath and training on the specific hazards was not provided.
- j. Spray paint area, Building 12-41, employees were working with toluene, leaded paint, chromic acid (alodine), etc. and training on the specific hazards of the chemicals was not provided.
- k. Preparation area, Building 12-41A, employees were working with paint, chromic acid (alodine), etc. and training on the specific hazards of the chemicals was not provided.

Location

- a. Building 16-4
- b. Building 16-4
- c. Building 12-16A
- d. Building 12-16A
- e. Building 12-110
- f. Building 12-16A
- g. Building 12-16A
- h. Building 13-47
- i. Building FS-24
- j. Building 12-41
- k. Building 12-41A

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.58(e)(6)(i)

Description

29 CFR 1926.58(e)(6)(i): Where feasible, the employer did not establish negative pressure enclosures before commencing asbestos removal, demolition, or renovation operations:

- a. Building 12-17, two pipefitters removed approximately 120 feet of three-quarter (3/4) inch pipe containing asbestos insulation and a negative pressure enclosure was not established

Location

- a. Building 12-17

MASON & HANGER - SILAS MASON CO., INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.58(f)(2)(i)

Description

29 CFR 1926.58(f)(2)(i): Employer did not perform initial monitoring at the initiation of each asbestos job to accurately determine the airborne concentration of asbestos to which employees may have been exposed:

- a. Building 12-17, two pipefitters removed approximately 120 feet of three-quarter (3/4) inch pipe containing asbestos insulation and initial monitoring was not performed

Location

- a. Building 12-17

HALLMARK BUILDERS

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.58(e)(6)(ii)

Description

29 CFR 1926.58(e)(6)(ii): Employer did not designate a competent person to perform or supervise the duties specified in subparagraphs (A) through (H) required for asbestos removal, demolition or renovation operations:

- a. Building 12R-19, employees were required to remove cemesto board (60% asbestos) roofing tiles while working in an enclosure and a competent person was not available

Location

- a. Building 12R-19

HALLMARK BUILDERS

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.58(k)(2)(i)

Description

29 CFR 1926.58(k)(2)(i): Labels were not affixed to all products containing asbestos and all containers containing such products, including waste containers:

- a. Building 12R-19, employees placed fallen cemesto board (60% asbestos) and contaminated disposable coveralls into unlabeled garbage bags

Location

- a. Building 12R-19

HALLMARK BUILDERS

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.58(l)(2)

Description

29 CFR 1926.58(l)(2): Asbestos waste, scrap, debris, bags, containers, equipment, or contaminated clothing consigned for disposal were not collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers:

- a. Building 12R-19, employee reused the asbestos contaminated plastic

Location

- a. Building 12R-19

HALLMARK BUILDERS

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.58(m)(1)(i)

Description

29 CFR 1926.58(m)(1)(i): The employer did not institute a medical surveillance program for all employees engaged in work involving levels of asbestos at or above the action level for 30 or more days per year, or who are required by this section to wear negative pressure respirators:

- a. Employees were removing cement board (60% asbestos) roofing tiles from runway 12R-19. The employees were wearing half-mask negative pressure respirators and were not provided with a medical exam

Location

- a. Building 12R-19

HALLMARK BUILDERS

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.59(h)(2)(ii)

Description

29 CFR 1926.59(h)(2)(ii): Employee training did not include the physical and health hazards of the chemicals in the work area:

- a. Building 12R-19, employees performing cemesto board removal (60% asbestos) were not trained on the specific health hazards of asbestos

Location

- a. Building 12R-19

HALLMARK BUILDERS

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.404(b)(1)(ii)

Description

29 CFR 1926.404(b)(1)(ii): On a construction site, where an assured equipment grounding program was not utilized, all 120-volt, single-phase, 15- and 20-ampere receptacle outlets which were not a part of the permanent wiring of the building or structure and which were used by employees did not have approved groundfault circuit interrupters for personnel protection:

- a. Ground fault circuit interrupter inoperative, Building 12R-17

Location

- a. Building 12R-17

HALLMARK BUILDERS

Type of Violation(s)

Other

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.405(g)(2)(ii)

Description

29 CFR 1926.405(g)(2)(ii): Type SJ, SJO, SJT, SJTO, S, SO, ST, or STO flexible cords were used without being durably marked on the surface with the type designation, size, and number of conductors:

- a. Three (3) 100 foot cord sets, Building 12R-17

Location

- a. Building 12R-17

CONSTRUCTION SERVICES INC.

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.28(a)

Description

29 CFR 1926.28(a): Appropriate personal protective equipment was not worn by employee(s) in all operations where there was exposure to hazardous conditions:

- a. Employee(s) exposed to fall hazard, installing roofs were not wearing safety belts/lanyards, Igloo 27, Zone 4, West
- b. Safety foot wear not provided, Zone 4, West, Igloo 27

Location

- a. Igloo 27
- b. Igloo 27

CONSTRUCTION SERVICES

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.450(a)(10)

Description

29 CFR 1926.450(a)(10): Portable ladder(s) in use were not tied, blocked, or otherwise secured to prevent their being displaced:

- a. Ladder used to access roof of Building 11-39

Location

- a. Building 11-39

CONSTRUCTION SERVICES

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.500(g)(1)

Description

29 CFR 1926.500(g)(1): Employees engaged in built-up roofing work on low-pitched roofs with a ground to eave height greater than 16 feet were not protected from falling by using one of the methods described in 29 CFR 1926.500 (g)(1)(i) through (iii) at all unprotected sides and edges of the roof:

- a. Roof repair, Building 11-36, this condition occurred on or prior to October 20, 1989.

Location

- a. Building 11-36

CONSTRUCTION SERVICES

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.500(g)(3)(ii)(d)

Description

29 CFR 1926.500(g)(3)(ii)(d): The warning line (rope, wire, or chain) used during built-up roofing work on low pitched roofs with a ground to eave height greater than 16 feet did not have a minimum tensile strength of 500 pounds (227 kilograms), and after being attached to the stanchions, was not capable of supporting, without breaking, the loads applied to the stanchions as prescribed in paragraph (g)(3)(ii)(c) of this section:

- a. Roof area, Building 11-36, the ribbon type warning line which was in use

Location

- a. Building 11-36

CONSTRUCTION SERVICES

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.500(g)(5)(v)

Description

29 CFR 1926.500(g)(5)(v): Safety belt systems used in roof edge material handling or material storage area were not rigged to allow the movement of employees only as far as the roof edge during the performance of built-up roofing work on low-pitched roofs with a ground to eave height greater than 16 feet:

- a. Roof repair, Building 11-39

Location

- a. Building 11-39

CONSTRUCTION SERVICES

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.500(g)(6)(i)

Description

29 CFR 1926.500(g)(6)(i): The employer did not provided a training program for all employees engaged in built-up roofing work on low-pitched roofs with a ground to eave height greater than 16 feet so that they were able to recognize and deal with the hazards of falling associated with working near a roof perimeter:

- a. Roof repair, Buildings 11-36 and 11-39

Location

- a. Buildings 11-36 and 11-39

L. A. FULLER

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.28(a)

Description

29 CFR 1926.28(a): Appropriate personal protective equipment was not worn by employee(s) in all operations where there was exposure to hazardous conditions:

- a. Safety foot wear not provided, Zone 4, West, Igloo 31-B

Location

- a. Igloo 31-B

L. A. FULLER

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.602(a)(2)(i)

Description

29 CFR 1926.602(a)(2)(i): Material handling equipment with roll-over protective structures or adequate canopy protection was not provided with seat belts:

- a. Seat belts were not equipped with buckles, Hyster-Roller, serial number A188C1534F, Zone 4, West

Location

- a. Zone 4

L. A. FULLER

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.602(a)(9)(i)

Description

29 CFR 1926.602(a)(9)(i): Bidirectional machine(s) were not equipped with an operable horn, distinguishable from the surrounding noise level:

- a. Ford back hoe/loader #445, Zone 4, West

Location

- a. Zone 4, West

FOLEY COMPANY

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.59(h)

Description

29 CFR 1926.59(h): Employees were not provided information and training as specified in 29 CFR 1926.59 (h)(1) and (2) on hazardous chemicals in their work area at the time of their initial assignment and whenever a new hazard was introduced into their work area:

- a. Construction project, Boiler plant, Building 16-13

Location

- a. Building 16-13

FOLEY COMPANY

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.152(e)(2)

Description

29 CFR 1926.152(e)(2): The transfer of flammable liquids from one container to another was done when the containers were not electrically interconnected (bonded):

- a. Fuel transfer, fuel servicing area, Boiler Plant, Building 16-13

Location

- a. Building 16-13

FOLEY COMPANY

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.251(e)(1)

Description

29 CFR 1926.251(e)(1): Each synthetic web sling was not marked to show, name or trademark of manufacturer, rated capacities for the type of hitch, type of material:

- a. Six (6) foot web sling, Boiler Plant, Building 16-13

Location

- a. Building 16-13

FOLEY COMPANY

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.350(a)(8)

Description

29 CFR 1926.350(a)(8): Compressed gas cylinder valves were not closed when work was finished, when cylinders were empty, or when cylinders were being moved:

- a. Fuel gas cylinder, Boiler Plant, Building 16-13

Location

- a. Building 16-13

FOLEY COMPANY

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.404(a)(2)

Description

29 CFR 1926.404(a)(2): A grounded conductor was attached to a terminal or lead so as to reverse designated polarity:

- a. 100 foot cord set "Y" type, Boiler Plant, Building 16-13

Location

- a. Building 16-13

FOLEY COMPANY

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.404(b)(1)(ii)

Description

29 CFR 1926.404(b)(1)(ii): Where an assured equipment grounding program was not utilized, receptacles were not protected with ground-fault circuit interrupters when on a two-wire, single-phase portable or vehicle-mounted generator rated more than 5kw, or where the circuit conductors of the generator were not insulated from the generator frame and all other grounded surfaces:

- a. Winco, 5,000 watt portable generator, serial number 29738, Boiler Plant, Building 16-13

Location

- a. Building 16-13

FOLEY COMPANY

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.404(f)(6)

Description

29 CFR 1926.404(f)(6): The path to ground from circuits, equipment, or enclosures was not permanent and continuous:

- a. 100 foot cord set, Boiler Plant, D.A. Level, Building 16-13
- b. 100 foot cord set, ground level, Boiler Plant, Building 16-13

Location

- a. Building 16-13
- b. Building 16-13

YOUNG INSULATION GROUP OF AMARILLO

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.59(h)

Description

29 CFR 1926.59(h): Employees were not provided information and training as specified in 29 CFR 1926.59 (h)(1) and (2) on hazardous chemicals in their work area at the time of their initial assignment and whenever a new hazard was introduced into their work area:

- a. Construction project, Boiler Plant, Building 16-13

Location

- a. Building 16-13

JACK C. THOMAS & SON

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.59(e)(1)

Description

29 CFR 1926.59(e)(1): Employer had not developed or implemented a written hazard communication program which describes how the criteria in 29 CFR 1926.59 (f), (g) and (h) will be met:

- a. Construction project, Boiler Plant, Building 16-13

Location

- a. Building 16-13

JACK C. THOMAS & SON

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.59(f)(5)(ii)

Description

29 CFR 1926.59(f)(5)(ii): The employer did not ensure that each container of hazardous chemicals in the work place was labeled, tagged or marked with the appropriate hazard warning:

- a. Two 5 gallon containers of stoddard solvent, construction project, Boiler Plant, Building 16-13

Location

- a. Building 16-13

JACK C. THOMAS & SON

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.59(g)(1)

Description

29 CFR 1926.59(g)(1): Employer did not have a material safety data sheet for each hazardous chemical used in the work place:

- a. Construction project, Boiler Plant, Building 16-13

Location

- a. Building 16-13

JACK C. THOMAS & SON

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.59(h)

Description

29 CFR 1926.59(h): Employees were not provided information and training as specified in 29 CFR 1926.59 (h)(1) and (2) on hazardous chemicals in their work area at the time of their initial assignment and whenever a new hazard was introduced into their work area:

- a. Construction project, Boiler Plant, Building 16-13

Location

- a. Building 16-13

JACK C. THOMAS & SON

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.152(a)(1)

Description

29 CFR 1926.152(a)(1): Containers used for the storage and handling of flammable and combustible liquids were not approved:

- a. Two 5 gallon containers of stoddard solvent, construction project, Boiler Plant, Building 16-13

Location

- a. Building 16-13

JACK C. THOMAS & SON

Type of Violation(s)

Serious

Inspection Site

Amarillo Pantex Plant

Standard Allegedly Violated

29 CFR 1926.300(b)(2)

Description

29 CFR 1926.300(b)(2): Moving parts(s) of equipment exposed to contact by employees were not guarded:

- a. Drive belts/pulleys, air compressor, no name or serial number, Boiler Plant, Building 16-13

Location

- a. Building 16-13

APPENDIX G

OSHA FINAL REPORT

DOE TIGER TEAM
OSHA ASSESSMENT REPORT
PANTECH PLANT, AMARILLO, TEXAS

Bruce Beelman, OSHA Coordinator

Inspection Team

Les Grove, Industrial Hygienist (Team Leader)
Fred Bartol, Industrial Hygienist
Ron Sarnacki, Industrial/Construction Safety

1.0 OSHA

1.1 Purpose

The purpose of OSHA participation in this assessment was to assist DOE in the evaluation of contractor responsibilities for occupational safety and health at the Pantex Plant. OSHA has not made previous inspections of Pantex or other DOE contractor facilities because the Atomic Energy Act and the Occupational Safety and Health Act preclude OSHA enforcement in these facilities. However, DOE Order No. 5483.1A states that contractors of government owned contractor operated (GOCO) DOE facilities shall comply with all OSHA standards. At the request of DOE, The Secretary of Labor agreed to provide OSHA personnel as consultants for the purpose of performing a compliance-type evaluation of the Pantex facility. DOE and OSHA entered into an agreement specifying the role and performance of the OSHA assessment team.

1.2 Scope

The role of the OSHA Assessment Team was to identify occupational safety and health hazards (excluding radiological hazards) observed at the Pantex plant. Due to the large size of the facility, a walkthrough of all areas of the plant was not feasible within the time allotted for the inspection. At the time of this assessment, the Pantex operation, managed for DOE by Mason & Hanger - Silas Mason Co. Inc., included approximately 100 working buildings (with a total of over 323 buildings) built on a 16,000 acre site, 2500 employees and 8 construction subcontractors. Walkthroughs were conducted in areas prioritized by DOE with concurrence by OSHA as representative of various process streams, hazards and operations. A list of these areas is included in Tables I and II.

However, it should be noted that the two Sandia Laboratories' buildings located at Pantex were not part of the OSHA team's assessment. Also, most of the major processing areas could not be fully inspected because they were not in operation or were not fully operational due to extensive retrofits, the presence of outside contractors (during which time all activities in the area cease), a lack of work, etc.. This included the Synthesis Facility (Building 12-36), the Pressing Operations (Buildings 11-20 and 12-17), etc.. While the physical facilities in these buildings were inspected and hazards resulting in violations of OSHA standards were noted when apparent, the hazards associated with actual processing could not be properly evaluated due to lack of activity. Similarly, any hazards presented by installation of new equipment, which were not yet in operation, could not be determined.

In addition to the physical inspections of the facilities, a review of the effectiveness of Mason & Hanger's industrial safety and health program was performed based on the OSHA assessment team's observations in the areas that

were inspected. This is an element of OSHA's normal inspection protocol as set forth in the agency's Field Operations Manual. In January of 1989, OSHA published voluntary guidelines in the Federal Register (54 FR 3904-3916) outlining the major elements of an effective safety and health program which OSHA compliance officers utilize in their evaluation of employers' programs. It should be noted that these guidelines are not mandatory, but the development and implementation of an effective safety and health program, containing systematic management policies and practices, is fundamental to reduction of work related injuries and illnesses along with their attendant economic costs.

1.3 Approach

OSHA representatives utilized standard OSHA inspection practices in the performance of this assessment. This included provisions for an opening conference, union representation, and walkthrough inspection. The inspection team was composed of specialists in three areas: construction safety, general industry safety, and industrial hygiene. Team members documented hazards by means of observations, exposure measurements, review of records, and employee interviews.

Contractor representatives always accompanied OSHA team members on the walkthroughs. Members of Mason & Hanger's safety department accompanied the construction/industrial safety team member, while members of Mason & Hanger's industrial hygiene department accompanied the industrial hygiene team members. Individual department and/or worksite supervisors then joined the OSHA assessment team when a walkthrough of their areas was being conducted.

Representatives of The Metal Trades Council - the employees' recognized collective bargaining unit - also accompanied OSHA assessment team members on the walkthroughs at various times during this assessment. In addition, DOE employees, from either the Amarillo Area Office or Washington, D.C. headquarters office, accompanied OSHA team members at various times in order to gain a better understanding of how OSHA compliance officers conduct walkthroughs.

OSHA walkthrough inspections differ depending on the discipline involved. Construction walkthroughs are made by particular job site where the general contractor and all sub-contractors are inspected. Construction activity at the Pantex facility, which was very limited during the assessment visit, was all included in the OSHA team's inspection. Industrial safety walkthroughs are done on a building and/or area basis where all activities and facilities are inspected. Industrial hygiene walkthroughs involve a survey of work areas where potential chemical and physical hazards exist, including monitoring of employee exposures either by short-term screening or full-shift personal sampling.

During the course of the OSHA assessment, three (3) personal short-term, ceiling samples were taken for chromic acid and screening samples were taken for noise. The OSHA assessment team attempted to conduct additional air monitoring, but was unable to do so for a variety of reasons; i.e. they attempted to sample when employees were spray painting with leaded paints, however, prior to being able to do so, Pantex discontinued the use of those paints. All OSHA air samples were duplicated with side-by-side sampling conducted by Pantex, and these samples were analyzed by the Pantex laboratory. OSHA's samples were sent to OSHA's Analytical Laboratory in Salt Lake City, Utah for analysis. Employee breathing zone sampling results are contained in Table III.

Normally, OSHA compliance officers utilize their own equipment for documentation of hazards; however, Mason & Hanger's equipment (with the exception of some electrical testing equipment) and photographers were used by the OSHA assessment team due to radiological and security concerns. Prior to use, team members evaluated each piece of equipment to assure it was functioning as intended and properly calibrated. Photography support was made available whenever an OSHA team member requested this assistance for documentation of hazards. Mason & Hanger provided escorts, who were equipped with cameras, for the OSHA team members. The escorts would take a photograph whenever an OSHA team member requested this assistance. Over 110 photographs were taken to aid in documentation of the hazards discovered by the OSHA team during the course of this assessment.

In addition, OSHA inspections are almost always conducted without providing advance notice to the employer. The Department of Energy advised Pantex management that OSHA would be participating as part of the Tiger Team approximately four weeks prior to the beginning of the on-site evaluation. During this period, Pantex personnel expended considerable effort in an attempt to clean up the facility and eliminate hazards. Specific areas included general housekeeping and labeling of containers. Furthermore, OSHA team members were routinely required to inform Pantex personnel as to which buildings would be visited the following day. When those buildings were inspected, generally, either no activity or minimal activity was taking place.

Violations of OSHA standards were written and classified in accordance with OSHA's Field Operations Manual using OSHA forms, except that penalty calculations were not made. Since OSHA does not have enforcement authority on DOE contractor sites, citations were not issued and penalties were not assessed. Apparent violations of OSHA standards and obligations of the OS&H Act, as well as other safety and health hazards, were communicated to contractor representatives at time of finding during the walkthroughs. Those violations which required additional research for verification were communicated when finalized.

At DOE's request, apparent violations of OSHA standards found during this

assessment were classified by the OSHA team members as to type. A "serious" violation is defined by OSHA as one in which there is substantial probability that death or serious physical harm could result, and the employer knew or could have known of the hazard. OSHA defines a "willful" violation as one in which an employer either knew that a condition constituted a violation, or was aware that a hazardous condition existed and made no reasonable effort to correct it. An "other-than-serious" violation is defined by OSHA as one where the accident or illness that would most likely result from the hazardous condition would probably not cause death or serious physical harm, but would have a direct and immediate relationship to the safety and health of employees.

Mason & Hanger's Safety and Industrial Hygiene Departments manually tracked the violations identified by the OSHA team members, and initiated corrective action. They attempted to develop a database similar to one developed during another Tiger Team inspection conducted at the Y-12 facility, but were unable to fully do so. However, a version of that database was used by the DOE Tiger Team to compile all violations in OSHA citation format (see Appendix F of this report). Pantex management took considerable efforts in immediately correcting numerous hazards identified by the OSHA assessment team members at the time they were discovered. In these cases, OSHA team members verified that abatement of these hazards was properly accomplished.

Inspection activities were supplemented with a series of discussions with Mason & Hanger safety and industrial hygiene department personnel on a variety of safety and health topics. The purpose of these discussions was to help Mason & Hanger personnel understand the requirements contained in various OSHA standards and to provide clarifications where necessary. Issues discussed included: hazard communication, asbestos, emergency response teams, machine safeguarding, and confined space entry. Copies of OSHA literature on these subjects, where available, were also provided to aid in further clarification.

1.4 INDUSTRIAL SAFETY AND HEALTH PROGRAM EVALUATION

The OSHA assessment team's evaluation of Mason & Hanger's industrial safety and health program is based on the voluntary guidelines published in the Federal Register by OSHA in January of 1989. In that document, OSHA identified the major elements of an effective program to be :

- 1) Management Commitment and Employee Involvement
- 2) Worksite Analysis
- 3) Hazard Prevention and Control
- 4) Safety and Health Training

Each of the above referenced areas will be addressed separately. Comparisons will then be drawn between the voluntary guidelines and Pantex' pro-

gram. Specific examples will be used to highlight effective and ineffective areas, as determined by the OSHA assessment team's observations in the areas visited during the walkthroughs.

1.4.1 Management Commitment and Employee Involvement

An effective management program includes worker safety and health as a fundamental part of the organizational structure and utilizes employee involvement to help identify and correct hazardous conditions and practices. Areas that must be addressed include: 1) A clearly stated worksite safety and health policy; 2) Communication of safety and health program goals; 3) Involvement of top management; 4) Involvement of employees; 5) Assignment of program responsibilities; 6) Provision for adequate program resources; 7) Accountability of the responsible persons; and 8) Review of the program.

1.4.1.1 Clearly Stated Worksite Safety and Health Policy

Pantex has a clearly stated worksite safety and health policy entitled Safety Policy, Program and Organization which consists of a policy statement, a delineation of the aspects of the Safety Program, and responsibilities for plant safety and health. Pantex' stated policy is : 1) "No mission is so urgent and no schedule so rigid that we cannot take the time to practice safety in all activities. Management is responsible and accountable for a high level of safety performance. All employees and visitors must comply with safety directives. Safety awareness and promotion is the responsibility of all employees. SAFETY SHALL BE FIRST."; 2) "Correction of activities which are found to depart from established standards and which can be rectified within the authority and capability of the cognizant manager shall be accomplished with appropriate urgency. Those actions which are essential to effect compliance, but are not within the prerogative of the cognizant manager to remedy, will be pursued by the most expeditious method possible." and 3) "It is the intent of the Company to assure that each employee be provided with a safe and healthy working environment."

1.4.1.2 Communication of Safety and Program Goals

At the time of the assessment visit, Pantex did not have a system in place for setting specific goals for reduction of plant injuries and illnesses. Rather, qualitative goals calling for a general reduction were set based on a computer program which sets upper and lower limits of lost workday incidence rates in the form of a frequency run chart. The goal was then to reduce the upper limits, bringing each division into the same range.

This system was criticized during a Technical Safety Appraisal (TSA) con-

ducted at Pantex. In response to this TSA, Pantex contracted with the National Safety Council (NSC) in 1988 to conduct an audit of their system. The NSC recommended that Pantex establish an action plan to track injuries, perform trend analyses, etc.. Pantex then purchased an Injury Management System computer program from NSC. This computer program was placed on-line October 1, 1989, with a goal of December, 1989 for full operational capability. With this computer program, the Pantex Safety Department will be able to determine severity incidence and frequency severity rates, perform hazard trend analyses, etc., and will be able to set quantitative goals for the reduction of plant injuries and illnesses.

Most departments are conducting the two required thirty minute safety meetings each month. During these meetings, the employees are provided information relative to safe practices and procedures. In addition, at that time, the employees are afforded an opportunity to discuss safety and health concerns with their supervisors.

1.4.1.3 Involvement of Top Management

The Plant Manager's concern for safety and health issues is reflected in his establishment of an open-door policy. Whenever any Pantex employee has a concern about a safety and health issue, they are able to meet with him personally and voice those concerns. This policy, and its availability for use, was confirmed during interviews with representatives of The Metal Trades Council.

Pantex has a Central Health & Safety Committee which holds meetings monthly. Although The Metal Trades Council is not formally represented on this committee, these meetings are intended to be a format for the non-supervisory members to discuss safety and health concerns. The Plant Manager attends these meetings as an inactive guest/observer.

The Plant Manager holds a monthly Safety Staff Meeting which is chaired by the Division Manager, Safety & Fire Protection, and attended by the Assistant Plant Manager, Administrative Assistant, Division Managers, Safety Director, Fire Chief, Medical Director, a Sandia Laboratory representative, and DOE representatives. The format of these meetings includes: initial reading; updating and review of open action items; introduction of new action items; review of SCARS (Safety Computer Accident Reporting System) information, which reports hard data on lost workday incidence rates; and Fire Department inspection summary.

During the OSHA assessment team's physical inspection of the workplace, management officials demonstrated some awareness for safety and health. This was demonstrated by their familiarity with the Pantex Hazard Communication Program, the level of personal protective equipment required for any particular operation, and the Pantex safety standards.

1.4.1.4- Involvement of Employees

Pantex does not have a joint labor/management safety and health committee. They do have a Central Health & Safety Committee which is made up of one non-supervisory member elected from each supervisor's departmental safety meeting (or group of supervisors' combined departmental safety meetings), and permanent members including the Plant Manager, Assistant Plant Manager, and Safety Director, which meets once each month. The non-supervisory members serve on the committee for a period of six months on a voluntary basis, and may or may not be members of the union. However, The Metal Trades Council is not formally represented on this committee.

While the concept of this Central Health & Safety Committee is good, a review of the minutes of numerous meetings indicated that few substantive safety and health issues were discussed. For example, issues which have been addressed include the delay for pedestrians to be allowed to cross the road at quitting time and an inadequate supply of sanitary napkins in one location.

The Assembly and Development Divisions are actively developing a Self-Audit Group program. This program involves a system of self-inspections wherein employee representatives from one work area conduct inspections of other work areas within their division. Any safety or health hazards identified during these self-audit inspections are addressed as expeditiously as possible, as verified during interviews with The Metal Trades Council representatives. The Safety Department has provided training to the Self-Audit Groups in hazard recognition, however, this training should be provided in more detail. In addition, with the exception of the training sessions, there is no formal contact between the Safety Department and the Self-Audit Groups (although members of the Self-Audit Groups could informally contact the safety engineer with responsibility for their area to inform them of any hazards which would need their attention).

Individual employees have direct involvement in the safety program in that they have a right to refuse work which they believe may be detrimental to their safety and health. This employee responsibility is referred to in the Safety Policy Manual, the Safety Training Manual and the Employee Safety Book. Interviews with employees revealed that they were aware of this right and would exercise it if necessary.

1.4.1.5 Assignment of Program Responsibilities

The Pantex Safety Policy Program and Organization statement assigns responsibility to all levels of management and even to the employees. The

Plant Manager is responsible for assuring that necessary expenditures for safety are authorized and will provide support and direction for safety programs formulated by the Safety Department. The Division Managers' responsibilities concerning safety are to ensure safety of personnel and property within their respective areas of operation, and to issue instructions and information to their Division supervisors to assure that all are aware of their responsibility for controlling hazards.

The Supervisors' responsibilities are outlined as having to prevent injuries to employees by providing proper training and guidance, and to take any action necessary to ensure the safety of the employees.

The employees are held responsible for following safe work practice procedures and all health and safety regulations and instructions. The employees are also held responsible for ensuring that they do not undertake a job that they do not understand, or for which they have not been adequately trained to perform.

The Pantex Safety, Industrial Hygiene and Fire Protection Departments are staff functions and are represented in the line organization. They have access to all areas of the facility, with some restrictions for high security locations, and are required to conduct periodic inspections, audits, etc..

1.4.1.6 Provision for Adequate Program Resources

Adequate program resources appear to be available for the Safety Department at Pantex. It appears that monetary funding and personnel levels are adequate. Evidence of management's commitment to safety can be drawn from its proposal to hire three additional safety engineers. However, the level of training of the safety engineers in hazard recognition and familiarity with OSHA regulations does not appear to be adequate. This was exemplified by the fact that the OSHA assessment team members identified easily recognizable hazards (i.e., inadequate machine guarding) in areas which had just recently been inspected by a safety engineer.

There does appear to be an inadequacy of program resources in the Industrial Hygiene Department at Pantex. The lack of sufficiently trained personnel has limited the department's ability to ensure a comprehensive review of all of the operations in the plant. At the time of the assessment visit, the department had two trained industrial hygienists who were responsible for conducting field investigations and two other industrial hygienists, including one individual who had only been with the department for one month, who were in the process of receiving the training necessary to enable them to conduct field investigations. To their credit, Pantex has identified this inadequacy and is in the process of increasing the staffing level of the department.

Monetary resources appear to be adequate for day-to-day operations. This was exemplified following a Technical Safety Appraisal (TSA) which identified an inadequacy in the Pantex injury management system. In response to this, the Safety Department requested funds to contract with the National Safety Council (NSC) to conduct an audit of their injury management system. Not only was this funding provided, but in response to the NSC audit, additional funding was allocated to purchase an Injury Management System computer program from NSC. Another example would be the response to the determination that Pantex should have uniformity in the type of Self-Contained Breathing Apparatus (SCBA) utilized in the facility. Approximately \$500,000 was expended for the purchase of an adequate supply of MSA units.

Pantex has identified numerous concerns requiring large capital expenditures which must await Congressional funding approval. For example, several buildings at Pantex, which are of World War II vintage, no longer meet DOE specifications for explosives operations. Pantex has requested that these facilities be replaced as line item entries in their budget requests, however, the majority of those projects have yet to be funded.

1.4.1.7 Accountability of Responsible Persons

The current Pantex Performance Planning and Merit Review System does not include safety and health as an identifiable performance factor on which managers, supervisors and employees are annually appraised. When completing the Merit Review Form (PX-76), it is left to the discretion of the reviewer as to whether or not safety and health will be addressed. If the reviewer chooses to include safety and health in the review, any areas in need of improvement would be addressed in the Performance Review & Assigned Goals section. As such, at present, there is no assurance that responsible persons will be held accountable for the implementation of the Pantex Safety and Health Program.

This deficiency in the Pantex Safety and Health Program was noted during a 1988 audit conducted by the National Safety Council (NSC). In response to their finding, Pantex developed an action plan to incorporate an identifiable element in their Performance Planning and Merit Review System which addresses safety and health. This action plan calls for the modification to the system by November 15, 1989.

1.4.1.8 Review of Program

Specific goals for reducing worksite injuries and illnesses are not currently identified by Pantex. As such, there is no adequate framework upon which to evaluate the effectiveness of the program.

This deficiency in the Pantex Safety and Health Program was also noted during the 1988 audit conducted by the National Safety Council (NSC). Pantex responded to the audit by contracting with NSC to develop a computer program for trend analysis of data acquired by the Safety Department from facility inspections, audits, incident/accident reports, and Workers' Compensation injuries/claims. From this information, annual action plans will be developed for the reduction of workplace injuries and illnesses. These action plans will then be utilized in reviewing the effectiveness of the overall program.

1.4.2 Worksite Analysis

Worksite analysis is necessary not only to identify existing hazards, but also for conditions and operations in which changes might occur to create hazards. Unawareness of a hazard which stems from failure to examine the worksite is a sure sign that safety and health policies and/or practices are ineffective. A proper worksite analysis includes the following: 1) Baseline worksite surveys; 2) Analysis of new and planned operations; 3) Analysis of routine job hazards; 4) Regular site safety and health inspections; 5) A system for reporting of hazards by employees; 6) Investigation of accidents and near-misses; and, 7) Analysis of injuries and illnesses.

1.4.2.1 Baseline Worksite Surveys

Periodic safety surveys are required to be conducted by the Safety Department. The frequency of inspection is monthly, semiannually, or annually as specified in the Pantex Operations Manual. These frequencies have been set based upon the severity of the hazards which are expected to be associated with the various operations. The Industrial Hygiene Department has not been able to conduct wall-to-wall inspections with any frequency due to a lack of manpower. Industrial hygiene inspections are conducted as a result of complaints, special calls or special process evaluations. These inspections would normally cover only a very limited area.

The industrial hygiene staff does not routinely provide hazard characterization of modified processes or formulation changes. For example, the determination as to whether a safety or health review of a process change in the weapons area is needed is left to the judgement of a weapons safety engineer. This lack of review has contributed to at least one known case of an employee becoming sensitized to a chemical. Pantex is in the process of modifying this policy to include a safety and health review for all new processes, modified processes and formulation changes.

The baseline work survey system was also deficient in that airborne monitor-

ing was not conducted as required by OSHA standards. Examples include the lack of initial monitoring for lead for spray painters who use leaded paints and the lack of initial monitoring for vinyl chloride at the plastics shop for the employees who weld PVC. OSHA's lead and vinyl chloride standards require that initial monitoring be conducted in these circumstances.

1.4.2.2 Analysis of New and Planned Operations

Pantex has an established program for safety and health readiness review. It begins with a pre-operation evaluation which is presented to DOE. The review includes input from: facility safety, risk management, fire safety, industrial safety, engineering, industrial hygiene, and radiological health. Once the pre-operation review has been accomplished, weapons safety establishes an Operation and Instruction (O&I) procedure. Upon completion, the O&I is reviewed by the Environmental, Safety and Health Department (ES&H). At this point, testing of the machinery occurs. The design agency is then contacted and the process is run with mock high explosives prior to an actual run. The design agency then participates in the first few actual runs.

1.4.2.3 Routine Job Hazard Analyses

Pantex has only performed Job Safety Analyses (JSAs) on operations in the nuclear weapons area. The Safety Director stated that these JSAs are out of date and he does not rely upon them anymore. The company does establish Operation and Instruction (O&I) Standards for operations in the nuclear weapons area, which they feel are equivalent to JSAs. However, these O&Is are only reviewed and updated every five to seven years, which was attributed to a lack of resources. The Safety Director stated that he is in the process of requiring that a JSA and an ergonomic review be performed for all lost workday incident cases. That program will be put into effect when the safety engineers have received training in ergonomics. Through this system, the Safety Director hopes to eventually establish JSAs for all operations. The establishment of these JSAs will be placed in a priority listing which will be derived from the trend analyses obtained from a new computer program which was brought on line October 1, 1989. In addition to the O&Is, the crafts facilities receive Standard Maintenance Practices (SMI). The SMI is essentially the same as the O&I.

Health hazards are not being addressed in the current O&I system. The O&I is basically an instruction sheet which outlines a step-by-step process for the procedure. The O&I may go so far as to require the wearing of a respirator at a given step in the procedure. However, the specific type of respirator and the appropriate cartridge which should be used are not specified.

The Industrial Hygiene Department attempts to address health hazards through airborne monitoring and noise dosimetry. However, the monitoring is not performed at any specific frequency. New or modified processes are not routinely monitored to establish baseline exposure levels. Due to the lack of personnel in the Industrial Hygiene Department, adequate monitoring of the workplace is not performed; i.e. lack of initial monitoring for lead and vinyl chloride, lack of monitoring for welding on stainless steel, and lack of monitoring for asbestos when a 120 foot length of pipe covered with asbestos-containing insulation was removed from Building 12-17. .

If the Industrial Hygiene Department identifies an excessive air contaminant level, they ensure that appropriate personal protective equipment has been provided to the employees. They would follow this up with additional air monitoring to characterize the exposure as well as the source of the exposure, and would then pursue engineering controls to reduce the employee exposure. However, when excessive noise levels have been identified, rather than pursuing feasible engineering controls to reduce the noise levels, reliance has been placed on the utilization of hearing protection.

1.4.2.4 Regular Site Safety and Health Inspections

The safety Department utilizes a "Safety Inspection Report" (PX 1089) as a checklist for their worksite inspections. The form addresses topics which include: walking and working surfaces, operations safety, guards and shields, material hazards, industrial environment, and personal protective equipment. The PX 1089 did not address the specifics of explosives safety, which is only covered in one heading, "explosives operations".

A review of the completed PX 1089s for June through September of 1989 showed that the vast majority of the forms were simply checked off with no hazards noted. The few items which were noted normally involved non-operational door interlocks on the bay doors or housekeeping. The OSHA assessment team toured many of the same areas for which a PX 1089 had recently been completed and identified numerous hazards which had not been noted. At the time of the assessment visit, there was not a viable system in place for review of the accuracy of the findings noted on the PX 1089s; i.e. on-the-job evaluations, feedback and training. This was attributed to a staffing shortage. However, several positions have recently been filled, which reportedly will allow for the implementation of a review system. In addition, training of the safety engineers in hazard recognition and OSHA regulations and requirements, which will lead to an improvement in the accuracy of the information recorded on the PX 1089s, is on-going.

A copy of each PX 1089 is provided to the Safety Director and the Division Manager. At the time of the assessment visit, there was no program in place to utilize the information contained in the PX 1089 for trend analysis purposes. If the information from the PX 1089 were substantive and accurate,

trend analyses could be documented and appropriate actions could be taken (i.e. training of employees in proper lifting techniques). This shortcoming has been identified by the Safety Department and is being addressed. They have purchased a computer Injury Management System which is being brought on line. The information from the PX 1089s will be entered into this computer program which will then be utilized to conduct hazard trend analyses. As previously mentioned, the accuracy of the information recorded on the PX 1089s is also being addressed.

The Industrial Hygiene Department has not developed a checklist to assist them in the conduct of their inspections. When the department is fully staffed, and wall-to-wall inspections of departments are feasible, such a checklist should be developed.

The DOE Amarillo Area Office has oversight authority over Pantex. The Environment, Safety, Health and Emergency Preparedness Management Branch of this area office has a staff of one industrial hygienist and one safety engineer. Overall safety and health audits are conducted twice each year. A report of findings is prepared which is provided to the plant manager. Abatement dates are set by DOE. A written action plan outlining the proposed corrective actions is required from Mason & Hanger, as well as a final written response when the corrective actions have been accomplished.

1.4.2.5 Employee System for Hazard Reporting

Employees have a number of ways of reporting hazards at Pantex. They can bring the problem to the attention of their supervisor for corrective action, bring the problem to the attention of the safety engineer with responsibility for their area for corrective action, file a grievance with the union, call the Pantex "hot line" operated by the Safety Department, or file a formal DOE complaint. During the course of the inspection, the OSHA assessment team determined that all of these methods are readily available for employee use. Hot line calls are investigated promptly. A response is provided to the caller, if they revealed their identity. If the caller chose to remain anonymous, a response is published in the Cracker Barrel (the Pantex monthly news letter).

Discussions held with representatives of The Metal Trades Council revealed that, in general, safety and health concerns brought to Mason & Hanger's attention are resolved on a timely basis. One exception to this involved potential employee exposure to depleted uranium and heavy metals during a weapon teardown operation conducted in February of 1989 (as well as all prior teardown operations conducted on the same weapon system, or similar systems). The Metal Trades Council was not satisfied with Mason & Hanger's response to this incident, and wrote a letter to The Secretary of DOE requesting DOE's assistance in receiving a satisfactory response. In general, the concerns revolved around the time delay between the discovery of the

potential employee exposures and the availability of whole body counts and blood lead analyses for the affected employees. This issue was still being resolved at the time of the OSHA assessment team's visit. However, the OSHA assessment team conducted an investigation of the union's concerns and their findings are presented in section 5.6.

1.4.2.6 Investigation of Accidents and Near-Misses

Pantex investigates accidents meeting the following criteria: 1) any occupational injuries and illnesses; 2) any incidents involving a "near miss" or damage to high explosives; 3) any unusual exposure to or uptake of radioactive material, chemicals, solvents, dusts, mists, fumes or gases; 4) any occurrence, accident or incident occurring during operations with nuclear explosives; 5) all close call occurrences which could have resulted in personnel injury or property damage; 6) any spill, loss, discharge, or unusual emission of radioactive materials, chemicals, waste materials or any other material which might be hazardous to personnel or the environment; 7) any vehicle accident; and 8) any fire or evidence of fire.

At the time of the OSHA assessment team's visit, the PX-499s were manually tracked by the Safety Department. This system resulted in at least one finding not being followed up. On July 24, 1986, two nitrogen gas transmission lines composed of PVC piping failed/ruptured. The Pantex Safety Department conducted an investigation of this incident and in their report stated that PVC piping could not be utilized for nitrogen gas transmission lines (in accordance with ANSI B31.8) and oxygen monitors should be installed in areas where an undetected or large gas leak could result in the displacement of atmospheric oxygen to less than breathable limits. Their report passed through the Safety Director, the Division Manager, S&FP, and was sent to Plant Engineering, with copies to Manufacturing Engineering, Quality, Development and Manufacturing, however, at the time of the OSHA assessment team's visit, PVC piping was still utilized for nitrogen gas transmission lines and oxygen monitors had not been installed in the building specified in the report (or other similar areas). This situation constituted a violation of OSHA's general duty clause, Section 5 (a)(1) of the OSHAct, and was categorized as "willful" because the inadequacies were noted and reported by the Safety Department, however, corrective actions were not taken.

The Safety Department is in the process of addressing the inadequate tracking system for the PX-499s. The information from the PX-499s will be entered into the computer program which was purchased from The National Safety Council. The responses to the PX-499s will then be tracked through the computer program. A PX-499 will not be closed until an adequate response has been received.

1.4.2.7 Analysis of Injuries and Illnesses

The Department of Energy has not adopted OSHA's requirement for recording occupational injuries and illnesses contained in 29 CFR 1904. DOE order No. 5484.1 outlines recordkeeping requirements for GOCO sites. This order requires preparation of an Individual Accident/Incident Report (DOE F 5484.X) for each recordable injury or illness. Pantex has substituted their own form, PX-10, First Report of Injury or Illness, for the DOE form. Comparison of this form with the OSHA regulations revealed that it is functionally equivalent to the OSHA 101, First Report of Injury or Illness. DOE Order 5484.1 also requires that the OSHA 200 and/or OSHA 100F logs be maintained at DOE contractor sites.

In determining the recordability of injuries or illnesses, the Department of Energy follows the "DOE Guide to the Classification of Recordable Accidents" (DOE-76-45/7A-SSDC-7B) published in January of 1987. These DOE requirements parallel the OSHA recordkeeping booklet "Recordkeeping Guidelines for Occupational Injuries and Illnesses", which was effective in April of 1986. There were only two instances found where the DOE guide and the OSHA recordkeeping booklet conflicted. These were: 1) for DOE recordkeeping purposes, a butter fly bandage is classified as a first aid treatment, whereas under OSHA recordkeeping guidelines, it is classified as a medical treatment and is therefore a recordable incident; and 2) for DOE recordkeeping purposes, the administration and use of prescription drugs is not recordable if they were administered as a preventative medicine, a diagnostic medicine that revealed no injury or illness, or for symptomatic relief (pain relievers), whereas under OSHA recordkeeping guidelines, the use of a prescription drug beyond a single dose is recordable. The definitions of restricted activity and the definition of the recordability of illnesses are the same under DOE and OSHA recordkeeping guidelines.

The Pantex Safety Department maintains the DOE form as well as a variant of the OSHA 200 form (only one column was provided for illnesses - information concerning the type of illness, i.e. respiratory conditions due to toxic agents, which is important for tracking trends, was not included). At the time of the OSHA assessment team's visit, it was the responsibility of the Medical Department to determine whether or not an injury/illness was occupationally related. When they could not make this determination, the injury/illness was classified as "undetermined". In general, once a case had been designated as "undetermined", it remained so, because there was no guarantee that a follow-up would be conducted to determine whether or not it actually was occupationally related. In such instances, the injury/illness would not be recorded. In addition, an injury/illness which resulted in a restriction being placed on an employee by the Medical Department was not always recorded as a case involving restricted activity. In such cases, the employees' supervisor was contacted and asked if the restriction placed on the employee would restrict them from performing all of their work activities. If the supervisor responded negatively, the case was not recorded.

However, there was no follow-up conducted to determine whether or not the employee really would have been restricted in their work activity.

Due to the large size of the Pantex facility, the volume of medical treatment records, and the limited time provided for on-site inspection activity, the OSHA recordkeeping review was limited to a review of Pantex' recordkeeping practices over a three month period (July, August and September of 1989). During this period, Pantex recorded 21 instances (occupational injuries and/or illnesses) on their injury and illness log. As a result of the OSHA assessment team's review, it was determined that 34 cases of recordable instances were not entered on the log. Many of the non-recorded instances involved restricted activity and/or medical treatment. Only one instance was discovered where lost time occurred and the instance was not entered on the log. Some of the instances which were not entered on the log were listed as "undetermined" as to the cause (occupational or non-occupational). As previously stated, when a case is listed as "undetermined", it normally will remain in that status. A determination is not made to verify whether the case is occupationally related or non-occupationally related, and therefore, the case is not recorded. It should be noted, however, that these "undetermined" cases comprised only a small percentage of the total instances which were determined to have not been properly recorded.

Because of the poor recordkeeping system/practices found at Pantex, a lost workday incident rate could not be determined by the OSHA assessment team.

In 1988, Pantex contracted with the National Safety Council (NSC) to perform an audit of their safety and health program. Their evaluation was performed during the period between September 26 and October 5, 1988. As a result of their audit, several recommendations were made, including one to establish a recordkeeping system whereby trend analysis could be performed. The NSC then established a computerized trend analysis program for Pantex to measure the effectiveness of the root cause determinations and recommendations, and to provide comparison data for accident loss history for each work area or facility. The new system also calls for a job safety analysis and ergonomic analysis for each lost time injury case. With the implementation of this system, safety objectives for injuries and illnesses will be established for the following year in the form of an action plan.

In addition to the computerized system of data collection, the NSC also provided Pantex an extensive Accident/Illness Investigation Report - PX-271 (10/89). Pantex has requested that DOE allow them to utilize this form in place of their PX-10. The Safety Department believes that the utilization of this form will provide for more data collection and for an improved analytical evaluation of the incidents.

The systems developed by the NSC, which parallel recommendations the OSHA assessment team would provide based on their analysis of the present system

utilized at Pantex, are presently being implemented.

1.4.3 Hazard Prevention and Control

Hazard prevention and control is the ultimate goal of the safety and health program. An effective program includes provisions for the systematic identification, evaluation and prevention or control of general workplace hazards, specific job hazards and potential hazards which may arise from foreseeable conditions. An effective program relies on means for prevention or control which provides the best feasible protection of employee safety and health. Although compliance with the law, including specific OSHA standards, is an important objective, an effective program looks beyond specific requirements of the law to address all hazards. It will seek to prevent injuries and illnesses whether or not compliance is at issue.

A program need not be reduced to writing to be effectively implemented, but as the size of the worksite and/or complexity of the hazardous operation increases, so does the need for written guidance. A written program ensures clear communication of policies and priorities plus constant and fair application of rules. Areas that need to be addressed in this program include: 1) Engineering controls; 2) Work practice controls; 3) Personal protective equipment; 4) Administrative controls; 5) Preventive maintenance; 6) Emergency planning and preparedness; and 7) Medical and first aid.

1.4.3.1 Written Safety Policies and Procedures

Pantex has established a comprehensive array of written policies and procedures for various plant operations which have been formulated to ensure a safe and healthful workplace. The policies and procedures, in the form of standards, can be found in the Safety Policy, Programs and Organization Manual. They cover topics such as: confined space entry, lockout procedures, respiratory protection program, safe work practice permit system, etc.. This manual is administered by the Safety Department.

A few of the written policies and procedures were noted as being deficient. For example, the written Hazard Communications Program did not outline the methods that would be used to notify other contractors on the site of the identity of the chemicals being used at the worksite, the location of the Material Safety Data Sheets, or specifics on the labeling system utilized at the site. Also, the written Asbestos Program called for the removal of entire lengths of pipe by the use of glove bags at staggered locations along the pipe to allow for the cutting and removal of the pipe in ten foot sections (which could then fit into their truck for disposal). This method is only acceptable, in accordance with the OSHA asbestos standard for construction, if: 1) the entire length of pipe is removed in one section

utilizing only two glove bags (to remove the asbestos insulation from the ends of the length of pipe where cuts will be made); 2) when more than one section of pipe will be removed, if negative-pressure enclosures are constructed and utilized to enclose the operation; or, 3) continuous negative pressure glove bags are utilized. In addition, the written program for confined space entry did not establish specific actions that need to be taken in a dynamic (subject to change) confined space environment (i.e. sewers and sewer lifts). A specific action that calls for the use of continuous ventilation and continuous monitoring of the confined space should have been included in the written program.

In addition, the OSHA assessment team's review of these policies and procedures revealed a lack of established programs in a number of traditional industrial safety areas, such as machine safeguarding and walking and working surfaces. The lack of established policy in these areas is clearly reflected by the type and number of OSHA violations discovered during the course of the assessment.

Each department is responsible for maintaining a copy of the Safety Policy, Programs and Organization Manual. The OSHA assessment team performed random spot checks during the course of the inspection to verify the presence of the manual, and in each department checked, a current copy of the manual was available.

1.4.3.2 Engineering Controls

It is Pantex plant policy to provide engineering controls to protect employees against safety and health hazards. It appears that, in general, this policy is being followed throughout the facility. However, this observation is based on limited information in that, during the course of this inspection, the OSHA assessment team only observed Pantex employees performing limited activities as a result of a lack of orders, lack of supplies, a normal slow down which usually occurs at the beginning of every fiscal year, and what was perceived to be an intentional slow down for the duration of the Tiger Team's visit. The lack of activity can be measured by the fact that the OSHA assessment team conducted employee exposure monitoring at only one location in the entire plant (during normal levels of activity, it would be expected that additional exposure monitoring would have been conducted).

Local exhaust ventilation was utilized extensively to reduce employee exposure levels by capturing the air contaminant at the point of origin. Although the OSHA assessment team did not observe normal work activity, and therefore, was unable to conduct employee exposure monitoring to document employee exposure levels, in general, the local exhaust ventilation provided appeared to have sufficient capture velocities to reduce employee exposures to within allowable limits. The flow rates of the exhaust systems are checked periodically to ensure their continued effective operation. A

label is attached to the exhaust system listing the flow rate and the date of the testing. In addition, all spray painting was performed in spray booths designed for such operations.

However, there were several areas where the design of the local exhaust system did not meet the recommended construction and design criteria as outlined in the American Conference of Governmental Industrial Hygienists (ACGIH) ventilation manual. It is DOE policy, as outlined in the DOE Explosives Safety Manual, DOE/EV/06194, December 1988, Chapter 10, paragraph 10.2, that "exhaust ventilation and collection systems for control of explosives dust and materials associated with explosives production shall be designed to meet minimum requirements established in the ACGIH ventilation manual". In paragraph 10.3, "Dust Collection Systems", it states that "pipes or ducts through which explosives are conveyed shall have long radius at least four times the diameter of the duct or pipe". In buildings 12-19 and 12-63, local exhaust ventilation systems were installed that did not meet this design criteria. In addition, other ventilation design flaws were noted: several local exhaust ventilation systems were constructed wherein two branch ducts entered the header (main exhaust duct) at the same point (branch ducts entered the header across from each other); and in building 12-19, the inspection ports on horizontal runs of the local exhaust ventilation system connected to the dual drum drier were located at the top of the ductwork within a few inches of the ceiling, such that they could not be accessed for inspection of the interior of the ductwork.

Asbestos removal projects at Pantex, performed by Pantex employees, have been limited to small-scale removals of asbestos from pipes (i.e. to access a valve which is being replaced), and to the removal of entire lengths of pipe. When removing an entire length of pipe, it has been plant policy to remove small sections of asbestos insulation, by the use of glove bags (which are not designed to maintain a negative-pressure within the glove bag), at ten foot intervals along the pipe. Once this asbestos removal was accomplished, the pipe fitters would use a pipe cutter and cut the pipe into ten foot sections which would then be removed from the facility. This procedure does not comply with OSHA requirements. The OSHA construction standard for asbestos, 29 CFR 1926.58, which established requirements for the removal of asbestos, requires the use of a negative-pressure enclosure, unless the removal meets the definition of a small-scale, short-duration operation. One operation which meets this definition would be the removal of an entire length of pipe, in one section, utilizing only two glove bags (to remove the asbestos insulation from the ends of the length of pipe where cuts will be made). The removal of an entire length of pipe by means of cutting the pipe into multiple sections would not be defined as a small-scale, short-duration operation. As such, this type of asbestos removal would have to be conducted within a negative-pressure enclosure. This could be accomplished by two methods: 1) a negative-pressure enclosure could be constructed which totally encloses the operation (the entire length of pipe and work area); or, 2) the entire length of pipe could be removed in multi-

ple sections as conducted by Pantex employees, if glove bags which have been designed to maintain a continuous negative pressure within the glove bag are utilized when removing the sections of asbestos insulation (this type of glove bag meets the requirement for establishing a negative-pressure enclosure pursuant to 29 CFR 1926.58(e)(6), provided that all of the other provisions of the construction asbestos standard are met). The company is currently in the process of updating their procedures to conform to OSHA requirements.

Upon notification that a carbon monoxide alarm was required in two locations where air-supplied abrasive blasting respirators were being used, the Industrial Hygiene Department ensured that the operation was discontinued until an alarm could be purchased and installed.

The Industrial Hygiene Department, through their routine monitoring, identified employee exposures to beryllium during clean-up operations at Firing Site #23 (FS-23), the "Silver Bullet", which were in excess of the OSHA permissible exposure limit. Exposure to airborne beryllium can result in a cumulative lung damage disease, known as Berylliosis. Beryllium is also a suspect carcinogen. Their immediate response was to ensure that the employees were provided and required to wear appropriate personal protective equipment. Following this action, they attempted to find a long-term solution. This resulted in a decision to construct a permanent decontamination chamber which would be directly attached to FS-23. This decontamination chamber was under construction at the time of the OSHA team's assessment visit (during a period in excess of one year when FS-23 was not in use). After the construction is completed, and FS-23 is put back into service, the Industrial Hygiene Department will remonitor for beryllium to determine the effectiveness of the decontamination chamber in reducing employee exposure levels. If employee exposure levels to beryllium are still in excess of OSHA's permissible exposure limit, an attempt will be made to identify further engineering controls, which would then be instituted.

However, Mason & Hanger was deficient in the utilization of engineering controls in that the systematic identification, evaluation and control of hazards posed by unguarded machinery, walking and working surfaces, and fixed electrical equipment has not received the attention it should. The OSHA assessment team found numerous problems in these areas during the course of the walkthroughs conducted throughout the facility. The Pantex plant has failed to develop a comprehensive policy for addressing these types of hazards and those responsible for assuring that this equipment meets OSHA standards are unaware of what is expected of them in this regard.

1.4.3.3 Work Practice Controls

Pantex has developed a safe work permitting practice program. The purpose of this program is to assure that all hazards associated with a job have been

identified and that appropriate methods of abatement will be used. The program establishes and requires the use of a Safe Work Practice Permit to meet this goal. The employees have been trained pertaining to this requirement, as well as to identify conditions for which a Safe Work Practice Permit would be necessary.

A Safe Work Practice Permit is required for confined space entry (PX-1188), digging, trenching or excavation (PX-580), electrical facility safe clearance (PX-430), work involving power-actuated tools, work performed on equipment or components that are leaking PCBs, work on radiation producing equipment, work involving the removal of asbestos, and work involving lock-out/tag-out. Each Safe Work Practice Permit must be secured through the Safety Department. A safety engineer is required to inspect the work location and specify precautions to be taken and personal protective equipment to be used, in order to assure that the work can be done safely.

Most Safe Work Permits are required by the Crafts Department. The need for such a permit is included as part of their Standard Maintenance Instruction (SMI). Supervisors received a one-time training session on recognizing confined spaces and the requirements for entry into those spaces. In-plant confined space situations were reviewed during this training. Safety engineers (permitters) receive confined space training annually.

Some deficiencies were noted with regards to the confined space entry practices under the work permitting system. Prior to entering a confined space, a safety engineer is required to evaluate the conditions and perform monitoring of the air inside of the confined space. Although initial monitoring for oxygen deficiency and flammable gases is conducted for all confined space entry projects, the time period between atmospheric readings and the actual confined space entry can be as long as eight hours, the time frame for which a signed permit is valid. The use of continuous monitoring and/or continuous mechanical ventilation is not required by Pantex' confined space program, but rather, is left to the discretion of the permitter (safety engineer). For conditions where the environment in the confined space is subject to change (i.e. sewer lifts), if the permitter (the safety engineer) chooses not to utilize continuous monitoring or continuous mechanical ventilation, a hazardous atmosphere may develop within the confined space within the time period between the atmospheric readings and the actual confined space entry. This situation could result in an employee entering a confined space containing an IDLH (immediately dangerous to life or health) atmosphere. In addition to the previously stated deficiency, during most confined space entries, adequate means for a quick removal of an employee from the confined space (i.e. a tripod equipped with a winch) are not provided, although the employee entering the confined space is equipped with a harness. Instead, the Fire Department is notified prior to an employee entering a confined space. In the event of an accident, the stand-by worker is required to call the Fire Department, who would then respond and effect the rescue. Since the Fire Department's response time could be five minutes

or longer, this procedure would not be adequate (an employee would have to be rescued from an oxygen deficient atmosphere in well less than five minutes to have a chance of avoiding permanent brain damage or death).

Problems were noted with the electrical lockout procedure as well. Several instances were found where the need for lockout procedures was not realized. For example, a main power lockout program was not in place in the Formulation Department (Building 12-19) for employees performing cleaning operations on all machinery and equipment.

These work practice procedures need to be upgraded to meet OSHA's Final Rule on Control of Hazardous Energy Sources (Lockout/Tagout), 29 CFR 1910.147, which goes into effect on October 31, 1989, as well as the proposed rule on Permit Entry Confined Spaces (54 FR 24080). National consensus standards, such as NFPA 70E and ANSI Z117.1-1977, as well as NIOSH documents should also be consulted for background information when these programs are revised.

Due to the changing conditions that can be encountered in confined space entry work, the OSHA assessment team recommends that continuous monitoring, mechanical ventilation, or both should be done depending on the potential hazards involved. In addition, positive lockout and/or other means of control will need to be uniformly instituted for mechanical, hydraulic, pneumatic and electrical energy sources while maintenance work is being performed.

As failure to perform maintenance work without the proper safeguards in the form of appropriate work practice controls has resulted in many fatalities and serious injuries to employees, general duty clause violations (Section 5 (a)(1) of the OS&H Act) were prepared for the deficiencies noted in this program as no OSHA standard was in effect at the time of this assessment. General duty clause violations would also have been issued for the deficiencies noted in the confined space entry program, however, the OSHA assessment team could not document that a confined space entry of concern had occurred within a six month time period prior to their assessment visit.

1.4.3.4 Personal Protective Equipment

The basic personal protective equipment used in the facility consists of safety glasses without side shields, gloves, safety shoes and work uniforms. Other protective gear is utilized on an as needed basis for specific operations. Respirators are used by employees in various operations throughout the facility. All respirator users undergo a quantitative fit test annually, and asbestos workers are fit tested every six months. All employees who wear a full-face respirator (PAPR and SCBA users) are also provided with fit testing for the facepiece being utilized. The company provides the user a clean respirator once per month. In the interim, the employee is supposed to

use respirator sanitary wipes to clean their respirator.

Several respirator deficiencies were noted. They include: lack of regular cleaning (many employees did not clean their respirators after each use, their respirators were only cleaned monthly), improper respirator storage, inappropriate surveillance of work area conditions, and the lack of frequent random inspections. Other personal protective equipment deficiencies included the lack of eye protection or the use of inadequate eye protection, and the failure to wear gloves when exposed to potentially infectious blood and other body fluids.

A good glove selection program is in effect at the facility. All employees who are issued a respirator or wear hearing protection are provided training for the protection being utilized.

1.4.3.5 Administrative Controls

The Pantex facility has established an administrative control program wherein they have attempted to reduce employee exposures to toxic materials by substituting for those materials with less toxic substances. The company has worked hard to find a substitute for Methylene-bischloroaniline (MOCA) which was used in the production of solid elastomeric parts. MOCA is a suspect human carcinogen. The company has recently substituted for MOCA with a less toxic substance.

Another example of the utilization of administrative controls occurred during the OSHA assessment team's inspection. It was determined, by OSHA, that some paints being used by Pantex contained lead. The OSHA assessment team attempted to conduct personal monitoring to determine employee exposure levels to lead while spray painting with the leaded paints, however, Pantex immediately terminated their use of those paints and purchased non-leaded paints (therefore, substituting a less hazardous material).

In addition, upon notification that noise monitoring showed that employees would be exposed to noise levels in excess of the OSHA allowable limit if a particular grinding operation were to continue for more than two hours, the Industrial Hygiene Department immediately initiated action to limit the time of exposure to less than two hours.

However, Pantex failed to apply proper administrative controls for employees in Building 12-41 who are exposed to a heat stress hazard, in that they are required to work while wearing rubber protective gear which impedes the body's natural sweat mechanism. The company established a two hour exposure time limit for which the employees were allowed to work without being removed from the environment. The supervisor noticed that one employee looked ill after one work period and stopped the operation. The company then reduced the allowable exposure time limit to one hour. During a sub-

sequent work period, one employee passed out from heat exhaustion. The company then reduced the allowable exposure time limit to one-half hour. Pantex did utilize administrative controls for this operation (reducing the time of exposure), however, they did so after the fact, in a reactive and uninformed manner. Pantex should have been proactive and performed a heat stress evaluation prior to requiring the use of the additional protective gear. They would then have been able to set an informed, scientifically calculated heat exposure limit.

1.4.3.6 Preventive Maintenance

Pantex has a written preventive maintenance program for the impedance testing of 115 volt AC electrical receptacles to comply with OSHA standard 29 CFR 1910.400. Checks are conducted of all 115 volt AC electrical receptacles for proper polarity and impedance when a facility (building) is turned over to Pantex upon completion by the Corps of Engineers. The only other testing of the 115 volt AC electrical receptacles is when an outlet is changed out, modified, or repaired. In light of the findings of the OSHA assessment team (the large number of 115 volt AC electrical receptacles which were determined to have a high impedance to ground or which were determined to have reversed polarity, for example, all of Building 11-50, a high explosives machining area), the extent and frequency of this preventive maintenance program should be reviewed. Frequent checks of this equipment should prevent the majority of the violations noted by the OSHA assessment team.

Pantex also has a written preventive maintenance program for annual inspections of overhead cranes and hoists throughout their facility. This equipment is inspected, tagged, and records of the inspection are maintained by the Preventive Maintenance Department. However, the OSHA assessment team noted that monthly inspections of crane hooks and running ropes were not conducted in accordance with OSHA requirements. The preventive maintenance system needs to be amended to include these inspections.

The OSHA assessment team noted other deficiencies in the Pantex preventive maintenance program. The Preventive Maintenance Department has a requirement that the pressure settings of the safety relief valves (SRVs) on the liquid nitrogen storage tanks and lines be inspected annually. However, there were numerous SRVs which had not been inspected in years (apparently due to the fact that the users would not allow the tanks to go empty, which is required to remove the valves for the inspection). The Preventive Maintenance Department did not have a requirement to PM (conduct preventive maintenance) the temperature controller for the high temperature alarm associated with the reactor vessels located in the Synthesis Plant. Since this temperature controller is of extreme importance to the safe operation of the Synthesis Plant, it should receive periodic preventive maintenance to ensure its effective operation. The Preventive Maintenance Department also did not have

a requirement to inspect the pressure settings of the safety relief valves (SRVs) located on the steam lines which serve to heat the reactor vessels in the Synthesis Plant. Since these SRVs are intended to serve as a redundant control for the safe operation of the Synthesis Plant, this type of periodic PM should be conducted.

Pantex should ensure that all required preventive maintenance is conducted (i.e. for the SRVs on the nitrogen system). In addition, the entire preventive maintenance system should be reviewed to ensure that all equipment which is of a critical nature to the safe operation of the facility has been included in the preventive maintenance program.

1.4.3.7 Emergency Planning and Preparedness

Pantex has a written Emergency Preparedness Plan. There are five individuals on staff whose sole function is to maintain readiness. There are three levels of the emergency organization. These are: 1) Emergency Operating Center (Command Center), where DOE representatives, the plant manager, the industrial safety head, logistics personnel, and security would coordinate the action in the event of an emergency; 2) Field Control Group, who are the coordinators in the field; and 3) The Radiological Assistance Team (RAT), who are the workers. All three levels are guided by specific instructions.

Pantex also has an emergency hazardous waste response team which is comprised of approximately 150 workers. Appropriate supplies (personal protective equipment) are maintained in a trailer which is located adjacent to the Industrial Hygiene Department. The Fire Department serves as back-up members and are activated in the event that emergency rescue would be needed.

A specific area of the on-site medical facility is designated for Emergency Planning and Preparedness. In addition, the basement of a local hospital is set up for treatment of casualties during a radiological emergency.

The Pantex Fire Department provides 24 hour service, 7 days per week. The Fire Department is responsible for providing ambulance service for plant injuries and illnesses, and full-time fire fighting response capabilities. The Fire Department has responded to approximately 270 calls to date. The Pantex Fire Department has a memo of understanding with the Amarillo Fire Department and the Randall County Fire Department.

The Fire Department has 34 full-time employees, divided into three rotating shifts. The department has one full time Fire Inspector on an 8 hour per day, 40 hour per week schedule, in addition to fire fighters who are used for fire inspections on an as needed basis. The Fire Inspector has conducted 210 fire inspections and the fire fighters have conducted 93 fire inspections this year.

Fire department equipment consists of two ambulances, three pumpers and a heavy duty rescue vehicle. Fixed plant facilities include many sprinklered buildings, fire hydrants and a water supply system as follows: all water for the Pantex system is produced from five groundwater wells located in the northeast quadrant of the plant property; seven water storage reservoirs are used in the water distribution system; two booster stations serve the plant water system; and two fire pump stations supply high pressure fire loops in Zones 11 and 12.

Fire alerting to the Pantex Fire Department is by manual pull alarms, smoke detectors, water flow alarms, and by calling 3333, the fire emergency number which can take two fire calls simultaneously.

The State of Texas will not certify industrial fire fighters. In lieu of this, Pantex has established fire education in accordance with N.F.P.A. 1001, which consists of a firefighter program of 120 hours training. All Pantex firefighters have attended this course. The Pantex Fire Department conducts fire drills on all facilities at Pantex at least annually. Approximately 90 fire drills have been conducted this year.

1.4.3.8 Medical and First Aid Programs

The Pantex health care facility, Building 16-2, is staffed with one licensed physician and five nurses. The physician and nurses work the day shift from Monday through Friday, since Pantex normally only operates one production shift. Maintenance employees work on the weekends and there are a few isolated operations that work on second shift. During the weekend and at nights, medical coverage is provided by fire department employees who are EMT's. There is always an EMT available at nights and on the weekend.

The health care facility provides preplacement and annual physicals to all Pantex employees. These physicals include: spirometry; blood analysis; EKG; audiograms; blood pressure testing; height; weight; vision checks; a psychological test; and, during the preplacement physical, a weight lift test. An audiometric testing facility is located in the health care facility. Annual audiograms are provided to all Pantex employees. The audiograms are being conducted in accordance with the OSHA requirements.

The Pantex Medical Department had not established an infection control policy at the time of the OSHA assessment team's visit. The Medical Department was in the process of establishing the policy under its new director. The previous director did not believe that such a policy was necessary. Several hazards were noted involving the nursing staff, who were exposed to the hazard of direct contact with potentially infectious blood and other body fluids. The deficiencies noted included: no hepatitis B vaccinations were offered to the nursing staff; no follow-up procedures after possible

exposure to HIV/HEV were established in accordance with the Center for Disease Control (CDC) guidelines; protective gloves were not utilized by all nurses when they were exposed to the hazard of direct contact with potentially infectious blood; and biological hazard tags were not used to identify the potential presence of a biological hazard (infectious blood). The Fire Department (emergency ambulance team) initiated their own infection control program. The EMT's were provided hepatitis B vaccinations, they now utilize surgical gloves and they now have demand valve resuscitators which eliminate the need for mouth-to-mouth resuscitation.

1.4.4 Safety and Health Training

Education and training are needed for communicating practical understanding of the requirements of effective safety and health protection to all personnel. Without this understanding, managers, supervisors and employees will fail to perform their responsibilities for effective safety and health protection. Hazard information that needs to be communicated to employees includes: general hazards and safety rules of the worksite; specific hazards; safety rules and practices related to particular work assignments; and the employees' role in emergency situations.

Effective training of supervisors will address their safety and health management responsibilities as well as information on hazards, hazard prevention, and response to emergencies. Managers must understand both the way and extent to which effective safety and health protection impacts on the overall effectiveness of the business.

However, training in and by itself is not sufficient to ensure practical comprehension. Some means of verification is also required. Formal testing, oral questioning, observation and other means are useful in determining whether required training is understood.

1.4.4.1 Employee Training

There are a number of formal employee training programs in effect at Pantex. Those which are required under OSHA standards are discussed below.

1.4.4.1.1 Hazard Communication

Employees have received training in the requirements of OSHA's Hazard Communication Standard. This training consists of two elements, training conducted by The Education and Training Department and training conducted by the first-line supervisors. The Education and Training Department conducts an initial four hour training session which consists of a series of slides, classroom discussions and proficiency exams. Annually thereafter,

they conduct a one hour refresher training session in which one particular hazard will be highlighted, for example, reactive chemicals. These training sessions provide the employees information concerning: 1) "Right-to-know" regulations; 2) information found on Material Safety Data Sheets; 3) the Pantex hazardous warning labeling system; and 4) points for safe handling of hazardous chemicals. This portion of the training program appears to be effective in relaying the listed information to the employees.

The first-line supervisors are required to supplement the training provided by The Education and Training Department by providing training to the employees on the physical and health hazards of the particular chemicals in the employees' work areas. It is at this point that the system breaks down. In numerous locations throughout the Pantex facility, employee and management interviews revealed that this training consisted of informing the employees where the Material Safety Data Sheets were located and telling them that they should read them. As such, employees in general did not have a true understanding of the physical and health hazards of the chemicals in their work area.

The OSHA assessment team considers the training for OSHA's Hazard Communication Standard to be lacking as it pertains to the physical and health hazards of the particular chemicals in the employees' work areas. A system must be instituted to ensure that this information is relayed to the employees. This deficiency had been noted during a safety and health audit conducted by The National Safety Council in 1988. To Mason & Hanger's credit, the Industrial Hygiene Department is in the process of filling a position which will primarily be responsible for ensuring that this specific training is provided.

1.4.4.1.2 Respirator Training

All employees who are required to wear a respirator at any time are included in a respiratory protection program, which includes annual training. The training program consists of viewing a video tape entitled "Respirators for Health and Safety (1978)", and an opportunity to try on various respirators during the annual quantitative fit testing. The video tape is 13 minutes long and covers the types of hazards for which respirators can be used, the different types of respirators (i.e. half-mask and full-face), how to perform positive and negative pressure fit tests, and how to disinfect and store the respirator. The inspection of respirators and the need for cleaning of the respirators after each use was not covered in this video tape.

This deficiency in the respirator training program resulted in improper cleaning and inspection of the respirators. The employees were required to hand in their respirators once per month, at which time, the respirators would be adequately cleaned and inspected. However, in numerous instances, this was the only time the respirators were cleaned and disinfected. The

employees should be properly trained in the need for cleaning and inspecting their respirators after each use, which should alleviate this problem.

SCBA (self-contained breathing apparatus) training is performed in a formal setting through the Pantex Education and Training Department. The course entitled "SCBA Training" is 3 hours long and covers donning of the apparatus, personnel use and inspection, removal of the SCBA, cleaning and sanitation, and storage of the SCBA. In addition, an 18 minute video is shown which covers the complete use and general care of the MSA 4500 II SCBA (the model which has been selected for plant-wide use). This training program was established on July 18, 1989. A total of eighty-eight employees have completed the training course. This represents approximately one-third of the planned total number of employees who will be provided this training. Employees are not required, and in fact are forbidden, to utilize an SCBA until they have received this training. Retraining of the individuals on SCBA use has not been addressed at this point.

The Fire Department conducts SCBA training for its own employees and the twelve volunteer fire brigade members. The firefighters are required to visually inspect the SCBA's daily and to annotate this visual inspection on their daily vehicle checklist. Once per month, and after each use, a complete manual inspection of the SCBA's is conducted. During this inspection, all hoses, belts and warning alarms are to be checked to assure their proper operation. Every six months the firefighters are required to don an SCBA in less than one minute and then enter a smoke test chamber. The volunteer fire brigade members receive training quarterly which includes SCBA training.

1.4.4.1.3 Multi- and Single Piece Rims

All garage attendants and mechanics working in the vehicle maintenance shop receive initial and annual training in the hazards associated with servicing multi- and single piece rims, which is conducted by The Education and Training Department. Topics covered include proper deflating, demounting and mounting of tires, how to use the rim manuals, use of restraining devices and the need to stay out of the trajectory path during inflation of the tire and inspection afterward. Employee interviews confirmed the adequacy of this training.

1.4.4.1.4 Fire Brigade and HAZMAT Training

Pantex has a written policy which establishes a fire brigade which includes the basic organizational structure, as well as the type, amount, and frequency of training for the fire brigade members. Training and education of the fire brigade members has been provided. It includes quarterly training in fire fighting techniques and emergency procedures. The captain, who

conducts the training, has had additional training in fire management, so as to enable him to provide quality training to the fire brigade members. Several of the fire brigade members have received additional training which was provided by Texas A & M University within the past year.

The State of Texas will not certify industrial fire fighters. In lieu of this, Pantex has established their own fire education program which follows the requirements contained within N.F.P.A. 1001, Fire Fighter Professional Qualifications. This program consists of 120 hours of training, which includes video tapes, hands-on training and field training. All Pantex firefighters have attended this course.

Pantex does not have a HAZMAT team and therefore such training is not applicable.

1.4.4.1.5 Asbestos

The pipefitters in Zone 12 perform the asbestos removal operations within the facility (usually involving pipe lagging). Prior to August of 1989, the only training that these employees received was a one to two hour session conducted by a member of the Industrial Hygiene Department. Also, prior to August of 1989, a "competent person" (as defined in the OSHA asbestos standard for construction, 29 CFR 1926.58) was not available during asbestos removal operations.

In August of 1989, Texas A & M University conducted a twenty-four hour training course for Pantex employees. Upon completion of the course, 24 employees received state certification in asbestos removal. Another training session is scheduled for the near future. Plans call for Texas A & M University to conduct training annually. In addition, two Pantex management employees participated in a 40 hour EPA approved training course conducted by Texas A & M University which qualified them to be a "competent person". Pantex is in the process of revising their asbestos control policy to include the above training plans.

1.4.4.1.6 Hazardous Waste

Pantex has established an emergency response team which includes approximately 150 employees. All of the team members were required to participate in a 40 hour hazardous waste course which was provided through Texas A & M University's Continuing Education Department. This course was provided in 1988. In 1989, an annual 8 hour refresher course was provided, again by Texas A & M.

OSHA's Interim Hazardous Waste Operations and Emergency Response standard, 29 CFR 1910.120, requires that training for handling off-site

emergency responses (the type the Pantex emergency response team would respond to) involving hazardous waste be conducted on a monthly basis and shall be at least 24 hours annually. The training provided to the Pantex emergency response team did not meet this requirement.

However, it should be noted that on March 6, 1990, OSHA's final rule on Hazardous Waste Operations and Emergency Response takes effect. This standard requires different levels of training for responders of an emergency response organization depending on the role they play in the emergency response. Pantex should review this standard to assure these training requirements are being met when emergency response training is conducted. The OSHA assessment team recommends that the number of employees included in the emergency response team be reduced to allow for a more manageable training program. For example, the emergency response team could be formatted to parallel the current Radiological Assistance Team (RAT).

Pantex does not currently have a HAZMAT team. The hazardous waste emergency response team will be utilized to perform emergency clean-up of spills. Several above ground acid storage tanks located on the property necessitates the requirement for such a team.

1.4.4.1.7 Hearing Conservation

Employees exposed to noise in excess of 85 decibels are included in the Pantex hearing conservation program. One element of a hearing conservation program is employee training. Employees who are in the program are required to watch a video tape which covers the effects of noise on hearing, hearing protectors, and audiometric testing before they are issued hearing protection. The training program is conducted annually. During the OSHA assessment team's visit, employees were observed wearing the hearing protection which was provided.

1.4.4.1.8 Forklift Truck Operations

Pantex requires that the following criteria be met before an employee can be authorized as a forklift truck operator: the individual must satisfactorily complete a two hour classroom training session which is presented by the Safety Department; the individual must pass the forklift operator's written test; and the individual must pass the forklift operator's practical test, which consists of two obstacle test courses that must be completed within a time limit of 20 minutes for each course. Each forklift operator must attend a refresher course, consisting of classroom training, written and practical tests, every three years.

Numerous forklift trucks were checked by the OSHA assessment team members during the walkthroughs and a variety of forklift truck operations were observed. The forklift trucks were found to be in good operating order and properly maintained. All forklift operators interviewed during the course of the walkthroughs were found to be properly trained. Areas where forklift trucks routinely travel, such as among storage racks and along aiseways, were found to be in good condition and exhibited no structural damage from being struck by forklift trucks.

1.4.4.1.9 Fire Extinguishers - Incipient Stage Fire Fighting

The fire extinguishers observed during the walkthrough of the Pantex facility were found to be properly mounted, maintained and in a fully charged condition. Pantex policy regarding the use of these fire extinguishers for incipient stage fire fighting at the Pantex plant is an informal one which permits any employee to use a fire extinguisher to put out an incipient stage fire. However, Pantex has not provided an educational program to familiarize their employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting, as required by OSHA's portable fire extinguisher standard, 29 CFR 1910.157. This type of educational program needs to be established at Pantex. The employees must then be provided the required training at least annually thereafter. In addition, the Pantex emergency action plan should be amended to include a formal policy statement regarding the use of portable fire extinguishers by employees for incipient stage fire fighting.

1.4.4.1.10 Emergency Evacuation Procedures

Pantex has developed and implemented an emergency evacuation plan. The evacuation plan is comprised of three areas of concern. These are: 1) muster station (assembly point); 2) storm shelters; and 3) fallout shelters. Muster stations are used in the event of a fire, bomb threat, or an explosion which would cause employees to be in danger. There are usually separate mustering stations for employees in secured areas and for those employees in unsecured areas. These stations are color coded on the evacuation chart (blue for unsecured mustering stations and red for secured mustering stations). The storm shelter is utilized in the event of severe weather conditions, i.e. tornadoes. These areas of assembly are usually at the innermost portion of a building. Being in the tornado belt, most buildings have been designed to be tornado proof. In the event that individuals are working in a non-tornado proof building, the evacuation plan outlines instructions for the employee to follow. These instructions contain the location of the nearest storm shelter. Pantex has an agreement with the National Weather Service,

which is located at the Amarillo International Airport, to contact the duty security captain at Pantex and inform him that an approaching tornado or storm is travelling in the direct path of the Pantex facility. In addition, if lightning is within 40 miles of the Pantex facility, all weapons production is terminated. The facility is equipped with an elaborate in-plant electrical storm warning system which alerts the facility of an approaching electrical storm. The fallout shelters are to be used in the event of an nuclear attack. Each building's evacuation procedure contains directions on where to go in the event of a nuclear attack.

Each building has a developed evacuation procedure. These procedures (including diagrams) are located in various areas of each building. The procedures are contained on a poster board and are very clearly stated.

Each building has a building custodian and an alternate. It is this individual's responsibility to take a PX-444, Emergency Assembly Point Roster to the assembly point and to have each employee sign the roster. At this point, an attempt will be made to account for any missing individuals.

The plan calls for employees to be trained upon initial assignment into a work area. This training is conducted by The Education and Training Department upon initial hiring. The employees are required to sign a PX-97A which states that the employee is familiar with the emergency evacuation location. It is the supervisors' responsibility to inform the employee of the emergency evacuation location for his work area and to personally accompany the employee to the evacuation area. Periodic drills are conducted to reinforce this training.

1.4.4.2. Supervisor Training

Pantex has an established supervisory training program. Each new supervisor is required to take a 12 hour course which is conducted by the Pantex Education and Training Department. The course, Supervising for Safety, is divided into three 4 hour sessions. The National Safety Council (NSC) 5th edition is used as the text. The course topics include: industrial hygiene; personal protective equipment; industrial housekeeping; material handling and storage; machine guarding; hand and portable power tools; fire protection; and human relations. The employee is required to pass an exam upon completion of the course. Refresher safety and health training is not provided.

Supervisors receive additional training which deals with interaction management and a survival program for supervisors. These courses do not involve safety and health training.

1.4.4.3. Management Training

At Pantex, managers must also complete the supervisory training course Supervising for Safety. As previously stated The National Safety Council (NSC) 5th edition is used as the text. The course topics include: industrial hygiene; personal protective equipment; industrial housekeeping; material handling and storage; machine guarding; hand and portable power tools; fire protection; and human relations. The manager is required to pass an exam upon completion of the course. Additional formal training is not provided to the managers.

1.5 Construction Safety and Health Program Evaluation

OSHA has defined the term "construction work" to mean that work for construction, alteration and/or repair, including painting and decoration. Further definitions of these terms can be found in 29 CFR 1926.13. Inspections of employers engaged in construction activities are not easily separable into distinct worksites. The worksite is generally the site where the construction is being performed and will normally include several subcontractors responsible for doing portions of the work under the direction of a prime, or general, contractor.

In addition, OSHA's policy on multi-employer (construction) worksites is to issue citations to employers with employees exposed to, or to employers who have control over, hazards unless an employer meets all the conditions for a legitimate defense as set forth in OSHA's Field Operations Manual. The criteria for a legitimate defense are:

- 1) The employer did not create the hazard;
- 2) The employer did not have the authority or ability to correct the hazard;
- 3) The employer specifically requested the controlling employer and/or the hazard-creating employer to correct the hazard to which his/her employees were exposed and made a reasonable effort to persuade the responsible employer to correct the hazard.
- 4) The employer has instructed and, where necessary, informed employees how to avoid or minimize the dangers associated with hazardous conditions and, where feasible, has taken alternative means of protecting employees from the hazard short of walking off the job (except when special circumstances require such extreme care).

1.5.1 Control Over Construction Activities

At the Pantex facility, the DOE Amarillo Area Office is responsible

for implementing the Construction and Health provisions specified in DOE/AL Order 5480.1, Chapter IX, and for assuring that construction contractors comply with applicable safety and health standards. Mason & Hanger supports the Pantex Plant construction safety and health program by performing safety inspections of construction sites and reporting safety deficiencies to the DOE Amarillo Area Office. As such, both the DOE Amarillo Area Office and Mason & Hanger serve as prime contractors with control over all of the subcontractors.

1.5.2 Evaluation of Construction Safety and Health Programs

Specific OSHA standards have been promulgated for safety and health programs plus employee training on construction sites. These are contained in 29 CFR 1926.20 through 1926.24 and cover: accident prevention programs; employee safety training and education; first aid and medical attention; plus fire protection and prevention. Thus when construction activities were being evaluated by the OSHA assessment team, compliance with these standards was assessed rather than using the safety and health program management guidelines published in the Federal Register.

1.5.2.1 Mason & Hanger

Mason & Hanger has a written construction safety program. This program is applicable to all construction work performed at Pantex. It establishes the company policy, which is to provide a safe and healthy working environment for plant employees, contractors, and service representatives during the performance of construction or service contract work at Pantex. The program also assigns specific responsibilities to the Safety Department, the Environmental Health Department, the Fire Department, the Project Engineer or Buying Requisition Originator, the Purchasing Department, the Security Division, and the construction contractor or service representative. In addition, it establishes procedures to ensure that the Mason & Hanger construction safety program meets the requirements of the DOE Amarillo Area Office construction safety policy.

Prior to the commencement of a construction project at the Pantex facility, prebid and preconstruction meetings are held. At these meetings discussions are conducted with the prospective or successful bidders which cover the following subjects: requirements for permits; electrical safety requirements (where applicable); reporting/posting requirements; toilet facilities; radiography (where applicable); explosives safety (where applicable); safety plan; inspections, both self inspections and inspections by the Safety Department; confined spaces; OSHA citations; hazard communication standard requirements;

and vehicle safety. The prospective or successful bidders are also provided a copy of the Pantex Plant Construction Environment, Safety and Health Program Brochure, which provides detailed written information on these subjects.

The successful bidder is required to submit a safety plan for the specific job to the Safety Department prior to starting work. This safety plan must include any unusual safety, health or environmental aspects associated with the project.

After a preconstruction conference has been held, and upon receiving a satisfactory safety plan from the contractor, the Safety Department issues a PX-30A, "Safety Work Permit for Construction Contractors/Service Representatives". Then, and only then, may the construction project commence.

The Safety Department is responsible for conducting inspections of all construction sites at least twice monthly during the course of the project. At least monthly, an inspection is conducted of all active construction sites jointly with a DOE representative. In addition, the safety engineer who is responsible for conducting these inspections spends the majority of his time in the field, and therefore, the construction sites would be visited much more frequently than twice monthly. During the inspections, the safety engineer utilizes the Mason & Hanger Construction Safety Checklist (PX-473). This checklist includes very broad categories which are required to be inspected, for example: electrical; personnel protective equipment; and tools (electrical/hand). Major categories covered by OSHA's construction standards are not listed, including: cranes, derricks and hoists; welding and cutting; fire protection and prevention; and rigging equipment for material handling. The OSHA assessment team recommends that a more detailed inspection checklist be utilized. For example, in the Pantex Plant Construction Environment, Safety and Health Program Brochure, which is provided to on-site contractors, a very detailed Sample Checklist For Inspections is provided to the contractors which they may utilize when performing self-inspections. This checklist lists each subpart of the OSHA construction standards along with specific requirements contained in each subpart. A checklist similar to this one would serve as a better memory jogger and would be preferable to the current PX-473. A copy of the PX-473 is sent to the DOE Amarillo Area Office Safety Manager or his designee.

The OSHA assessment team noted employees of the same contractor not properly protected from fall hazards on two separate occasions, involving two different roofing jobs. These roofing jobs had not yet been inspected by the Safety Department. Given the requirement that construction sites be inspected at least twice each month, a particular construction site may not be inspected at, or near, the initiation of

the project. As such, on a project such as a roof replacement, serious hazards including a lack of appropriate fall protection may not be noted, and therefore may continue to exist, for some time. The OSHA assessment team would recommend that consideration be given to requiring that the Safety Department conduct an inspection of each construction site at the initiation of each project, or shortly thereafter.

1.5.2.2 Department of Energy

The Department of Energy has no actual construction employees, as they act as a construction manager/prime contractor. As previously stated, the DOE Amarillo Area Office is responsible for implementing the Construction and Health provisions specified in DOE/AL Order 5480.1, Chapter IX, and for assuring that construction contractors comply with applicable safety and health standards. They primarily rely upon Mason & Hanger to conduct routine safety and health inspections of the construction sites and to then report any noted safety deficiencies to them. However, a DOE representative also accompanies the Mason & Hanger safety engineer, at least monthly, on an inspection of all of the active construction sites at the Pantex facility.

1.5.2.3 Asbestos Removal Projects

Asbestos removal projects at Pantex, performed by Pantex employees, have been limited to maintenance projects involving the removal of asbestos from pipes (i.e. to access a valve which is being replaced), and to the removal of the entire length of pipe. As previously discussed in Section 5.4.3.2., the procedures in place for that activity, at the time of the OSHA assessment team's visit, did not comply with the applicable OSHA standards. However, as also discussed in that section, Pantex is in the process of modifying their procedures to comply with the OSHA standards.

Major asbestos removal projects at Pantex are contracted out to asbestos removal companies. These companies are required to follow a Mason & Hanger procedure for the removal of asbestos containing materials. That procedure is currently being revised and updated.

Only one asbestos removal project of this type occurred while the OSHA assessment team was on-site. This project involved the removal of roofing material containing 60% asbestos from a ramp area. For this project, Mason & Hanger hired a roofing contractor who was not a certified asbestos removal contractor. This appears to have been due to a misinterpretation of the requirements for the removal of the cement board involved. This contractor, Hallmark Builders, was not

completely familiar with OSHA's asbestos construction standard, and did not fully comply with its requirements. For example, a competent person had not been designated for this removal project, employees had not been trained in the hazards associated with asbestos, employees had not been provided the required medical examinations, and the contractor reused polyethylene which had been used for constructing a barrier. When the Industrial Hygiene Department was informed of these inadequacies, they had the project shut down until such time as they were corrected.

The Industrial Hygiene Department conducts air monitoring whenever Pantex employees are involved in asbestos removal, and in the past, during removals conducted by outside contractors. This monitoring is representative of both the employees' thirty minute excursion exposures and eight hour time weighted average exposures. During the project conducted by Hallmark Builders, the Industrial Hygiene Department conducted the monitoring. However, the current Pantex program requires that outside contractors on future asbestos removal projects conduct their own exposure monitoring. They will also be required to conduct monitoring which is representative of both the thirty minute excursion and eight hour time weighted average exposure levels.

Respirator fit testing is being performed when necessary. Mason & Hanger performed qualitative fit testing for the employees of Hallmark Builders. They perform quantitative fit testing every six months for all of their employees who perform asbestos removal operations, even though they all wear powered air purifying respirators.

1.6 **Assessment of The Metal Trades Council complaint**
 - February 28, 1989 incident: Building 12-26, Bay 17

On September 7, 1989, the President of The Metal Trades Council sent a letter to The Secretary of DOE expressing the union's concerns over Mason & Hanger's response to an incident wherein employees were found to be exposed to depleted uranium-238 and possibly to heavy metals. This incident occurred on February 28, 1989 in Building 12-26, Bay 17, during a disassembly operation. One of the three employees involved in the disassembly operation was determined to have alpha contamination on his coveralls. Decontamination of the employees and the bay was accomplished and a mass spectral analysis was conducted of the visible residue in the contaminated areas of the bay, which indicated the presence of depleted uranium-238, lead, aluminum, chromium, manganese, nickel, zinc, and cadmium.

The union's concerns included: the lack of instructions provided to employees concerning the use of personal protective equipment, including respirators; inadequate biological monitoring in that only some of

the employees who were potentially exposed were provided blood lead monitoring, and then only several months after the incident; and the delay in providing Whole Body counts to the affected employees.

The OSHA assessment team conducted an independent investigation of the union's complaint about the handling of this incident. The following concerns were identified:

1. The O & I did not specify the appropriate personal protective equipment, i.e. respirator, for the disassembly operation.
2. Inadequate personal protective equipment (a "dust" mask) was used during portions of the disassembly operation. Disposable coveralls were not worn.
3. There was no initial monitoring conducted to determine employee exposure levels to lead, cadmium, etc. during the disassembly operation.
4. Radiation monitoring may not have been adequate to determine whether or not employees' clothing, etc. had been contaminated with depleted uranium-238.
5. Employees left the worksite and traveled to the cafeteria, etc. wearing their coveralls and work shoes, which may have been contaminated with depleted uranium-238.
6. Employees stored their work shoes, which may have been contaminated with depleted uranium-238, in their lockers where they also stored their street clothing. This may have resulted in cross contamination of their street clothing.
7. Employees reused gloves which were contaminated with the black residue (oxides) which was released during the disassembly operation, and therefore, potentially contaminated with depleted uranium-238.
8. Records were not maintained of dpm (disintegrations per minute) readings from swipe samples taken for the employee whose coveralls were determined to be contaminated with alpha radiation.
9. The radiation protection technician who identified the alpha contamination of the employee's coveralls in the afternoon on February 28th, had also observed the disassembly operation in the morning and had informed one of the employees that he was not wearing what he considered to be the appropriate personnel protective equipment - a lab coat. However, he did not inform the employee's supervisor of the requirement for the lab coat or of the fact that the requirement was not being met, in order that the supervisor could ensure the use of such equipment.
10. The O & I Standards may or may not have been reviewed by the Industrial Hygiene and/or Radiation Safety Departments - there was no formal sign-off procedure for them. Instead, whether or not they would review the O & I Standards was left to the discretion of the Industrial Safety personnel.

While performing the investigation of the union's complaint, the OSHA assessment team attempted to perform air monitoring during the same

or a similar disassembly operation, which is a standard practice when investigating a complaint that alleges employee exposure to air contaminants. However, they were not able to perform this air monitoring. The type of disassembly operation in question was not scheduled while the OSHA assessment team was at the Pantex facility. Therefore, the OSHA assessment team was not able to determine the level of employee exposure to depleted uranium-238, lead, etc. during the disassembly operation, and thus, was not able to fully address the union's concerns.

1.7 Major Findings and Recommendations

The OSHA assessment team has reached the following conclusions and determinations regarding Pantex' industrial and construction safety and health programs:

1.7.1 Major Findings

1. Pantex' injury and illness recordkeeping system was inadequate in that numerous recordable cases were not recorded. This prevented management from having a realistic oversight of the effectiveness of the Pantex safety and health program. In addition, any goals which would be established for improving the effectiveness of the safety and health program would be tainted by reliance on highly inaccurate data.
2. The Pantex Safety and Industrial Hygiene Departments spend a large percentage of their available man hours either preparing for, assisting with, or responding to the numerous and varied audits they are subjected to. This situation results in decreasing the potential effectiveness of the departments by taking them away from where they are needed - in the workplace.
3. Written safety and health procedures are generally adequate, however, a number of traditional safety hazards are not covered by any written programs and some written programs either have deficiencies or are inadequately implemented. This is evidenced by lack of written procedures for machine safeguarding and walking and working surfaces. In addition deficiencies in the asbestos program and inadequate implementation of the lockout and hazard communication programs prevent Pantex from being in total compliance with OSHA regulations.
4. The numbers and types of OSHA violations noted during the course of the assessment are significant in that they point to the areas where Pantex' written safety and health programs contain de-

ficiencies. In general, lack of formal implemented policies for, or deficiencies in, particular safety or health matters resulted in these areas being overlooked by those responsible for maintaining safety and health in the workplace.

1.7.2 Recommendations

Based on the OSHA assessment team's evaluation of Pantex' industrial and construction safety and health programs, the following recommendations are being offered for consideration:

1. Revise the current injury and illness recordkeeping program to ensure that all cases which are initially classified as "undetermined" are reviewed to determine if they are occupationally related, perform a more realistic determination of whether or not a medical restriction placed on an employee due to an occupational injury or illness will restrict them from performing all of their assigned duties, and finally, ensure tht all recordable cases are recorded.
2. Establish a joint labor/mangement safety and health committee.
3. Establish an effective system to follow up on hazards noted during the inspection process and investigations of occurrences (PX-499s). Consider requiring on-site verification by the inspecting department.
4. Modify the current Pantex Performance Planning and Merit Review System to include safety and health as an identifiable performance factor on which managers, supervisors and employees may be annually appraised.
5. The entire preventive maintenance program should be reviewed to ensure that all equipment which is of a critical nature to the safe operation of the facility has been included in the program.
6. Modify the hazard communication program to ensure that employee training includes specific information concerning the physical and health hazards of the particular chemicals in their work areas.
7. Develop safety and health program goals which have specific objectives and time frames for completion that allow for evaluation of performance.
8. Due to the number of special audits conducted at Pantex over the past few years, allow sufficient time for Mason & Hanger and DOE personnel to perform the necessary inspections, evaluate the conditions found and determine the root causes involved so that permanent solutions can be achieved.
9. Establish an infection control policy.
10. Include specific information concerning the type of respiratory protection, including the appropriate cartridges, in the O&I Standards, JSAs, etc.

11. Provide additional training in hazard recognition and OSHA regulations to the safety engineers, industrial hygienists and supervisors.
12. Conduct detailed job hazard analyses for all industrial and construction activity to establish written procedures for the evaluation and control of hazards.
13. Require comprehensive baseline work surveys and establish inspection frequency criteria for the Industrial Hygiene Department. To enhance the department's ability to conduct the required inspections, follow through on the plan to increase the staffing level of the department. In addition, develop a comprehensive checklist for use during those inspections.
14. Revise the current Safety Inspection Report checklist (PX-1089), or develop a separate checklist, to more fully address explosives operations.
15. Review the design of existing ventilation systems to ensure that they comply with the requirements listed in the DOE Explosives Safety Manual and the design criteria outlined in the ACGIH ventilation manual. Ensure that any future construction of ventilation systems is in accordance with the established design criteria.
16. Evaluate the confined space entry program to ensure that all hazards have been adequately addressed. Provide additional information for specific confined space situations, i.e. that a particular confined space is subject to change. Continuous monitoring, mechanical ventilation, or both should be done depending on the potential hazards involved. Means for immediate rescue of personnel from the confined space should be provided.
17. Evaluate personnel awareness of the lockout program, and retrain if necessary, to ensure that positive lockout and/or other means of control are being uniformly instituted for mechanical, hydraulic, pneumatic and electrical energy sources while maintenance work is being performed.
18. Develop and utilize a more detailed inspection checklist for inspections of construction contractors.
19. Require that the Safety Department conduct an inspection of each construction site at the initiation of each project, or shortly thereafter, to ensure that serious hazards are identified as soon as practicable.
20. Utilize safety and health staff on the construction sites and in the manufacturing areas to the maximum extent possible.

Table I. General Industry Activities Evaluated at Pantex

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
11-1	Emergency Generator Housing	normally unoccupied	X	
11-5	Physical Properties Testing	4	X	X
11-14	Inert Machining	2 (mostly inactive)	X	X
11-15	HE Conditioning	inactive	X	X
11-15A	Pressing	inactive	X	X
11-17	Chemistry Laboratory	9	X	X
11-20	Pressing, Machining, Testing	10	X	X
11-22	Particle Characterization Laboratory	2	X	X
11-24	Inert Storage	normally unoccupied	X	X
11-30	Electronic Maintenance	3	X	X
11-34	Acid Storage	normally unoccupied		X
11-36	Synthesis	4	X	X
11-39	Flammable Liquid Storage	normally unoccupied	X	X
11-42	Service Magazine	normally unoccupied	X	
11-43	Boiler House	normally unoccupied	X	X

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
11-48	Shop & Battery Charging	7	X	
11-50	HE Machining	14	X	X
11-51	Weapons Material Analytical Lab	6	X	X
12-1A	Laundry	7	X	X
12-2	Medical Department	7	X	X
12-4	Boiler House	2	X	X
12-5	Warehouse, Shops, Offices	100	X	X
12-5A	Warehouse	normally unoccupied	X	X
12-5B	35 Account Warehouse	6	X	X
12-5C	Shops & Offices	10	X	X
12-5G4	Lumber Shed	normally unoccupied	X	X
12-8	Chem Lab Annex	2	X	X
12-9	Inert Parts Fabrication & Offices	7	X	X
12-9A	Inert Machining	3	X	X
12-10	Dry Air Bottling	3	X	X
12-16	Plastics Shop	6	X	X
12-17	HE Pressing & Loading	13	X	X
12-18	Battery Charging	1	X	
12-19	Formulation Development	7	X	X

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
12-21	X Ray Physical Testing	2	X	
12-24N	Explosive Machining	24	X	X
12-24S	Assembly/Disassembly	4	X	X
12-24A	Training Area	normally unoccupied	X	X
12-24E	Equipment Room	normally unoccupied	X	X
12-25	Flammable Liquid Storage	1		X
12-26	Assembly/Tooling Warehouse	20	X	X
12-32	HE Subassembly	6	X	X
12-34	Flammable Liquid Storage	normally unoccupied	X	
12-35	Maintenance	38	X	
12-38	Solvent Storage	normally unoccupied		X
12-39	Fire Department	16	X	X
12-39A	Fire Department Annex	3	X	
12-41	Spray Painting	5		X
12-41A	Preparation Area	6		X
12-45	Faint Storage	normally unoccupied		X
12-47	Paint Storage	normally unoccupied		X
12-49	Maintenance Shop	14	X	X

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
12-50	Separation Testing	6	X	X
12-52	Metrology Laboratory	5	X	X
12-52A	Metrology Laboratory	4	X	X
12-52B	Metrology Laboratory	7	X	X
12-52C	Metrology Laboratory	4	X	X
12-59	Chemistry Laboratory	13	X	X
12-60	Dynamic Balancing	6		X
12-62	PETN Processing	2 (mostly inactive)	X	X
12-63	Pressing	2 (mostly inactive)	X	X
12-64	Assembly Bay (2 bays)	12	X	X
12-66	Production Component Warehouse	3		X
12-67	Oil and Gas Storage	normally unoccupied	X	X
12-68	Tool & Die Shop	33	X	X
12-70	Cafeteria	21	X	
12-73	HE Decontamination	2	X	
12-75	Security Command Center	45	X	
12-75A	Changehouse	6	X	
12-76A	Fuel Storage Complex	normally unoccupied		X
12-81	Battery Charging	1	X	X

<u>Building Number</u>	<u>Operations</u>	<u>Nominal Number of Employees</u>	<u>Industrial Safety</u>	<u>Industrial Hygiene</u>
12-93	Paint Storage Shed	normally unoccupied		X
12-98	Assembly Cells (2 cells)	12	X	X
12-109	Mechanical Equipment	normally unoccupied	X	X
12-110	Paint Shop	8	X	X
12-111	Carpenter Shop	10	X	X
12-112	Electronic Security Maintenance	11	X	X
13-47	Waste Water Treatment	1		X
15-12	Water Treatment	1		X
15-13	Water Treatment	1		X
16-1	Vehicle Maintenance	74	X	X
16-4	Abrasive Blast and Paint Booth	1	X	X
16-5	Flammable Liquid Storage	normally unoccupied	X	X
16-7	Firing Range	10 (200 potential)	X	X
16-13	Steam Plant (under construction)	unoccupied (only contractor employees)	X	
FS-24	Firing Site	5		X
Other Employees Affected				
	- Fire Brigade Members	12	X	X
	- Those Potentially Affected by the Weapons Program which was the Subject of the Union's Complaint	>100	X	X

<u>Building</u> <u>Number</u>	<u>Operations</u>	Nominal Number of <u>Employees</u>	Industrial <u>Safety</u>	Industrial <u>Hygiene</u>
Other Employees Affected (continued)				
	- Emergency Response Team Members	150		X
	Total	1142		

Table II. Construction Activities at the Pantex Plant

Contractor	Employees	Trade
<hr/>		
1. Construction Services	6	Roofing Contractor
2. Duke Electric Company	3	Electrical Contractor
3. Performance Conctruction, Inc.	2	Sheet Metal
4. Foley Company	15	General Contractor
5. Jack C. Thomas & Sons, Inc.	5	Painting Contractor
6. Young Insulation	5	Insulation Contractor
7. Hallmark Builders	4	Roofing Contractor
8. L.A. Fuller	2	Concrete Contractor
 Total - 8	 Total - 41	

Table III. Air Monitoring Results at the Pantex Plant

<u>Building Number</u>	<u>Operation</u>	<u>Contaminant</u>	<u>OSHA PEL</u>	<u>Employee Exposure</u>	<u>PEL Exceeded</u>
12-41	Grinding nose cones	chromium	0.5mg/M3	0.007mg/M3	No
12-41	Grinding nose cones	chromium	0.5mg/M3	0.0mg/M3	No
12-41	Alodining	chromic acid	0.1mg/M3	0.008mg/M3	No

APPENDIX H

DAILY REPORTS

Pantex Tiger Team

Daily Report

Monday - October 23, 1989

Weather: Clear - Dry - Temperature 75°F

With the exception of the OSHA Team, all on-site activity is limited to the administrative spaces concentrating on the finalization of the draft report.

The hotline telephone system has been terminated, local, and future calls will be referred to the national IG hotline. (The hotline system has been a worthwhile undertaking. The calls have ranged from individuals expressing their support of the existing management philosophy and actions, to employees concerned over particular aspects of their working environment i.e., use of metal detectors, and effects of special environmental control systems i.e., zero humidity areas.)

The team personnel while remaining productive and dedicated, are showing signs of tiring of this extended assignment. All are working toward closure of the draft report.

Pantex Tiger Team

Daily Report

Period - October 21/22, 1989

Individual team elements spent this weekend working on the verification, and writing, of report text and findings. Some activity was conducted at the plant site where scheduled contractor and AAO interviews were conducted.

Two M&H team personnel visited AL personnel at the operations office facility, in Albuquerque, New Mexico.

The Environmental Team Leader recalled his NEPA sub-team findings to complete verification and to bring findings into final format.

The structure of the final draft report has been confirmed, and the report "editor" is on-board to assist in the construction of the final document.

Pantex Tiger Team
Daily Report
Friday - October 20

Weather: Sunny - Dry - Temperature 75°F

Local team efforts are currently devoted to the finalization of the final draft report. All findings have been developed from the form of concerns to structured findings. Final verification interviews are in progress.

Discussions between the OSHA Team and Headquarters management are ongoing to determine the contribution this team is authorized to provide to the Tiger Team's draft report. Local team members (OSHA) have been very cooperative and understanding of the upper management level, disagreements in policy, and level of decisions.

Final week schedules are in process and development, bringing together plant reproduction assets and the schedule for the management overbriefing. Guidance (from Headquarters) is being requested on report distribution and ongoing media briefings.

Pantex Tiger Team

Daily Report

Thursday - October 19, 1989

Weather: Clear - Dry - Cold - Temp $\pm$ 60°F

The team continues to put the finishing touches on the development of findings, and providing those findings to the Management Team for inclusion in the root cause process.

The Team Leader had developed the criteria for the format for the final report, and provided that to the provided technical editor, for planning purposes.

The OSHA Team continues with their field work based on a "wall to wall" survey plan, however, Headquarters interactions suggest that a foreshortened survey is being considered, in keeping with the Y-12 plan. There are still continuing discussions with all concerned over the end product and schedule, to furnish inputs to the Tiger Team Report.

The Safety and Health Team Leader returned this date to support team efforts, and to rework their portion of the report. The W-28 "Report to the Secretary" is being finalized, scheduled for completion 10/20 COB.

Environmental Team expects all findings to be reviewed and into first draft by 10/20, estimated to total $\pm$ 60 findings. The Environmental Team Leader is concerned with his inability to reestablish good communications with his NEPA Sub-Team Leader, and is considering calling her back to Pantex to complete the NEPA findings.

The Management Team continues to refine the root cause analysis system, and finalize findings - 6/12 findings are now finalized.

Pantex Tiger Team

Daily Report

Period - October 17-18, 1989

Weather: Cloudy - Light Rain - Temp $\pm 65^{\circ}\text{F}$

OSHA

The OSHA Team coordinator, Bruce Beelman arrived this date for purposes of team coordination and a high explosives survey of plant activities. The role of the on-site OSHA Team in the development of the draft final report remains under discussion.

Environment

The team is "cleaning up" the field activities related to the RCRA and TSCA parts of the assessment. The team, as a whole, are now focusing on the findings.

The NEPA portion of the report is nearing completion.

Management and Organization

Two of the M&O Team travelled to Lubbock to interview with the Traveler's Insurance Co. worker compensation representative, relative to experience and history with the Pantex contract. The balance of the staff are concentrating on the development of findings.

Pantex Tiger Team

Daily Report

Monday - October 16, 1989

Weather: Partly cloudy - Dry - Temp $\pm$ 65°F

Team activities were limited, pending return of members on home leave.

The Environmental Team returned mid-day and resumed working on findings and follow-up activities. Two team members completed field observations on TSCA and RCRA activity.

NEPA Sub-team Leader is continuing redrafting of findings at DOE/HQ for final report.

The Management and Organization Team is in full attendance, but disturbed; two members are at Albuquerque interviewing O&P personnel on classification issues, one member is off-site reviewing an ex-plant worker in response to a hotline call. M&O Team findings are being drafted, and the root cause analysis process is being finalized.

The Health & Safety Team is represented by one individual supporting rewrite activities. The team leader, and a contractor, are scheduled for return late this week (October 19).

The OSHA Team members remain on home leave.

Pantex Tiger Team

Daily Report

Period - October 14-15, 1989

Weather: Clear - Dry - Temp +80°F

Team activity has been reduced by a reduction in staffing level for the weekend 10/14-15/89. Two teams, S&H and NEPA, have completed their investigations, interviews and report writing. These teams have departed the Pantex plant site, and returned to home base, subject to recall.

The Environmental and OSHA Teams have taken a mid-assignment break, and will return to Pantex plant site Monday (mid-day), October 16, 1989, to complete their activity.

The Management Team remains at the Pantex site and is completing the documentation on their findings, and report writing.

Pantex Tiger Team

Daily Report

Friday - October 13, 1989

Weather: Clear - Dry - Temp +80°F

A health and safety finding , related to Pantex health physics capability, was deemed to be of sufficient concern to advise DOE Hqtrs, EH for information and guidance. The issue was defined and risk hazards addressed. Hqtrs acknowledged seriousness of finding, and concurred with the team's approach. EH-1 and R. Startostecki visited DP-1 with their concerns (10/12/89). This reporting prompted AL Health Physics Rep - Gene Rundle, to visit Pantex 10/13 to discuss issues with this H&S Team member - Leo Faust, and AAO management.

Environmental Team:

The team witnessed a high explosive test series at the Explosive Test Facility (10/12).

Seven additional concerns were identified, bringing their total to 80 - new concerns include:

- RCRA inspection deficiencies noted by the plants own inspections which have not been corrected
- Mixed waste containers in zone 4 which bear no radiation labeling
- The Plant loads quick implementation policies for identified problem areas involving the environmental sampling program
- Numerous sampling errors including labeling decontamination, and preservation
- The Plant has no procedures to request non-routine sampling to ensure samples are properly collected and preserved in accordance with the request
- Paint solvent released almost equal waste solvent evaporation. A change in paint type could reduce total quantity of evaporites, resulting in waste minimization

Continue: 10/13 Daily Report

- 1989 sampling data for playas and portable water wells, and environmental monitoring wells may be compromised by contamination, in some cases, in significant quantities

A noteworthy practice was identified. Construction and sanitary land fills are inspected weekly by contractor ES&H staff to ensure compliance with state and Federal regulations.

The staff of the Environmental Team is being released for weekend "home leave", returning to the team activities 10/16/89.

NEPA Sub-Team:

All five findings have been validated, and the report input completed. All site work has been completed, the report was reviewed and cleared by classification.

The NEPA Sub-Team, and Leader, has been released for home leave - subject to recall for need, and ultimate outbrief.

Management Team:

Continuing interview process - one member is in Albuquerque continuing interviews with AL management.

Health and Safety:

The draft report input has been completed and reviewed. The team has been released to home leave, subject to recall for need and/or ultimate outbrief.

OSHA:

Continuing plant site and construction site inspections. Bruce Beelman is accomplishing high explosive workplace inspections.

OSHA Team departing for weekend home leave 10/12 - will return 10/16.

Pantex Tiger Team

Daily Report

Thursday - October 12, 1989

Weather: Dry - Temp +80°F

The team has been supplemented by Stanley Echols, DOE/HQ, GC-11, and Jack Kratchman, SAIC.

Six of the team members, including above new arrivals, remain without full access clearances. The lack of clearances for these people does not compromise the ability of the team to accomplish its mission.

Environmental Team:

The team witnessed a demonstration of high explosives burning at the designated burn site, without incident.

Interviews continue on SARA Title III issues. Site visits included surface water sampling techniques, vehicle maintenance facility.

The team developed nine additional "concerns" total "concerns" are now 71. (Contractor personnel, M&H/SM, are exhibiting nervousness over total number, and additional concerns in new areas).

The team is examining the potential problem of having the metal flash/evaporative pan (for disposal of volatiles) sitting on the ground. The pan appears to be deteriorating - it is impossible to determine if pinhole leaks might exist whereby toxic liquids could exist under pan.

A noteworthy practice was identified - the contractor has developed and implemented an empty drum control plan, however, an inconsistency in the definition of "drum" exists, and requires resolution.

The team has polled EPA and TWC and achieved agreement that the local playas, and waters contained therein constitute "waters of the US", and consequently permitting actions are required, accordingly.

NEPA Sub-Team:

Five findings have been validated, an additional finding will be validated by COB today. Two of the five team members have

Continue: 10/12 Daily Report

departed, team activity will be cleaned up, and terminated today. The balance of the team will depart Friday, 10/13/89.

OSHA Sub-Team:

Continuing field/facility inspections, including electronic, maintenance, paint and carpenter shops.

A dialogue with Bruce Beelman has identified the format for Tiger Team Report inputs.

Management and Organization:

The M&O findings are in draft status, work is continuing on review of other team inputs. One team member is in Albuquerque interviewing AL management.

Health and Safety:

Redraft of report segment underway. All findings have been completed.

Pantex Tiger Team

Daily Report

Wednesday - October 11, 1989

Weather: Dry - Temp +80°F

General:

The proposed draft table of contents has received Hqtr's concurrence, with the following caveats:

- Key findings and noteworthy practices will be identified as planned, using a section for noteworthy practices, if appropriate
- Root causes will remain in key findings, recognizing that they might be redundant
- Numbering system will remain as earlier Hqtrs planning specified, for consistency between teams, using alpha-numeric coding
- There will be an assessment summary for each section.

OSHA:

Met with Union President on OSHA issues. Chemistry labs, analytical lab, and paint shop have been inspected.

Environment:

Toured RCRA storage facilities in zone 4, environmental laboratories in zones 11 and 12. The team has initiated a records review of SARA Title III, dose assessment and waste segregation.

The team identified six additional concerns bringing total to 62. The new concerns included - RCRA labeling problems with Rad and mixes waste in igloo 4-19B.

Hazardous waste stored in igloo D-72 being stored in excess of 90 day period.

Toluene was not reported as a release in 1988 - the site has poor SARA Title III documentation.

Continue: 10/11 Daily Report

NEPA Sub-Team:

Team has developed workplan schedule which will permit wrap-up for the team efforts by COB Friday, 10/13/89.

Four findings have been validated by AAO, two additional findings are in process.

Management and Organization:

Continuing staff incentives, attempting to identify MIS tracking systems. Team members are addressing workers compensation issues, and continuing to draft findings. All interviews are scheduled for completion Friday, 10/13/89.

Safety and Health:

Continuing interviews and data gathering and developing draft final report input.

Pantex Tiger Team

Daily Report

Thursday - October 10, 1989

Weather: Dry - Temp 78°F

All teams continue interview and site inspection activities.

OSHA

The team has entered into the investigation of the W-28 incident, prompted by the union president's letter to the Secretary of Energy. Meetings are scheduled with the union president.

Environmental

The team has identified an additional eight concerns, bringing the current total to 56. The new concerns include area posting and waste handling activities.

Management and Organization

Interviews continue pursuing the workers compensation issue, and staff qualification.

Safety and Health

Data gathering, and site visits continue

Pantex Tiger Team

Daily Report

Period - October 7, 8 & 9, 1989

The teams remained on site over the Columbus Day, three day weekend.

The NEPA Sub-Team continued to review documents and files related to NEPA activity associated with budget documents and construction projects. The current EIS was reviewed in detail to develop relationships between its content and future construction projects.

The OSHA Team reviewed the Plant's record keeping policies and techniques, and through some selected interviews, examined the Plant contractors hazard communication training program and associated records.

The Management, Environmental, and Safety and Health Teams had prescheduled selected employees for interview and were able to do plant surveys, and site observations.

Pantex Tiger Team

Daily Report

Friday - October 6, 1989

The DOE Tiger Team at Pantex continues the field investigation phase of its Environmental, Safety and Health (ES&H) assessment of the Amarillo Area Office of the Albuquerque Operations Office, and its contractor Mason & Hanger. Based on current assessments the field investigations and interviews should be completed by the end of next week (October 13) except for required followup.

The Safety and Health Team is conducting its review of documentation, interviews and facility inspections with emphasis on fire protection and emergency readiness, health physics and facility design and maintenance. In addition, the team has prepared a sample finding for review by other team leaders for style and format.

The OSHA Team continued their investigation of the W-28 incident, reviewed compliance with the hazard communications program and inspected the Vehicle Maintenance and the Laundry Facilities. In regard to the Vehicle Maintenance Facility, a number of OSHA violations were noted and reported to Pantex management.

The Environmental Team visited chemical storage locations and firing sites and toured the sewage treatment plant. In addition, the team reviewed monitoring procedures for the tanks and spill reporting documents. Eight additional concerns have been identified for a total of 44 concerns to date.

The NEPA Sub-Team continues its review of documentation including review of the paper trail, ADM/MTF and EIS, for the H.E. Machining Facility. In addition, completed 54/70 reviews of ADM's/MTF's and proceeding with reviewing budget records for projects. Some findings are evolving.

Finally, the Management Team continues to make progress in its interviewing process, completing 20 to date. Some findings appear to be evolving. The Management Team has also been very active in developing the process for root cause assessment which will be used by the Tiger Team.

Pantex Tiger Team

Daily Report

Thursday - October 5, 1989

The DOE Tiger Team at Pantex continues the field investigation phase of its Environmental, Safety and Health (ES&H) assessment of the Amarillo Area Office of the Albuquerque Operations Office, and its contractor Mason & Hanger-Silas Mason Co., Inc..

The Safety and Health Team is continuing interviews of the Radiation Protection Staff of the contractor, with attention directed to its role in facility design and siting. An additional look at Health Physics Staff training is underway.

The OSHA Team received their medical checkup, required prior to issuance and authorization to be fitted with supplied air breathing apparatus (SBA), which are required for access to special plant areas. OSHA evaluated the contractor Medical Department and Fire Department, noting presence of state of the art equipment. Today's activities will include the completion of interviews related to the February contamination (W-28) incident, and evaluation of the vehicle maintenance facility.

The Management Team is continuing interviews with AAO and contractor personnel pursuing insight into ongoing CPAF process, management commitment to ES&H, and organizational relationships.

The Environmental Team has developed its schedule plan for the first two weeks of this assessment. Interview and inspection activities have identified an additional twenty five (25) "concerns" include a few minor regulatory issues, most lying in the "best management practices" category.

The NEPA Sub-team is continuing its interview process examining how the NEPA process is being managed between Albuquerque Operations Office, the Amarillo Area Office, and the contractor, inquiring into the presence of a data management system, and how documentation is being maintained.

There have been no significant findings made to date. There are no significant issues, or concerns.

Pantex Tiger Team

Daily Report

Wednesday - October 4, 1989

All teams are fully staffed, have developed their site plans, and enacted field implementation.

All teams have initiated their interview program with AAO and contractor management personnel. Specific plant site visits are underway.

A "Hotline" telephone call-in system for plant workers has been initiated, with the intent of follow-up action by the appropriate team, if warranted.

The Environmental Team has identified an area of potential concern in the requirement of an NPDES permit, by the Plant for the waste discharges into adjacent "playas". This issue will be pursued to completion.

The Management Team is pursuing concerns in the area of contractor turnover rate in critical technical areas, and the potential impact on the retention and training of technical personnel.

Pantex Tiger Team

Daily Report

Tuesday - October 3, 1989

This was the initial day of the Tiger Teams presence at Pantex Plant, Amarillo Area Office, Amarillo, Texas.

All team members arrived for badging and plant orientation. The team, as developed by Headquarters was supplemented with two (2) management interns from the Albuquerque Operations Office. These interns were integrated into the Environmental and Safety and Health Teams.

Each individual team received plant orientation during the early afternoon, and spent the balance of the day developing work schedules and interview plans for the ensuing week.

All identified team members are now on board, however, access clearances have not been received by the Amarillo Area Office for four (4) of the members. There is no identifiable impact of limited access by those four. Basic administrative space is in an uncleared area.

The Area Office has provided excellent cooperation and logistical support - all office spaces are fully functional with all required communication and reproduction capability.

A press conference was held at 9:30 AM, Monday, October 2, 1989, with multi-media representation resulting in non controversial press, radio, and TV coverage Monday evening and Tuesday morning.

Tuesday - October 3, 1989 - Planned Activities:

All teams have developed work schedules for interviews with DOE and contractor management personnel for today.

Field/Plant visits are scheduled to assist in identifying areas of special interest.

NEPA Sub-team members are conducting interviews and reviewing provided documentation.

Environmental Team is sending waste management and air quality specialists into work areas for preliminary surveys. Pre-planned schedules are being adjusted to accommodate the availability of contractor specialists.

APPENDIX I

WEEKLY REPORTS

Memorandum

ALBUQUERQUE OPERATIONS
AMARILLO AREA OFFICE

DATE: October 25, 1989

REPLY TO: *Ralph Stein*
ATTN OF: Ralph Stein, FTS 477-5570SUBJECT: Weekly Status Report for Pantex Tiger Team Assessment - Week
of October 19 to October 25, 1989TO: Lawrence A. Weiner
Acting Director
Office of Special Projects (EH-24)SIGNIFICANT TEAM ACTIVITIES AND ACCOMPLISHMENTS

- o All team findings have been verified by interview and review with DOE and contractor staff personnel - and are being finalized. The team leaders of NEPA and Safety and Health returned to support the total team effort as the report comes to closure.

SIGNIFICANT FINDINGS

- o The OSHA Team identified the presence of reversed polarity in the electrical circuitry in an assembly building. Upon confirmation, all operations in that building were terminated by the contractor, and corrective action initiated.

ISSUES/PROBLEMS ENCOUNTERED OR ANTICIPATED

- o The role of the OSHA Team has been clarified, and the OSHA report format has been resolved. There will be no impact on the completion of the Tiger Team Draft Report.

- o Local hotline calls have been terminated effective today, October 25, 1989, incoming calls after this date are being referred to the IG hotline telephone number.

FUTURE ACTIVITIES

- o The individual teams are concentrating their efforts on the finalization of all documentation.
- o All activities are on schedule to meet date of management outbriefing and report distribution.
- o Selected team members are being released for return home, as tasks are completed, anticipate 30-40% reduction by COB October 27, 1989.

STATUS OF REPORT AND ACTION PLAN

- o See attached schedule

Attachment

cc: Gerry Hulman, EH-32
Ray Berube, EH-20
Mark Gilbertson, EH-24

FLOW CHART FOR DRAFT TIGER TEAM REPORT AND OUTBRIEFING

memorandum

ALBUQUERQUE OPERATION
AMARILLO AREA OFFICE

DATE: October 18, 1989

REPLY TO
ATTN OF:*Ralph Stein*
Ralph Stein, FTS 477-5570SUBJECT: Weekly Status Report for Pantex Tiger Team Assessment - Week
of October 12 to October 18, 1989TO: Lawrence A. Weiner
Acting Director
Office of Special Projects (EH-24)

SIGNIFICANT TEAM ACTIVITIES AND ACCOMPLISHMENTS

- o All teams have completed field activities related to assessment. A few interviews remain to be accomplished. Initial findings have been developed, 85% of which have been verified. The Safety and Health Team, and the NEPA Sub-Team have returned to "home-base", subject to recall, and will be on-site for report finalization and management outbriefing.

SIGNIFICANT FINDINGS

- o The Environmental Team has identified two additional significant findings; plant sampling procedures may be impacting the validity of environmental data, and fluoride levels found in regional grazing grasses, as a result of Pantex operations, may exceed Texas air control standards.

ISSUES/PROBLEMS ENCOUNTERED OR ANTICIPATED

- o The schedule of the OSHA assessment is causing potential impacts on the quality and schedule of the

Draft Tiger Team Report. Dialogue with Headquarters management is continuing to better define acceptable format and manner of ultimate inclusion of OSHA report in Tiger Team Final Report.

FUTURE ACTIVITIES

- o Continuing activity of the Team will be focused on finalization of findings, and the root cause analysis - management outbriefing is now scheduled for 9:00 AM, October 31, 1989.

STATUS OF REPORT AND ACTION PLAN

- o See attached schedule

Attachment

cc: Gerry Hulman, EH-32
Ray Berube, EH-20
Mark Gilbertson, EH-24

PANTEX TIGER TEAM SCHEDULE

October

16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Draft →

Environment (inc. NEPA)

Final (inc. Findings, and all text) → COB

OSHA

OSHA Summary (interim) → 1-B's thru 1a/2a → COB
DOE SEC. 5.0 → COB

Multiple Drafts →

Health and Safety

Final → COB

Draft → COB

Management

Root Cause Analysis and Final (inc. Findings/text) →

TTL Office

Exec Summary, Intro, Acceptance of reports, Org of Appendices →

Draft Report

Prepare/Print →

check-out (9:00 AM)

Memorandum

ALBUQUERQUE OPERATIONS
AMARILLO AREA OFFICE

DATE:

October 11, 1989

REPLY TO
ATTN OF:

Ralph Stein

Ralph Stein, FTS 477-5570

SUBJECT:

TO: Weekly Status Report for Pantex Tiger Team Assessment - Week
of October 9 to October 13, 1989

Lawrence A. Weiner
Acting Director
Office of Special Projects (EH-24)

SIGNIFICANT TEAM ACTIVITIES AND ACCOMPLISHMENTS

- o All team members scheduled interview and inspection activities with DOE and contractor personnel over the three-day weekend, and as a consequence found themselves essentially completed with interview and site visit activities.
- o An abbreviated mort type system has been developed, and a visit by an EG&G trainer (ID) has assisted in training the team members in the identification of root causes for findings.
- o The NEPA Team has validated four (4) of a possible six (6) findings. All six (6) will be validated by 10/12/89.
 - Categorical exclusion under NEPA is considered inappropriate for highexplosives machining facility
 - All NEPA order procedures for NEPA determinators do not reflect HQ NEPA order
- o Management Team anticipates findings in the following areas:

- The AAO staffing posture reflects inadequacies which weaken their position to accommodate the ES&H mission directed by Secretary Watkins
 - The "ES&H culture" in AAO and M&H/SM is weak. Additional training and emphasis is required to improve
 - AAO authority to issue a "stop work" order to the contractor, based on an ES&H issue, is not clearly defined or documented
 - AAO, and the contractor, lack a computerized tracking system with which to track identified deficiencies and actions.
 - The contractor has not fully responded to AAO direction to develop and implement a non-weapons QA program
- o Health and Safety Team has completed all investigations, and drafted their team report for internal review and root cause determination. Field interviews, and review of the W-28 incident have caused concerns that the Pantex Team (AAO and M&H/SM) is weak in the area of health physics expertise in the form of personnel, technology, and resources. This finding will be verified 10/12/89.
 - o The Environmental Team has identified sixty two "concerns" which could lead to findings. The Team will finish field activity, and interviews by 10/12/89. Findings verified to date include:
 - Inadequate hazardous waste storage practices under RCRA
 - Discharge from the deteriorating sanitary sewer system are not in conformance with State of Texas regulations
 - There is no evidence of an environmental sampling plan
 - There is a potential need for NPDES permits for all point source discharges into local playas

- o The OSHA Sub-team is continuing its plant site inspection, developing OSHA form 1-B's as violations are identified. Meetings with OSHA Team Leader, and local team members, have developed a schedule and format for inclusion of OSHA Team reporting in the draft Tiger Team Report.
- o The Tiger Team Leader, and Team Leaders, have initiated meetings with "Hotline" respondents, as appropriate. Meetings with local political leaders, and the Amarillo Hospital Officials, have been beneficial. Meetings have taken place with the local Union President, and are scheduled with plant workers who have requested recognition.

SIGNIFICANT FINDINGS

- o None

ISSUES/PROBLEMS ENCOUNTERED OR ANTICIPATED

- o The personnel clearance issue has proven to be a non-issue.

FUTURE ACTIVITIES

- o The NEPA Sub-team, and the Health and Safety Team has completed their draft writing of their findings and report, and will return to their respective home bases, subject to call as the full team report is developed.
- o Mangement Team members has scheduled an interview visit to Albuquerque Operations Office to pursue management issues.

STATUS OF REPORT AND ACTION PLAN

- o The Draft Report is scheduled for completion - November 3, 1989
- o Draft Report comments - November 15, 1989
- o Final Assessment Report - November 29, 1989

cc: Gerry Hulman, EH-32
Ray Berube, EH-20
Mark Gilbertson, EH-24

Memorandum

ALBUQUERQUE OPERATIONS
AMARILLO AREA OFFICE

DATE: October 4, 1989

REPLY TO
ATTN OF:

Ralph Stein, FTS 477-5570

SUBJECT

Weekly Status Report for Pantex Tiger Team Assessment - Week
of October 2 to October 6, 1989

TO:

Lawrence A. Weiner
Acting Director
Office of Special Projects (EH-24)

SIGNIFICANT TEAM ACTIVITIES AND ACCOMPLISHMENTS

- o The DOE Tiger Team, consisting of 37 Federal and contractor personnel reported to the Pantex site, 8:00 AM, October 2, 1989. The team composition includes teams covering Safety and Health (7); with an OSHA Sub-team (5), Environment (10), with a NEPA Sub-team (5) and a Management Team (7).
- o The team received orientation briefings and site orientation visits during the first day, and was located in on-site office facilities. Team organizational briefings included mission and charter discussions and general goal and schedule planning sessions.
- o Team activities for these initial three (3) days have centered around scheduling and conducting interviews with appropriate DOE and contractor personnel, facility and site inspections to identify specific areas or items of interest or potential concern. The Environmental Team identified eleven (11) areas of interest which will be subjects of detailed investigation.
- o Each team has developed work plans for the balance of the team's on-site presence.

- o Two (2) DOE/AL management interns have been provided, and integrated into team activities. DOE/AL has provided one (1) observer.
- o The OSHA Team has met with the senior available representative of the local Metal Trades Council, relative to the Cranfill to Secretary Watkin's letter - subject: Contamination Incident, February 1989. The team also interviewed contractor personnel related to the incident including 2 of the 3 directly effected, and the Ind. Hyg. and supervisory staff. The DOE Safety and Health Team will interview on this subject, next week. All information will be integrated into special report segments in accordance with our understanding of the proposed Secretary DOE to Cranfill response letter.
- o The OSHA Team Representative have integrated into the DOE Team activities. Communication and cooperation is excellent.
- o Media interviews were conducted Monday, October 2, 1989, with radio, TV and newspaper. All resulting reporting was favorable and informative.
- o The local organized nuclear protest group has contacted the DOE/AAO Management requesting a meeting with the DOE Team Leader. That meeting is tentatively scheduled for next week.

SIGNIFICANT FINDINGS

- o None

ISSUES/PROBLEMS ENCOUNTERED OR ANTICIPATED

- o Four (4) team members are on-site without site access clearances. The provided administrative space is in an uncleared area, consequently there is nominal impact; full utilization of the personal is anticipated.

FUTURE ACTIVITIES

- o The Environmental Team will assess all environmentally significant aspects of the Pantex facility during the first week on site. The planning for the second week assessment will be finalized by Friday, October 6, 1989, in coordination with contractor and DOE/AAO personnel. The balance of the teams will continue appraisal and investigatory activities leading to the development of findings.

STATUS OF REPORT AND ACTION PLAN

- o For this report, schedules for the draft report, comments, draft action plan, and follow on final reporting are under development. Initial observations and inquiries suggest that DOE Team on-site activities (inspection audit and assessment) could be completed in four (4) weeks, however, the OSHA Team believes that they may take an additional two (2) week period to complete on-site activities. A more definitive schedule will be developed for next "Weekly Report."

cc: Gerry Hulman, EH-32
Ray Berube, EH-20
Mark Gilbertson, EH-24

APPENDIX J

ACRONYMS

APPENDIX J. ACRONYMS

AAO	Amarillo Area Office
ACGIH	American Conference of Governmental Industrial Hygienists
ADM	Action Description Memorandum
AEA	Atomic Energy Act of 1954
AEMR	Annual Environmental Monitoring Reports
AL	Albuquerque Operations Office
ALARA	As Low As Reasonably Achievable
ANL	Argonne National Laboratory
ANSI	American National Standards Institute
AQCR	Air Quality Control Region
ARAC	Atmospheric Release Advisory Capability
ARAR	Applicable or Relevant and Appropriate Requirements
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
CA	Contract Administrator
CAA	Clean Air Act
CEARP	Comprehensive Environmental Assessment and Response Program
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CF	Compliance Finding
CFR	Code of Federal Regulations
CNR	Cultural and National Resources
CO	Contracting Officer
COD	Chemical Oxygen Demand

CPAF	Cost Plus Award Fee
CWA	Clean Water Act
DOE	Department of Energy
DOE/AL	Department of Energy Albuquerque Operations Office
DP	Defense Programs
DWTM	Office of Defense Waste and Transportation Management
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMR	Environmental Monitoring Reports
EP	Extraction Procedure
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986 (SARA Title)
ER	Environmental Restoration
ERPIP	Environmental Restoration Program and Implementation Plan
ES&H	Environment, Safety, and Health
FCAA	Federal Clean Air Act
FCWA	Federal Clean Water Act
FFCA	Federal Facility Compliance Agreement
FFCC	Federal Facilities Compliance Coordinator (EPA)
FFSDIF	Federal Facility Site Discovery and Identification Findings
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FOLRP	Field Office Long-Range Environmental Restoration Management Plan
FOMP	Field Office Management Plan
FONSI	Finding of No Significant Impact

FOPIP	Field Office Program and Implementation Plan
FR	Federal Register
FSAR	Final Safety Analysis Report
FUSRAP	Formerly Utilized Sites Remedial Action Program
FWPCA	Federal Water Pollution Control Act (Clean Water Act)
FY	Fiscal Year
f/cc	Fibers per Cubic Centimeter
H-3	Tritium
HE	High Explosive
HF	Hydrogen Fluoride
HMEF	High Explosives Machining Facility
HQ	Headquarters
HRS	Hazard Ranking System
HSWA	Hazardous and Solid Waste Amendments of 1984

IAG	Interagency Agreement
IAP	Installation Assessment Program
IG	DOE Inspector General
IHE	Insensitive High Explosive
INPO	Institute of Nuclear Power Operations
IOP	Internal Operating Procedure
IWS	Inactive Waste Site

LANL	Los Alamos National Laboratory
LDR	Land Disposal Restricted
LEPC	Local Emergency Planning Committee

MAA	Materials Access Area
mg/M3	Milligrams per Cubic Meter

mg/M ³	Modified Hazard Ranking System
MHRS	Management Oversight and Risk Tree
MORT	Management Oversight and Risk Tree
MSDS	Material Safety Data Sheet
MTF	Memorandum to File
M&H	Mason & Hanger - Silas Mason Co., Inc.
NAAQS	National Ambient Air Quality Standard
NAS	National Academy of Sciences
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Pollutants
NIOSH	National Institute for Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NQA	Nuclear Quality Assurance
NQA-1	NRC QA Order Applicable to Nuclear Facilities
NRC	National Response Center/Nuclear Regulatory Commission
NSPS	New Source Performance Standard
NTS	Nevada Test Site
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Administration
OSR	Operational Safety Requirements
OSWER	Directive 9902.3
O&I	Operations and Inspection Standards
O&M	Operation and Maintenance
PA/SI	Preliminary Assessments/Site Inspection

PCB	Polychlorinated Biphenyls
PEL	Permissible Exposure Limit
PNL	Pacific Northwest Laboratory (DOE) - Battelle
PPB	Parts per Billion
PPM	Parts per Million
PSO	Program Senior Officials
PU	Plutonium
PX	Pantex Plant
P&I	Piping & Instrumentation
QA/QC	Quality Assurance/Quality Control
RAP	Remedial Action Plan or Radiological Assistance Program
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
RIP	Remedial Investigation Plan
RIR	Remedial Investigation Report
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPT	Radiation Protection Technology
RSO	Responsible Supervisory Official
SAIC	Science Applications International Corporation
SAR	Safety Analysis Report
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SEPC	State Emergency Planning Commission
SMI	Standard Maintenance Instructions

SPCC	Spill Prevention, Control, and Countermeasures
SW	Surface Water
SWMU	Solid Waste Management List
TAC	Texas Administration Code
TACB	Texas Air Control Board
TCAA	Texas Clean Air Act
TDH	Texas Department of Health
TEC	Total Estimated Cost
THCA	Texas Herald Communication Act
TLD	Thermoluminescent Dosimeter
TLV	Threshold Limit Valve
TS	Toxic and Chemical Materials
TSCA	Toxic Substance Control Act
TSD	Treatment, Storage, or Disposal
TSDF	Treatment, Storage, or Disposal Facility
TSO	Technical Support, or Disposal Facility
TWC	Texas Water Commission
ug/M3	Micrograms per Cubic Meter of Air
UST	Underground Storage Tanks
U-234	Uranium-234
U-238	Uranium-238
VMF	Vehicle Maintenance Facility
VOC	Volatile Organic Compound
WM	Waste Management

APPENDIX K

HOTLINE REPORTS/ACTIONS

TIGER TEAM ASSESSMENT PROGRAM

PANTEX

ES&H H O T L I N E

On October 2, 1989, C. D. Alley, Vice President and Plant Manager, Mason & Hanger-Silas Mason Co., Inc., and P. M. Ramey, Area Manager, Amarillo Area Office, sent out a notice to all Pantex Plant employees announcing that Secretary Watkins' Tiger Team will commence its ES&H assessment of the Pantex Plant, and any employee who desires to call or meet with a Tiger Team member concerning ES&H matters may contact Ms. Carolyn Haylock, Administrative Assistant, on 477-5571. In addition, the notice informed the Pantex Plant employees that the Office of the Inspector General had established a hotline at DOE/HQ (202-586-4073 or 1-800-541-1625) for citizens and workers to report ES&H matters.

ES&H Hotline Calls:

10/04/89 (Wednesday)

Caller: Number 1 - xxxxx xxxxxx (xxx-xxxx)

Comment: She called as a representative from the Peace Farm and would like to make arrangements for her and four or five other members to meet with the Tiger Team Leader or one of the Tiger Team members to express their concerns about safety and health of the environment.

CMHaylock 11:00AM

Response: Assigned to Tom Walton, Pantex Public Affairs Specialist.

CMHaylock 11:30AM

Action: See attachment (Hotline No. 1)

Caller: Number 2 - xxx xxxxxxxxx (xxxxxx)

Comment: She has nothing but positive feelings about Pantex. The communications here at Pantex are good, and have improved significantly in the last few years. She feels safe and proud to work here.

CMHaylock 2:35PM

Caller: Number 3 - xxxxxx xxxx (xxxxxx)

Comment: He is the Tech Standards Supervisor here at Pantex, and he has good positive feelings about this place. Safety and security are the most important aspects of this plant to Mr. Ramey and Dr. Alley. Both of these guys are church goers and concerned citizens of this community and would always be concerned about folks. He has sent three kids to college and has one more to send, so Pantex has been more than good to him. He is originally from Kentucky, and was always taught to never praise a man for how far he has gone, but for how far he has come. He is 100% supportive of their safety procedures.

CMHaylock 2:48PM

Caller: Number 4 - xxxxx xxxxx

Comment: He feels good about the safety and health procedures here at Pantex.

CMHaylock 3:00PM

Caller: Number 5 - xxx xxx xxxx (xxxxx)

Comment: She has been here 11 years. Prior to this job, she was never happy at any other job. Pantex has made her proud to be a part of it.

CMHaylock 3:10PM

Caller: Number 6 - xxx xxxxxxxx

Comment: She feels safe working here at Pantex. She works for xxx xxxx, and she likes him a lot. She likes her job and would not trade it for another one. She thinks Pantex is a very safe place to work at.

CMHaylock 3:48PM

Caller: Number 7 - xxx xxxxxxx (xxxxx)

Comment: He has been here for 31 years, and doing that time he has never seen anything that would be hazardous or unsafe. He feels that Safety, Health and Environment is the number 1 concern of each and every employee at this plant.

CMHaylock 3:50PM

Caller: Number 8 - Anonymous

Comment: Positive feelings.

CMHaylock 3:55PM

Caller: Number 9 - Anonymous

Comment: Number 1 in Safety.

CMHaylock 3:59PM

10/05/89 (Thursday)

Caller: Number 10 - xxxxxx xxxxx (xxxxx)

Comment: 30 years of employment, and has a very positive feeling about the safety here. She has seen several movies, films, and has attended several presentations about safety. Her husband works at a different sort of plant, but compared to them and their safety precautions, Pantex is a 10 and they're a 1. She has raised 2 kids, and the safety rules and regulations has spilled over into her home life and made their home a safer place to live.

CMHaylock 10:10AM

Caller: Number 11 - xxxxx xxxxxxxx (xxxxx)

Comment: She thinks that Pantex is a very safe place to work. She has been here 11 years. They do not have a lot of injuries out here, considering the type of work that they do. She has good feelings about her job and the safety here, and plans to stay here until they kick her out.

CMHaylock 10:15AM

Caller: Number 12 - xxxx xxxx

Comment: 36 years with this company. We have had problems here but nothing the company cannot handle. He feels very safe here.

CMHaylock 10:20AM

Caller: Number 13 - xxxxx xxxxxxxx

Comment: Safety comes in and checks their office out on a regular basis, she feels real good about the safety here at Pantex.

CMHaylock 12:21PM

Caller: Number 14 - Mrs. xxxx xxxx (Home: xxx-xxxx)

Comment: Calling for her husband, who is out on sick leave at the present time. He will be going out on permanent disability as of October 24, 1989. He was a machinist, and was called out of his area to do some work in another area and was exposed to some radioactive materials. She would also like to know if someone will come to their house to interview him. She called for him because he has a hearing problem, and cannot understand or hear the person on the other end. They have received several calls from the press. The press is interested in printing Mr. xxxx's story, but they (she and Mr. xxxx) would like to talk to the Tiger Team first. Please call her back and confirm appointment time and date.

CMHaylock 2:20PM

Response: Call discussed with Tiger Team Leader and Deputy Leader.

CMHaylock 2:30PM

Caller: Number 15 - xxxx xxxxxxxxxxxx (xxxxxxxxxxxxxxxx, St. Anthony's Hospital, 378-xxxx)

Comment: We are working with Pantex in establishing a radiation treatment hospital facility. He has been at the hospital 4 years, and has nothing but positive feelings about Pantex and what they stand for, he would like to talk to or see someone from the Tiger Team.

CMHaylock 2:22PM

Response: Message given to N. Davison (Leader, Safety and Health Team) for follow-up per Tiger Team Deputy Leader.

CMHaylock 3:00PM

Action: Interview with xxxxxxxxx and inspection of facility identified problems at hospital in Emergency Operating Room designated for contaminated work patients. General conversation revolved around positive and cooperative relationship developed between Pantex and the hospital.

CMHaylock (Time ?)

Caller: Number 16 - xxx xxxxxxx (xxxxx)

Comment: He works in Building 12-39, Fire Department, and would like to set up an appointment to be interviewed or to talk to one of the Tiger Team Members in person. Please call him back to confirm.

CMHaylock 2:25PM

Response: Message/Request assigned to Norm Davison (Leader, Safety and Health Team) for follow-up.

CMHaylock 2:30PM

Action: Norm Davison informed Tiger Team Leader that an interview w/Mr. xxxxxxxx had been scheduled for 7:30AM, 10/06/89, by Carolyn Haylock and that he would be the one conducting the interview.

Final Action: Interview conducted as scheduled, on 10/06/89, 7:30 AM, employee wanted to pass on positive comments. Interview was used to replace Fire Chief planned interview.

Caller: Number 17 - xxxx xxxx

Comment: All the way around this has got to be the best place to work at. Safety and health is a number one concern of everybody here at the plant.

CMHaylock 2:40PM

Caller: Number 18 - Anonymous

Comment: Positive comments and feelings about the hotline and Pantex, happy to be able to tell his feelings.

CMHaylock 2:50PM

Caller: Number 19 - Mrs. xxxx xxxx

Comment: Second call, she heard her phone ringing, but was not able to get to it in time, she thought it may have been us, the Tiger Team, she is waiting to hear from us.

CMHaylock 2:55PM

Response: Discussed once again with Tiger Team Leader and Deputy Leader, assigned to Management Team, Dean Clark.

CMHaylock 3:45PM

Action: See attachment (Hotline No. 19)

Caller: Number 20 - xxxx xxxxxx (xxxxxx)

Comment: 1957 he started working here at Pantex, it is a good place to work and a safe place to work. He feels that all the supervisors here are concerned with the safety of the workers.

CMHaylock 4:17PM

10/06/89 (Friday)

Caller: Number 21 - Anonymous

Comment: Pantex is a good safe place to work at.

CMHaylock 10:30AM

Caller: Number 22 - Anonymous

Comment: Would like to know if he could come in and talk to the entire Tiger Team...if not who? or how many? Will this meeting be confidential? Does he have to come here or can someone meet him off the grounds?

CMHaylock 11:00AM

Note: Caller would not leave a name or number and would not schedule any type of appointment or interview at the time of his call, said he would call back later.

10/07-08/89 - Weekend (Sat. & Sun.)

10/09/89 - Holiday (Monday)

10/10/89 (Tuesday)

Caller: Number 23 - xxxx xxxxx (xxxxx)

Comment: Injured by chemical exposure, work area 11-20. Dr. Kohn referred Mr. xxxxx to Tiger Team Leader.

Note: Call received by Ralph Stein 10/10/89
12:05 PM

CMHaylock 12:30PM

Response: Assigned to OSHA Team per R. Stein, Tiger Team Leader.

CMHaylock 12:40PM

10/11/89 (Wednesday)

Caller: Number 24 - Anonymous

Comment: Tiger Team should look at Evaporation Pond 11-51. An old diagram of the plant would show where it is located, a new diagram would not show it. It is completely covered up now, and has been for quite some time. They had the land bulldozed over the area where the pond use to be.

CMHaylock 2:48PM

Response: Assigned to Joe Boda (Leader, Environmental Team) for follow-up/action per Tiger Team Leader and Deputy Leader.

CMHaylock 3:02PM

10/17/89 (Tuesday)

Caller: Number 25 - xxxxxxxx (xxxxxx)

Comment: He works in Bay 10 - 64. Recently, he had a blackout, it really upset him and his wife, he went to the hospital and they kept him for several days, they ran several test. He would like the Tiger Team to check out the level of electrical current going through the metal detectors in his building. He goes through the detectors countless times per day. He thinks that his balance could be off and blackout could have been caused by the metal detectors. He also knows of four other people in his section that have experienced blackouts, that they feel may be caused also by the metal detectors. He has spoken to his supervisor and the safety person on his job about his concerns. He is interested in talking to someone from the Tiger Team in detail. He would like to know if the metal detectors are harmful to a human life.

CMHaylock 9:30AM

Response: Assigned to George Rael, Safety and Health Team.

CMHaylock 9:38AM

Action: See attachment (Hotline No. 25)

Caller: Number 26 - Anonymous

Comment: They do not have adequate ventilation in the electronic building 12-5, for the smoking areas. If you enter after someone has been smoking, there is a cloud of smoke left in the room. Please check.

CMHaylock 11:05AM

Response: Assigned to Les Grove, OSHA

CMHaylock 11:10AM

Action: OSHA visited, no action needed.

CMHaylock 12:20PM

Caller: Number 27 - xxxx xxxxxxxx (xxxxxx)

Comment: He has several comments and would really like to talk to one of the Tiger Team members, but he hopes that his concerns will be kept confidential, the 1st one is:

- The temperature in their building is low in the winter, below 60 and hot in the summer, above 90
- He has gotten in trouble when he brings the subject up about the temperature
- They have had problems trying to have their radioactive material/waste disposed of properly.

CMHaylock 3:15PM

Response: Assigned to George Rael, Safety and Health Team.

CMHaylock 3:28PM

Action: See attachment (Hotline No. 27)

10/18/89 (Wednesday)

Caller: Number 28 - xxxx xxxxxxxx (xxxxxx)

Comment: He has some information to offer on the May 17, 1989 tritium release incident.

CMHaylock 10:50AM

Response: Assigned to Norm Davison, Safety and Health Team.

CMHaylock 11:00AM

Caller: Number 29 - xxx xxxxxx (xxxxxx)

Comment: He would like to talk to one of the Tiger Team members. He received an injury on the job in February, was out sick more than 90 days, so his clearance was taken. He returned to work in May, and cannot get any answers about his security clearance. Please call back with appointment time and name of who to meet with on the Tiger Team.

CMHaylock 3:20PM

Response: Assigned to Norm Davison, Safety and Health Team.

CMHaylock 3:25PM

Action: Talked to Dick Phillips, who is familiar with this case, and will talk to xxx xxxxxx on 10/19/89 to explain why delay - this is outside Tiger Team jurisdiction.

CMHaylock 5:15PM

Caller: Number 30 - Anonymous

Comment: FS5, Fire Site 5 should be looked at. It is an old FS that is no longer used, and after a rain he use to see completed uranium all over, everywhere in that area.

CMHaylock 4:45PM

Response: Assigned to Joe Boda, Environmental Team.

CMHaylock 5:00PM

Action: Environmental Team visited site, addressed concerns.

CMHaylock (Time ?)

Caller: Number 31 - Anonymous

Comment: This job has been good to him, the people are sincere and caring. Safety and health is their number one priority.

CMHaylock 5:08PM

10/19/89 (Thursday)

Caller: Number 32 - Anonymous

Comment: Beryllium machining at Pantex Plant.

CMHaylock 3:19PM

Response: Assigned to Don Schueler, Deputy Tiger Team Leader

CMHaylock 3:19PM

Action: See attachment (Hotline No. 32)

10/20/89 (Friday)

Caller: Number 33 - xxx xxxxxx (xxxxxx)

Comment: He works in the Electric Shop (12-5E). They had some tiles to fall out of the ceiling at the Electric Shop. Some repairmen are there right now fixing the ceiling. The men have on the protective wear, asbestos suits, etc. But he and his co-workers are still in the area, have not been asked to leave, and do not have anything on to protect them. Could someone please check this out now.

CMHaylock 9:00AM

Response: Assigned to Les Grove, OSHA Team.

CMHaylock 9:10AM

Action: Complaint was investigated and no violations were noted.

CMHaylock 9:30AM

Caller: Number 34 - xxx xxxx (xxxxxx)

Comment: He is a production technician. He has been with the company 27 years. Three times in the past he was supposed to be contaminated. He requested his record and inside his record it only showed one incident. He would like to know what happened to the other two.

CMHaylock 9:15

Response: Compliant called into AAO attention for action per D. Schueler.

CMHaylock 10:00AM

Caller: Number 35 - xxxxxxxx xxxxxx (xxxxxx)

Comment: Glare from arc welding, flash burns on return, effects on workers other than the "welder",
Boiler Shop.

CMHaylock 11:20AM

Response: Assigned to Norm Davison, Safety and Health Team.

CMHaylock 11:21AM

Action: Shop was visited by OSHA Team, and citation issued - infraction correctable by use of "table screens" which will be provided in the future.

CMHaylock 1:30PM

10/23/89 (Monday)

Caller: Number 36 - Mr. xxxxxxxx

Comment: He is calling from the Sheetmetal Shop and would like to know if someone could come there right now to examine a barrel. He says the barrel has high explosive dust in it, and it should not. The barrel was sent to the Sheetmetal Shop for rework. This is the 3rd incident like this. The barrel was cleared through safety with work permit attached and signed by them.

CMHaylock 11:55AM

Response: Assigned to Norm Davison, Safety and Health Team.

CMHaylock 12:01PM

Action: Visit made by the OSHA Team, error identified, contractor cited, drums were removed from shop for decontamination.

CMHaylock 12:20PM

Caller: Number 37 - Anonymous

Comment: The Tiger Team should look at the number of hours an individual works when schedules are or have to met. The employees out here work 12 to 16 hours a day, six to seven days a week when they are trying to meet a schedule date. He thinks that people who have been working steady for more than 15/16 hours should not be working around or with high explosives. Shouldn't there be regulations preventing long hours when you work in this kind of environment.

CMHaylock 3:25PM

10/25/89 (Wednesday)

Caller: Number 38 - xxxxxx xxxxxxxx

Comment: The Pantex Tiger Team Office received the following hotline input from DOE/HQ by telephone, 12:36PM, Wednesday, October 25, 1989:

The IG hotline received a call from Ms. xxxxxx x. xxxxxxxx, an employee of M&H at the Pantex Plant (Badge No. xxxx - employed in Bldg. 12-28, Quality). (The IG hotline system refers calls to DOE/HQ for action when it is known that an assessment, or investigating team is in the field).

Ms. xxxxxxxx's call referenced a "tritium incident" at the plant 4-5 years ago, in which she allegedly received exposure. Her concerns center on what she perceives to be an inadequate response or reactive capability by the M&H medical and health departments, claiming that the department was ineffective in prompt attention, appeared to be untrained in tritium procedures, lost or mixed up urine samples and demonstrated general ineptitude. Her concerns are for improved response to future exposure victims.

CMHaylock 12:36PM

Response: Assigned to Don Schueler, Deputy Tiger Team Leader.

CMHaylock 12:36PM

Action: See attachment (Hotline No. 38)

Caller: Number 39 - xxxx xxxxx

Comment: Chemical exposure, unhappy with medical and safety people. Both threatened his exposure badly.

CMHaylock 2:00PM

Response: Assigned to Les Grove, OSHA Team.

CMHaylock 2:10PM

Action: OSHA met with Mr. xxxxx, addressed his concerns.

CMHaylock 3:00PM

10/27/89 (Friday)

Caller: Number 40 - xxx xxxxx

Comment: He is very satisfied with his place of employment.

CMHaylock 1:20PM

Caller: Number 41 - Anonymous

Comment: Pantex is a very good place to work. The management is concerned with the safety and health of all their employees. She is glad to be a part of their staff.

CMHaylock 3:00PM

INFORMAL NOTE

October 20, 1989

Subject: Follow-up to Hotline Report

To: The File

Ref: Telephone call to Tiger Team on October 4, 1989, 11AM from
xxxxxx xxxxxxx, xxx-xxxx

October 20, 1989, 1:30PM, Tiger Team representatives, Ralph Stein (Tiger Team Leader), and Carolyn Haylock (Administrative Assistant), met with Peace Farm representatives, xxx xxxxxxxx, xxxxx xxxxxxxx, and xxxxx xxxxxxx. Tom Walton (Pantex, Public Affairs Specialist) was also present.

Formal introduction of the Tiger Team members was made by Tom Walton.

Mr. Stein explained the role of the Tiger Team and intent of Admiral Watkins, Secretary of DOE. He also explained the procedures and schedule of the assignment (from the pre assessment visit... to the closeout briefing... to the printing of the final report).

Mr. Stein briefly explained the functions of each group:

1. Environmental Team/Joe Boda (Leader) - Make sure Pantex is in compliance with state and local regulations and DOE orders as it pertains to the environment
2. NEPA Sub-Team/Carolyn Osborne (Leader) - NEPA is a Sub-team under the Environmental Team, they make sure NEPA regulations are being followed
3. Safety and Health Team/Norm Davison (Leader) - Check operations associated with workers safety and health
4. OSHA Sub-Team/Charlie Grua (Coordinator) - OSHA is a Sub-team under the Safety and Health Team, they work independently and will submit their own report, which will be incorporated into our draft report as one of our appendices

5. Management Team/Tony Upchurch - Issues on management operations and policies, find the root cause of the findings, see if it is a management problem (use a spill down procedure, start with AAO, to AL, to DOE/HQ, even further if necessary).

After Mr. Stein finished speaking, each one of the Peace Farm representatives expressed their concerns.

Discussion points from xxx xxxxxxxx:

- o He lives at the farm and works in town
- o Expressed appreciation to the Tiger Team members for taking time to meet w/him and his associates
- o Peace Farm is the only anti nuclear group of its kind in Amarillo, Texas
- o They would like to see more literature designed for public reading so that people can have a real perspective on the level of seriousness on public safety and health
- o Documents/publications that are available are so large and indepth that it is difficult to understand or receive a real meaning, literature should be technical but concise.

Discussion points from xxxxx xxxxxx:

- o She lives and works at the farm
- o The arrival and purpose of the Aherne Committee? Stein answered: Tentative arrival date is November 13, 1989. The purpose is to assess the views of the public on safety and health
- o Would like to see DOE come up with a more direct way of involving the public in these assessments
- o Would like to see DOE have regular public meetings
- o She thinks that more media coverage would be an excellent way of informing the public on environment, safety and health
- o National rating of problem sites nationwide - Pantex rated 2nd worst solvent dump.

Discussion points from xxxxx xxxxxxxx:

- o She lives and works at the farm
- o Question to Stein...Once this assignment is completed, how would your recommendations be used?

Response: Stein

He makes no recommendations, but he will review the action plan submitted to HQ from Pantex

After action plan is accepted at HQ, the Program Office will make sure the action plan is implemented

- o She is afraid that once the assignment ends and the Tiger Team leaves Texas, very little or no follow-up will be done
- o Her public perception is that people have distrust in the system once it is out of the hands of the local community, she thinks the system has a few cracks in it
- o She feels that nothing is every mentioned about the transportation of weapons and that is just as important as manufacturing and information on both should always be incorporated together
- o Question for Stein... Is the timeline allowed to you comfortable for you to perform this kind of assessment?

Response: Stein

Yes, I feel that it is a comfortable timeline. We are scheduled for closeout October 31, 1989, and I feel confident that we will be fully prepared.

Mr. Stein asked if there were any more questions, all of the Peace Farm members individually said no, and thanked Mr. Stein once again for taking the time to meet with them. Meeting ended at approximately 2:32PM.

Carolyn Haylock
Administrative Assistant

INFORMAL NOTE

October 18, 1989

Subject: Follow-up to Hotline Report

To: The File

October 16, 1989, 3:00PM, Tiger Team representatives, Don Schueler (Deputy Tiger Team Leader), Dean Clark (Management Team) and Dave Maestas (Office of the Chief Counsel, AL) visited Mr. [redacted] at his residence in Claude, Texas. His wife, Mrs. [redacted], and [redacted], his legal counsel, were also present.

Introduction of the Tiger Team members was made by Mr. Schueler, who explained the role of Tiger Team and intent of Admiral Watkins, Secretary of DOE, in his review of environment, health and safety of the DOE plants and facilities. Mr. Schueler expressed the Tiger Team's interest in the alleged incident(s) that created Mr. [redacted]'s current physical condition.

In the presence of all, Mr. [redacted] identified three specific incidents which he felt affected his health. The first incident happened approximately 12 years ago. He was shaping a material with a file, to a specific shape, and working in a glove box in an experimental facility. He got some of the filed material on his wrists (above gloves). The "engineer" noticed and said he should wash it off, which he did three times. Two years later he had a tumor taken off that wrist and a tumor taken off a testicle. The second incident happened about 4 years ago. He served as a helper in the heat treatment process shop, he subsequently was sent to assist in a high temperature environment, protected only by a furnished high temperature outfit. He alleged he suffered inhalation of high temperature air, which caused problems in his nasal passage and lungs. He attributed the incident to faulty protective clothing and superheated air.

Local medical attention was solicited, but did not provide relief to symptoms, nor demonstrate any conclusive information on Mr. [redacted]. Finally, as his condition progressively got worse, he visited his family doctor, was hospitalized and treated for internal burns. A workers compensation claim was filed, on this incident, but not paid as they determined no injury had taken place.

The major, most recent incident was the alleged exposure to toxic gases in an assembly bay. Mr. [redacted] was a machinist assigned to the tool machine shop. He was called in on swing shift to extract a plug from a weapon casing. Mr. [redacted] alleged he had never worked in this area prior to that time. He did not receive

proper instructions or information on the type of hazardous material that he would/could be exposed to. It was later determined by safety that the furnished engineering instruction did not detail the hazards adequately. He didn't recognize the furnished EI as such and therefore did not read it. He was directed to drill out the plug with hand tools, without full definition of what hand tools were to be. He used a pneumatic power drill, which caused excessive heating of the pyrophoric material (toballoy) on which he was working. He was not provided with a respirator. The co-workers used graphite to quench the combustion of the cuttings. He was advised by his co-workers that he had been exposed to "poison".

Upon completion of his assignment at approximately midnight, Mr. observed a black residue in his nasal passage. He reacted by blowing and probing his nose to attempt to clear it. Efforts were made to contact the medical attendants or representatives in health and safety. His supervisor called the fire department, and one of their personnel proceeded to take nasal swipes.

Subsequent to the exposure, Mr. began experiencing disorientation, instability and other physical symptoms which he attributed to the exposure. His attempts to obtain medical advice and/or assistance from M&H medical were not fully satisfied. Other employees that worked with Mr. were reluctant to tell him what hazardous material he was exposed to. He sought medical attention from the Mayo Clinic and other medical sources. He has filed for workers compensation. Mr. has also filed a legal suit to be compensated for damages.

The Tiger Team offered no solution to his problem. We accepted his input and expressed our intent that the information would be factored into the ultimate report to the secretary.

Don Schueler

Hot Line Call

Date: October 17, 1989

Name: , Production Technician

Subject: Metal Detectors

Mr. met with George Rael of Tiger Team to discuss his recent "black-out" which he feels is due to the metal detectors that are used in entering and exiting his work place. The following is Mr. black-out incident.

On September 18, 1989, Mr. was asleep on the couch at his home. He claims that he fell off the couch and blacked out for about 30 minutes. His wife found him and called 911 for help. Paramedics assisted and took Mr. to the hospital. Mr. had extensive testing done on him to determine the problem. Doctors found nothing wrong with him. Upon returning to work, Dr. Lang (Mason & Hanger Physician) put Mr. under some temporary restrictions. No high- explosive work, no stairs, no driving, cannot be by himself, and no heavy lifting.

Mr. continues to work without any complaints about his restrictive duties, but claims that the blackouts are a result of the metal detectors that are used in entering and exiting the work place.

I discussed the metal detectors with Daryal Pannell and Wayne Herr, both with M&H's Security Engineering. Mr. Pannell has five technicians who are responsible for testing and inspecting the metal detectors on a bimonthly basis. Mr. Pannell and I inspected one of the four metal detectors. No problems were noted. Mr. Herr allowed me to review the "Pantex Plant Intrusion Detection and Access Systems Security Plan," dated July 1989. The plan is classified confidential and is approved by DOE/AL and DOE/AAO. The plan provides procedures for testing and inspection of the metal detectors. It is a well documented plan with adequate procedures.

No evidence can be traced to Mr. black-out from the metal detectors. The metal detectors are properly maintained and operated.

George Rael
Safety and Health Team

HOT LINE CALL

NAME:
POSITION: Electronic Technician
COMPANY: M&H

SUBJECT: Asbestos Removal Concern

Mr. met with George Rael of the Tiger Team assessing the Pantex Plant on October 19, 1989, on the subject concern. The following is Mr. concern:

About May or June 1989, the maintenance department conducted an asbestos removal of ceiling tiles/insulation in Building No. 12-5, Electronics Shop. Various safety requirements were followed by the workers and the safety and health personnel. Requirements such as monitoring the air and using the respirators when removing and handling the asbestos. However, the employees in the building were not notified of the removal and were not required to leave the area when the work was under way. Mr. work bench was approx. 10 to 12 feet away from the actual removal. His limited knowledge of asbestos was enough to leave the area until the work was done. On his return he noticed that the workers had left a pile of what appeared to be the same material that was being removed. That material was removed at a later date. A few weeks later a film on the hazards of asbestos was shown to Mr. and his fellow workers. A little late. Mr. has brought this safety concern and others to his immediate and second line supervisors, but is only met with resistance and no care attitude.

I informed Mr. that the Tiger Team had already discovered some deficiencies by M&H in the area of asbestos. I explained that his concern would add additional backup to the deficiencies already uncovered.

10/19/89
George J. Rael
Safety and Health Team

10/19/89

MEMORANDUM TO THE FILE:

Upon receipt of a telephone call the evening of 10/18/89, Mark Gilbertson advised R. Stein and D. Schueler that a situation had arisen at the Y-12 plant which involved Beryllium(Be) machining, and OSHA monitoring of the machine shop. An allegation was made, during that call, that a similar situation was potential at the Pantex plant.

On that date I made a specific inquiry of Gerald Johnson, Deputy Area Office Manager, AAO, regarding that allegation.

By verbal report, 9AM, Thursday, 10/19/89, Mr. Johnson advised me that there had been a history of Be machining at Pantex. Some minor machining activity has been accomplished, prior to 1986 in association with sampling/materials testing operations related to the stockpile verification program. This activity was terminated at Pantex in 1986.

In conjunction with the DOE Be notification program in 1988, the M&H Plant Manager initiated an inter office memo to document M&H position denying approval of future Be machining operations, a copy of that memo is attached.

Don Schueler
Deputy Tiger Team Leader
Pantex

Attachment

File 7

INTEROFFICE MEMO

November 21, 1988

HANGER-SILAS MASON CO., INC.

Date

J. W. Tones *fat*

Location Safety, 12-107

Distribution

Location

P. G. Kelley *PK*

Safety Director, 12-107

M. S. Johnson *MSJ*

Div. Mgr., ES&H, 12-2

SUBJECT: Discontinuance of Beryllium Machining at
Pantex Plant

Effective immediately by directive from the Plant Manager, there will be no safety approval for machining beryllium at Pantex. This memo supersedes all approvals that may have been granted in the past.

Operating standards are being reviewed and any requirements for beryllium machining will be deleted.

Please inform pertinent individuals within your division of this directive.

J. W. Tones
J. W. Tones

JWT:rf

Distribution:

E. D. Poynor, Div. Mgr., Mfg., 12-69

R. E. Taylor, Div. Mgr., Mfg. Eng., 12-6

R. J. Slape, Div. Mgr., Development, 11-2

J. C. Drummond, Jr., Div. Mgr., Quality, 12-28

Information Copy:

C. D. Alley, Plant Manager, 12-36

cc: H. Phillips, 12-2

R. T. Taylor, 12-2

R. E. Alexander, 12-2

INFORMAL NOTE

October 26, 1989

MEMO TO THE FILE

SUBJECT: Closeout of Hotline Call - xxxxxxxx xxxxxxxx
(Badge No. xxxx)

An inquiry into the alledged tritium release incident revealed the following information:

- o On November 24, 1986, Ms. xxxxxxxx was part of a team working in Bay 17, Building 12-26, on retirement activities on a nuclear weapon system.
- o During disassembly operations a "gland nut" was backed off its seat. "Portable" tritium detector sniffer equipment was properly utilized in the process. Upon release of the gland nut, the detector alarm associated with the sniffer, activated. The room detector, a separate system, did not, at any time activate.
- o Upon review it was determined that the sniffer system was set at the same "10 scale" calibration, vice the "1000 scale" which was prescribed by the applicable I&E standard.
- o To alleviate employee concern and in response to a local decision based on the "better safe than sorry" principle, the on shift safety engineer elected to have all employees in the area submit urine samples for analysis.
- o Available records (attached) suggest that five M&H employees were sampled, on that occasion, all with negative results.
- o The "10 scale" vs "1000 scale" setting of the detector suggests alarm activation at detection levels of 10 microcuries (H-3)/cubic meter of air vs. 1000 microcuries (H-3)/cubic meter of air.
- o Ms. xxxxxxxx's allegation of "confusion in response activities, medical and record keeping" is somewhat borne out by admissions of uncertainty by the shift safety engineer as to actions to be taken. There are very few of this type of incident, consequently little personal experience, by responsible individuals.

The records, properly, were not maintained in medical, but in the internal dosimetry files, of the health physics department. The male nurse at the medical facility was unsure of policy and practices in taking urine samples.

Dorner T. Schueler
Deputy Tiger Team Leader

Attachment

PX-469
(5 May 85)

MASON & HANGER-SILAS MASON CO., INC
Environmental Health Department

TRITIUM URINALYSIS REPORT

Date Nov 86

Badge	Last Name, First	Work Location	Vial#	DPM	Concentration $\mu\text{Ci/L}$	Dose
		12-11-A	90	0	0	
		12-26	91	0	0	
			92	175.98	1.6×10^{-1}	
		12-11-A	93	0	0	
		12-84	101	0	0	
			102	0	0	
			103	0	0	
			104	0	0	
			105	0	0	
			106	0	0	
		12-69	7	0	0	
		12-24	8	0	0	
		12-6-B	9	0	0	
		12-6-B	10	0	0	
		12-11-A	11	0	0	
		12-64	12	0	0	
			13	0	0	
		12-69	14	0	0	
		12-44	15	0	0	
			16	0	0	
		12-11-A	17	0	0	
		12-44	18	0	0	

Mark Foster 11/24/86
Technician/Date

K-28

HEALTH PHYSICS DEPT - INTERNAL DOSEMETRY

E H File No. 2170.24.3

APPENDIX L

TECHNICAL SAFETY APPRAISAL CORRECTIVE ACTIONS FOR PANTEX PLANT

memorandum

ALBUQUERQUE OPERATIONS
AMARILLO AREA OFFICE

DATE

REPLY TO
ATTN OF AAO:AGL

SUBJECT TSA Follow-up Visit to the Pantex Plant

TO Blake P. Brown, Team Leader
Office of Safety Appraisals DOE/EH-331

Pursuant to your memorandum of March 24, 1989, for the follow-up appraisal scheduled for Pantex Plant April 24-27, 1989, Pantex Plant has prepared a status report of corrective actions regarding the 20 original recommendations. This status report is being provided to the TSA team members as you requested.

If there is anything else we can provide please do not hesitate to call.

ORIGINAL SIGNED
BOB L. GAGE

Bob L. Gage
Chief, ESH&EP Management Branch

Attachment

Blake P. Brown

-2-

cc w/attachment:
Richard H. Lasky, DOE/EH-331

Thomas J. Mazour
2 Broadway
Mystic, Connecticut 06355

Leo. G. Faust
Pacific Northwest Laboratory
P.O. Box 999
Richland, Washington 99352

Norman H. Davison
DOE/EH-342

Larry D. Warren
Route 1, Box 144-C
Newton Grove, North Carolina 28366-9801

James H. Hines, DOE/AL

**TECHNICAL SAFETY APPRAISAL
CORRECTIVE ACTIONS
FOR
PANTEX PLANT**

April 1989

Mascon & Hanger-Silas Mascon Co., Inc.

Pantex Plant

P. O. BOX 30020
AMARILLO, TEXAS 79177
806-477-3000

operated for the
U.S. DEPARTMENT of ENERGY

L-3

under

U.S. Government Contract DE-AC04-76DP-00487

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A. ORGANIZATION AND ADMINISTRATION
OA.1-1 (Facility Organization and Administration)

RECOMMENDATION: Develop a management directive that:

- (1) sets forth a detailed description of the Pantex non-weapons Quality Assurance Program.
- (2) describes the responsibilities, authorities, and method of operation of the Quality Division and those of the other non-weapons Quality Assurance units at the Plant.

ISA Conclusions:

- * Notwithstanding that the non-weapons Quality Assurance Program appears to be quite comprehensive, there is no overall procedure document setting forth the basis, criteria, and organizational relationship of the program elements.
- * There are a number of non-weapons Quality Assurance units in the Pantex organization, and their interrelationships are not described at the top management level.
- * Lack of these management directives can lead to confusion as to the interfaces among the various groups with quality assurance responsibilities, and failure to fulfill all obligations.

Cause Analysis:

Analysis of the recommendation resulted in the following findings:

- (a) There was no formal Plant Policy for the Non-Weapons Quality Assurance (NWQA) Program. The existing policy was directed more toward the weapons program.
- (b) There was little visibility of the NWQA Program in the Quality Manual. The extent of the NWQA Program was referenced as "Quality Plans" in Section 3 of the Quality Manual dated 1985. This section failed to address any aspect of NWQA.
- (c) The management tool to determine the need for quality plans did not exist. This tool would have provided the parameters to be used in determining the need for a plan, and the required control and verification measures.
- (d) There were no procedures identifying "how to" implement the QA Program and control work activities.

A. ORGANIZATION & ADMINISTRATION

OA.1-1 (Facility Organization & Administration)

Basic root cause analysis showed that although we had a comprehensive non-weapons Quality Assurance Program, there were areas in our management system needing improvement. Specifically, NQA-1 Basic Requirements 1 (Organization) and 2 (Quality Assurance Program) were not being met.

Corrective Actions:

* Milestone 1: Develop and publish a non-weapons quality management directive.	Complete
02/89 |
|---|---------------------------|

To enhance the implementation of a comprehensive NWQA program, Mason & Hanger established an NWQA Department to define and document policies and procedures of the program. The NWQA Director reports to the Quality Division Manager. In addition, an NWQA Core Team was assembled with a minimum of one member for each of the eleven organizational divisions at the Plant. The Core Team members are responsible for coordinating the NWQA efforts in their division.

An NWQA program manual was published in February of 1989 which contained Quality Standard 600, "Non-Weapons Quality Assurance Program", and the NWQA Implementation Plan. Additional quality standards have been incorporated into the manual which define the basic requirements of NQA-1 and NWQA assessments and plans.

A. ORGANIZATION AND ADMINISTRATION
OA.4-1 (Management Assessment)

RECOMMENDATION: Enlarge the scope of the internal audit function to include assessments of the technical adequacy of the activities undertaken to comply with procedural requirements. In particular:

1. Conduct the internal audits with persons technically qualified in the disciplines being audited.
2. Provide auditors who are independent of the day-to-day operations.

TSA Conclusions:

- * The Quality Assurance Division conducts audits of departments having quality plans for conformance to the requirements of their plans.
- * The Quality Assurance Section of Plant Design Engineering is responsible for auditing the Industrial Engineering Department, the Safety and Fire Protection Division, and the waste management functions of the Development Division for conformance to the requirements of their quality plans/programs.
- * The Internal Audit Department conducts periodic audits to verify compliance with requirements of procedures and with requirements of DOE and AL orders.
- * Internal Audit Department efforts are generally procedural and do not reflect a technical evaluation of the areas audited.
- * Additional support for the following recommendation will be found in subsections RP.1, RP.2, and TS.7 of this report.

Cause Analysis:

- * Cause analysis showed an extensive system of appraisals, audits, and surveys, but overall lack of expertise independent of the day-to-day operations for the activities being audited. NQA-1 Basic Requirements 1 (Organization) and 18 (Audits) were not being met.

ORGANIZATION & ADMINISTRATION
OA.4-1 (Management Assessment)

Corrective Actions:

- * Milestone 1: Contract consultants to perform audits of nuclear activities for technical adequacy. Complete 10/88

Technical audits completed were:

- (1) Explosives Safety Survey, Department of Defense Explosives Safety Board - 3/88.
- (2) Health Physics Audit, Delphi Groupe, Inc. - 6/88.
- (3) Radioactive Materials Packaging and Transportation QA Audit, AWC - 6/88.
- (4) Fire Protection Program Appraisal, Professional Loss Control - 9/88.
- (5) Safety and Health Audit, National Safety Council - 10/88.

Audit of the Nuclear Criticality Safety Committee is planned for 9/89.

- * Milestone 2: Establish corporate oversight audit activity. Complete 03/89

Outside consultants contracted to perform the corporate audits will be technically qualified in the disciplines being audited and will be independent from the day-to-day operations as required in Paragraph 9, DOE Order 5480.5. Safety Standard 319.11 has been revised to document the system of corporate appraisals and to assign responsibility to the ES&H Division for coordinating these appraisals with the corporate office.

A. ORGANIZATION AND ADMINISTRATION
OA.6-1 (Document Control)

RECOMMENDATION: Develop a management directive that defines the functions of the Internal Audit Department, establishes its goals, and describes the manner in which it is intended to operate.

TSA Conclusions:

- * The Internal Audit Department audits the divisions for compliance with the procedural requirements, but the audit is confined to verification of the approval status, not the content of the documents or their currency.
- * There is no overall Office Standard setting forth the charter for the Internal Audit Department and defining its function, its objectives, and the manner in which it is intended to operate.

Cause Analysis:

- * Analysis of the recommendation indicates a need to define the functional responsibilities and structure of the Internal Audit Department as called out in NQA-1 Basic Requirement 1 (Organization).

Corrective Actions:

*	Milestone 1: Publish Office Standard 027 titled "Internal Audit Functions".	Complete
08/87 |
|---|---|-------------------|

Office Standard 027 was published and defines the function of the Internal Audit Department, its purpose, its responsibilities, and the manner in which it is intended to operate. The Internal Audit Department charter is also described in the Organization Responsibilities and Authorities Manual.

The Internal Audit staff possess adequate professional proficiency to perform financial audits, operational audits including economy and efficiency, and computer application audits. In these areas, compliance with contract requirements, laws, and regulations are verified against current procedures and proper documentation.

**F. EMERGENCY READINESS
ER.2-1 (Facility Emergency Plan)**

RECOMMENDATION: Update the Pantex Emergency Plan and establish a program to keep the plan and implementing procedures current.

TSA Conclusions:

- * The PEP was last revised in March 1982. Much of the information in the PEP is either outdated or inconsistent with implementing procedures (e.g., Crisis Management Plan). Implementing procedures are relied upon for mitigating the consequences of emergencies and are well maintained.
- * Section 3 of Attachment 1, Notice DOE 5500.2, requires that emergency plans and procedures be maintained on a current basis.
- * Amarillo Area Office Environmental, Safety, Health and Emergency Preparedness Survey 87-1 also identified that the PEP was not current. The target date for correcting this finding is September 30, 1987.

Cause Analysis:

- * Cause analysis showed delayed responses to previous surveys and the use of outdated and inconsistent plans and procedures. NQA-1 Basic Requirements 5 (Instructions, Procedures and Drawings), 6 (Document Control) and 16 (Corrective Actions) were not being met.

Corrective Actions:

- * Milestone 1: Issue the revised Pantex Emergency Plan. Complete 01/88

The revised document was the Pantex Emergency Plan only. That is, the "Plan" portion of the old (yellow bound) PEP was removed and rewritten in accordance with DOE Notice 5500.2 of February 23, 1987 (later reissued as DOE Notice 5500.3 of March 23, 1988).

A milestone plan for completing the implementing procedures was developed and approved by the DOE/AAO. Each of the implementing procedures manuals is being (will be) issued as a supporting document to EPP-1000, and as an individually EPP-numbered, stand-alone document. Each of these documents do (will) contain the requirement for annual review/update; just as EPP-1000 does.

The first annual review/update of the Pantex Emergency Plan, EPP-1000 was completed March 17, 1989.

F. EMERGENCY READINESS
ER.2-1 (Facility Emergency Plan)

The EPS planned, and had partially accomplished, a "piece-by-piece" cancellation of the old PEP. However, after several "pieces" had been cancelled, confusion between the old and new PEP began to come into play amongst users. The situation was evaluated by the EPS, and on March 15, 1989, a Plant Manager's memorandum was signed and distributed which cancelled the old PEP and asked that old copies be forwarded to the EPS by 04/01/89.

* Milestone 2: Implement system to ensure annual review/update of all EPP Manuals	Complete 03/89
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Paragraph III-I of EPP-1000 (the Pantex Emergency Plan) establishes the requirement for an annual review and update of each EPP manual. An EPS tickler system is in place to assure update as required.

F. EMERGENCY READINESS
ER.4-1 (Emergency Facilities, Equipment, and Resources)

RECOMMENDATION: Upgrade the inspection and testing system for emergency equipment to meet the requirement of DOE N 5500.2.

TSA Conclusions:

- * Notice DOE N 5500.2, Attachment 1, Section 6.a.(4) requires that emergency equipment be regularly inspected, tested, and maintained to assure its reliability under accident conditions.
- * The majority of RAT radiation monitoring instruments were either past due for calibration or were not included in a calibration system.
- * Fire extinguishers in the Pantex Emergency Response Vehicle and Emergency Response Trailer were observed to be past due for inspection. This oversight was corrected immediately.
- * Amarillo Area Office Environmental, Safety, Health, and Emergency preparedness Survey 87-1 also identified that routine inspections and tests of emergency equipment are not scheduled. The target date for resolution of this finding is July 31, 1987.

Cause Analysis:

- * Cause analysis revealed that a previous survey finding had not been completed and weaknesses existed in NQA-1 Basic Requirements 12 (Control of Measuring and Test Equipment), 14 (Inspection, Test and Operation Status) and 16 (Corrective Action).

Corrective Actions:

* Milestone 1:	Place all Radiological Assistance Team (RAT) radiation monitoring instruments in a calibration system.	Complete
11/87 |
|----------------|--|-------------------|

In addition to all RAT radiation monitoring instruments, RAT air sampling equipment has been added to the calibration system. The system has two parts; alpha monitoring instruments and air sampling equipment is calibrated by the Metrology Department and beta/gamma monitoring instruments are checked by the Electronics Shop.

F. EMERGENCY READINESS

ER.4-1 (Emergency Facilities, Equipment, & Resources)

- * Milestone 2: Establish a program to ensure that emergency equipment be regularly inspected, tested, and maintained to assure its reliability under accident conditions.** **Complete
03/88**

The RAT Equipment Storage Trailer (REST), which provides storage of Pantex RAT equipment, is now in operation. A part of the operation is a card tracking system that details where equipment is located at all times, e.g., on loan, in calibration, out for repair/test, due for inspection, etc.

A tickler system was developed in July 1988, to ensure routine inspections and tests of emergency equipment are scheduled and accomplished.

- * Milestone 3: Establish a program to ensure that all fire extinguishers used in emergency preparedness are inspected on due date.** **Complete
03/88**

Fire extinguishers for Emergency Preparedness vehicles, equipment, and facilities are now installed and maintained in accordance with Fire Standard 413, "Portable Fire Extinguishers."

F. EMERGENCY READINESS
ER.5-1 (Emergency Assessment and Notification)

RECOMMENDATION: **Expand the Pantex Emergency Plan and implementing procedures to specify levels of potential hazards that require protective actions and notification per DOE N 5500.2.**

TSA Conclusions:

- * Notice DOE N 5500.2, Attachment 1, Section 3.a.(3) requires that emergency plans specify levels or limits of potential hazards which may require evacuation, sheltering, or other protective actions on-site and off-site..
- * The Pantex Emergency Plan addresses Emergency Response Levels of Notice DOE N 5500.2, Attachment 2, Section 5, but does not specify levels or limits of potential hazards for the four Emergency Response Levels (Unusual Event, Alert, Site Emergency, and General Emergency).
- * Amarillo Area Office Environmental, Safety, Health and Emergency Preparedness Survey 87-1 also identified the deficiencies described above. The target date for correction of these deficiencies described above. The target date for correction of these deficiencies is September 30, 1987.

Cause Analysis:

- * Cause analysis revealed a lack of document control to assure the correct documents were being employed and that document requirements were included in procedures. Corrective action for previous survey finding had not been completed. This showed weakness in NQA-1 Basic Requirements 5 (Instructions, Procedures and Drawings), 6 (Document Control), and 16 (Corrective Action).

Corrective Actions:

- * **Milestone 1: Revise the Pantex Emergency Plan** **Completed**
01/88

The updated Pantex Emergency Plan contains two completely new sections: POTENTIAL CREDIBLE EMERGENCIES AND POTENTIAL HAZARD GUIDELINES. The POTENTIAL CREDIBLE EMERGENCIES section identifies hazards specific to the Plant and lists the DOE response level associated with the emergencies. The POTENTIAL HAZARD GUIDELINES contains specific levels or limits of potential hazards which may require evacuation, sheltering, or other protective actions on-site and off-site.

F. EMERGENCY READINESS
ER.5-1 (Emergency Assessment & Notification)

The first annual review/update of EPP-1000 was completed 3/17/89. The POTENTIAL HAZARDS GUIDELINES was expanded to include planning for off-site Emergency Planning Zones (EPZs [reference page 23, paragraph VII.A]).

*	Milestone 2: Revise the Safety Director's,
Safety Communicators', and
Safety Advisor's EOC Guidelines
respectively. | Complete
04/88 |
|---|--|---------------------------|

The EOC Guidelines were updated, revised, and reformatted, as Pantex Plant EOC Cadre Guidelines, EPP-2001, on 4/03/89.

G. TECHNICAL SUPPORT

TS.7-1 (Packaging and Transportation of Hazardous Materials)

RECOMMENDATION: Expand the training program for personnel involved with packaging and transportation and establish a Quality Assurance Plan for shipping containers, as per the recommendations made by DOE/AL in its January, 1986 Transportation Safety Appraisal Program.

TSA Conclusions:

- * The most recent transportation safety appraisal by DOE/AL was in January, 1986. Three recommendations were made. The first regarding the need for an expanded training program, has been only partially implemented (see comments elsewhere under this Performance Objective). The second, regarding the need for a Pantex Quality Assurance Program, is still under study. The Appraisal Team considers the Pantex response to the first recommendation to be inadequate, and response to the second not timely. The third recommendation has been implemented.

Cause Analysis:

- * Analysis showed that the response to the DOE/AL Transportation Safety Appraisal was incomplete. This indicated a weakness in our corrective action process and a need for a Quality Assurance Program.

NQA-1 Basic Requirements 2 (Quality Assurance Program), and 1 (Corrective Action) were not being met.

Corrective Actions:

- * Milestone 1: Complete training records of Packaging and Transportation Personnel Complete 04/89

Personnel performing packaging of nuclear components, waste and hazardous material receive on-the-job-training under the direction of their immediate supervision. This includes initial training as well as re-orientation on a biennial basis.

Supervisors or individuals whose signatures certify that correct packaging procedures have been followed, receive training on an annual basis, that covers the most current regulations.

G. TECHNICAL SUPPORT

TS.7-1 (Packaging & Transportation of Hazardous Materials)

Transportation Department personnel attend an expanded formal course conducted by the Education & Training Center entitled "Transportation of Hazardous Materials". Additionally, each employee attends a refresher course biennially.

The scope of the above mentioned training has been documented and the individual training records, including any specialized off-site training and instructor qualification for certification, have been included in the centralized training records maintained by the Education & Training Department.

* Milestone 2: Issue Quality Assurance Program
Manual for Shipping Containers. | Complete
11/87 |
|---|-------------------|

A Quality Assurance Program Manual for shipping containers has been published and distributed. Implementation of this plan will be evaluated by the NWQA Department. Also, a Quality Plan for 744 Shipping Containers was published in March, 1989.

G. TECHNICAL SUPPORT
TS.7-2 (Packaging and Transportation of Hazardous Materials)

RECOMMENDATION: Provide more detailed technical procedures that ensure compliance with the DOT regulatory requirements for preparation of radioactive waste packages for shipment.

TSA Conclusions:

- * The written procedures (O&I 7-5656) for packaging and identification of radioactive waste shipped off-site are general, rather than specific. The lack of specific procedures may lead to packages which are not properly and accurately described on shipping papers, and not properly marked and labelled. Detailed written technical procedures are needed which accurately and completely reflect the criteria for determining the proper shipping name, marking, labelling, and selection of type of packaging used for radioactive wastes being shipped off-site for disposal.
- * Persons determining the proper shipping name and labelling/markings for packages of radioactive waste were observed to be working with an incorrect handwritten summary of DOT regulatory requirements.

Cause Analysis:

- * Problems with packaging and identification of radioactive waste shipped off-site were traced back to the lack of detailed written standards, which identify responsibility and procedures for these operations. This indicated the need to strengthen NQA-1 Basic Requirement 5 (Instructions, Procedures, and Drawings).

Corrective Actions:

- * Milestone 1: Completely rewrite O&I Standard Completed
10/87

O&I Standard 7-5656 entitled "Low Level Radioactive Waste Packaging" was rewritten 10/87 and revised 3/89 to include more specific procedures. This standard outlines and establishes plant wide procedures for handling and processing low level radioactive waste.

Additionally, Internal Operating Procedure 521.1 entitled "Radioactive Waste Shipments" has been updated to provide additional guidance.

The criteria included in the O&I Standard and the Internal Operating Procedures used for determination of the proper shipping label is based on 49 CFR. The procedures require data furnished by user departments (i.e., isotope, external radiation level) be used in the determination of proper labels.

G. TECHNICAL SUPPORT

TS.7-3 (Packaging and Transportation of Hazardous Materials)

Recommendation: Implement a program to enhance enforcements of the forklift operating rules, and place a greater emphasis on the need for caution in forklift operations.

TSA Conclusions:

- * Forklift operators are highly skilled and clearly proud of their competency. Past problems have been due primarily to carelessness and being in too big of a hurry.
- * Forklift operators were observed on many occasions to be inattentive, to drive too fast, to follow other forklifts too closely, to move loads vertically while in horizontal motion, to fail to use rear-view mirrors when backing or in convoy, to move too quickly in crowded places, to fail to watch their fork tine arc during backward movement, and generally to be in too much of a hurry.
- * Several specific unsafe practices were noted:
 - a. When unloading a "Safe Secure Trailer" (SST) in Bldg. 12-79 on June 15, the forklift continued to transfer drums while the SST roller pallets (CRTs) were being rolled down the ramp. This was a very crowded area at the time. This is an unsafe practice.
 - b. CRTs were not anchored (or blocked or braked) while drums were being unloaded from them. CRTs moved as the forklift bumped against them (violation of industry standard for immobility of pallets being loaded or unloaded).
 - c. Simultaneous vertical and horizontal operations of forklifts were observed frequently, in violation of good industry practice.
 - d. O&I 7-5080 requires forklifts to stop at all intersections and blind corners, and to blow horns. The horns blew regularly, but stops were rare.

Cause Analysis:

- * Although our forklift drivers are highly skilled, an analysis of this recommendation revealed a weakness in the enforcement of Handling, Storage, and Shipping procedures, NQA-1 Basic Requirement (13).

G. TECHNICAL SUPPORT

TS.7-3 (Packaging & Transportation of Hazardous Materials)

Corrective Actions:

- * Milestone 1: Review forklift practices and incidences. Complete 01/88**

The procedures and standards governing forklift operations and applicable incidence reports concerning forklift operation and use were reviewed. In addition, trend analysis using applicable variables was performed to evaluate the potential common factor(s) contributing to forklift incidences. It was determined that there was no evident common factor for forklift incidences.

- * Milestone 2: Install forklift Speed Monitoring System. Complete 12/88**

A contract to install speed monitors on 63 forklifts was completed 12/88. Five forklifts currently lack monitors and have been added to the contract to be completed 5/89.

- * Milestone 3: Implement a program to enhance forklift safety. Complete 01/88**

The policy for establishing and strengthening the penalties for failure to comply with forklift safe operating procedures and rules has been developed and is listed in Safety Standard 318. The disciplinary actions are formal and range from formal reprimand to dismissal.

The specific forklift practices listed in the TSA Report have been evaluated and the forklift training program has been modified to address each of the practices. Training is required prior to initial issuance of a forklift operating license and renewal of the license.

**J. FACILITY SAFETY REVIEW
FR.1-1 (Safety Review Committee)**

Recommendation: Expand the Nuclear Criticality Safety Review Committee's (NCSRC) charter, as appropriate, or otherwise formally provide for an independent review and appraisal system meeting all the requirements of DOE 5480.5, Section 9, to have purview over the designated nuclear facilities.

TSA Conclusions:

- * Although the NCSRC, in practice, addresses aspects of overall nuclear operations at the facilities, its charter does not require it to do so.
- * Not all items required by DOE 5480.5, Section 9, are being addressed by a safety review committee.
- * Further basis for the recommendation to follow can be found in the conclusions for FR.4 and FR.5.
- * The NCSRC reports are directed to the Manager, ES&H, with copies to the Committee members and NCSRC file.
- * There is no formal distribution of the NCSRC reports to managers of affected divisions. ES&H staff states that informal means, such as direct interactions with other divisions, Safety staff meetings, and Central Health & Safety Committee meetings, can and have been used for resolution of report items.
- * Without distribution of reports to affected divisions, traceability of notification to and interaction with divisions responsible for corrective actions is adversely affected.
- * The Plant Manager's report for the January, 1985 appraisal stated "The committee activities for the preceding three-year period (1983, 1984, and 1985) have been reviewed and are judged satisfactory." There was no documentation concerning the scope of the review or criteria used in judging performance.
- * DOE 5480.5 requires the safety review system records to be auditable by contractor management and DOE.
- * The Manager, ES&H, is a line supervisor of several NCSRC members, raising questions of objectivity.
- * The Manager, ES&H, is at the same level as the managers of the affected divisions, which may make problem resolution difficult.

J. FACILITY SAFETY REVIEW
FR.1-1 (Safety Review Committee)

Cause Analysis:

- * Responsibility for various aspects of the DOE Order 5480.5 were assigned to various organizations and handled through existing programs. No one single entity was identified as having all the responsibility for meeting the requirements of the Order (i.e., a system was in place to meet the requirements but a dedicated organizational unit was not).

NQA-1 Basic Requirement 1 (Organization) was not being met.

Corrective Actions:

* Milestone 1: Issue revisions to Safety Standards
307.1 and 330.6 and IOP 3451. | Complete
01/88 |
|---|-------------------|

Safety Standard Index No. 330.6 has been revised to expand the NCSRC charter to: 1) provide for an independent review and appraisal system meeting all the requirements of DOE 5480.5, Section 9, and 2) to have purview over the designated nuclear facilities.

Also, Safety Standard Index No. 307.1 and Risk Management Department Internal Operating Procedure (IOP) 3451 have been revised to incorporate the requirement for a NCSRC project review and safety analysis of plans for proposed new non-reactor nuclear facilities and equipment or proposed modifications having safety significance.

In the past, NCSRC reports were directed to the Manager of Environment, Safety & Health (ES&H), with copies to the committee members and the NCSRC file. Safety Standard 330.6 now requires that in addition, information copies or action copies, of the NCSRC reports be forwarded to the affected Plant operating Divisions including Plant Engineering, Quality, Assembly, and Fabrication.

Information about the NCSRC reports and subsequent corrective actions will continue to be provided in weekly staff meetings.

Having the ES&H Division Manager as a line supervisor of several NCSRC members is not considered to be a concern with regard to objectivity. Organizationally, this does not cause a problem in the Mason & Hanger Pantex Plant management. The Manager of ES&H is in a staff position for environment, safety and health functions, and has no Plant operation responsibility for performing the actual work relative to potential criticality operations. Also, the majority of the members of the NCSRC come from Plant divisions over which the Manager of ES&H has no direct line authority.

J. FACILITY SAFETY REVIEW
FR.1-1 (Safety Review Committee)

The Manager of ES&H is at the same staff level as the managers of other divisions affected by the NCSRC reports and generally takes the lead role in resolution of action items from the reports.

The Manager of ES&H serves the same function for resolution of problems involving other divisions in the disciplines including Nuclear Explosives Safety, Fire Protection, Industrial Hygiene, Waste Management, Industrial Safety, and Radiation Protection. Ultimately, the Plant Manager must resolve any unresolved safety question.

The Triennial Review Reports of the NCSRC submitted to the Plant Manager will have appended to them the NCSRC reports for the last three years, and a scope or criteria statement that the NCSRC used for judging performance.

The revised Safety Standard Index No. 330.6 provides sufficient safety review system records that will be auditable by contractor management and the DOE.

K. NUCLEAR CRITICALITY SAFETY
CS.4-1 (Operating Procedures and Criticality Safety Limits)

Recommendation: Post criticality safety limits for the staging areas to comply with DOE 5480.5, Section 13.

TSA Conclusion:

- * DOE 5480.5, Section 13, item b.4, requires that "Limits for Criticality Safety be posted in conspicuous places near the storage area." Criticality safety limits are not posted in the staging areas.

Cause Analysis:

- * A Root Cause Analysis indicated there was a lack of definition of responsibility for posting the limits. Safety Standards 303 and 330.6 did not sufficiently define the responsibility for posting of Pu and fissile material limits.

NQA-1 Basic Requirement 1 (Organization) was not being met.

Corrective Actions:

- * Milestone 1: Complete posting as indicated Complete
08/87

Limits for Criticality Safety have been posted at Building 12-44 Cell 8, Building 12-26 Vault, Building 12-58 Bays 4 and 5, and the Zone 4 Magazines.

As stated in the reply to Recommendation No. (FR.1-1), a revision to Safety Standard Index No. 330.6 was made to restate the charter of the NCSRC to make clear that the Committee addressees aspects of overall nuclear operations at the facility, including criticality material limits in the nuclear facilities.

Safety Standard 303 was changed to identify the responsibility for posting fissile material limits.

L. RADIOLOGICAL PROTECTION
RP.1-1 (Organization and Administration)

Recommendation: Perform internal audits at the frequency specified in DOE 5482.1B and 5480.1B.

TSA Conclusions:

- * Current audits by the Safety Department are not of the in-depth nature necessary to assure an effective evaluation of the radiological protection program.
- * Current audits by the Safety Department are not conducted by staff having in-depth knowledge of the health physics area being audited (e.g., dosimetry, calibration, surveying, etc.).
- * Audits by Safety Department staff are not truly independent since they are in the same division that has responsibility for providing routine operational support.
- * The Internal Audit Department does not have a person knowledgeable in health physics on its staff to conduct audits of the Environmental Health Department (where the Pantex health physics program responsibilities lie).
- * The frequency of the Safety Department audit program (5 years), does not meet the required frequency established in DOE 5482.1B (3 years).

Cause Analysis:

- * Cause analysis showed an extensive system of appraisals, audits and surveys, but a lack of personnel with experience and/or expertise in the area of health physics that are independent of the ES&H Division. Frequency of audits did not comply with DOE requirements.

NQA-1 Basic Requirements 1 (Organization) and 18 (Audits) were not being met.

Corrective Actions:

* Milestone 1: Contract consultant to perform audit of Health Physics for technical adequacy.	Complete
06/88 |
|---|-------------------|

A health physics audit by the Delphi Groupe, Inc., was completed 6/10/88.

The non-weapons quality assurance efforts have included the hiring of individuals with health physics backgrounds in the ES&H NWQA Section and the Quality Division NWQA Department that can perform independent audits of health physics operations.

L. RADIOLOGICAL PROTECTION
RP.1-1 (Organization & Administration)

* Milestone 2: Establish corporate oversight audit activity as a repetitive system to be completed at least every three years.	<p>Complete
03/89</p> |
|--|----------------------------------|

Outside consultants contracted to perform the corporate audits will be technically qualified in the disciplines being audited and will be independent from the day-to-day operations as required in Paragraph 9, DOE Order 5480.5. Safety Standard 319.11 has been revised to document the system of corporate appraisals and assign responsibility to the ES&H Division for coordinating these appraisals with the corporate office.

L. RADIOLOGICAL PROTECTION

RP.3-1 (Radiological Protection Procedures and Posting)

Recommendation: Revise radiation protection posting procedures to assure consistent posting of areas containing radioactive material.

TSA Conclusions:

- * One room in Bldg. 12-2 was posted as a radiation area when there was no radioactive material or source in the room.
- * Use of alarm lights and signals outside of bays and cells is not consistent from one to the next.
- * Older assembly bays are posted with "Caution - Radioactive Material" signs, while newer assembly bays are not posted.

Cause Analysis:

- * Although the posting requirements were identified in policy standards, there was not an implementing procedure which assured that the posting was done initially and audits performed periodically. A Radiation Alarm Monitoring System Design Description document for new facilities and systems involving inplace radiation monitoring and alarms helped assure consistency in newer facilities but the older facilities were not modified.

NQA-1 Basic Requirements 2 (Quality Assurance Program), 5 (Instructions, Procedures, and Drawings), and 18 (Audits) were not being met.

Corrective Actions:

- * Milestone 1: Modify Safety Standard 321. Complete
01/88

Safety Standard 321 entitled "Standards for Radiation Protection" has been modified to provide the requirements for posting areas containing radioactive materials.

The sign posting the room in Building 12-2 as a radiation area has been removed.

The criteria for alarm lights in cells and bays for radiation alarms has changed from the older facilities to the newer facilities. The newer facilities have more remote indication including a green light indicating proper operation of the alarm system and a yellow light indicating an equipment malfunction.

L. RADIOLOGICAL PROTECTION

RP.3-1 (Radiological Protection Procedures & Posting)

Each facility (building) has a Building Safety Standard that defines the requirements for the operating personnel's response to radiation alarms. The standards are tailored to the types of alarm indication provided in the facility. There is consistency in alarm indication within a facility. The cost of upgrading the alarm indication in the older facilities to be consistent with the new facilities cannot be justified.

Our radiation safety training and periodic safety meetings emphasize the appropriate response to the alarm indications that are provided.

The radiation and high radiation areas have been consistently posted throughout Zone 12.

IOP 3409.2 has been issued covering posting of radiation areas and radioactive material areas.

L. RADIOLOGICAL PROTECTION
RP.5-1 (External Dosimetry (Routine and Accident Use))

Recommendation: Prior to eliminating the use of the personnel nuclear accident dosimeters, obtain a specific written exemption from the requirements in DOE 5480.1B, Chapter XI, from the DOE Contracting Officer.

ISA Conclusions:

- * DOE's Albuquerque Operations Office has recently authorized removing the requirements for criticality alarms and fixed area nuclear accident dosimeters at Pantex. These documents are being used to substantiate the decision to discontinue the use of the personnel accident dosimeter. However, the various letters do not specifically address the personnel accident dosimeters, the use of which is required by DOE 5480.1B (Chapter XI).

Cause Analysis:

- * The NWQA and risk management efforts require that additional documentation be provided regarding extent of compliance with DOE Orders.

NQA-1 Basic Requirements 3 (Design Control) and 17 (Quality Assurance Records) were not being met.

Corrective Actions:

A letter from the DOE-AAO dated February 21, 1989, provides additional documentation of the rationale behind the determination that nuclear criticality dosimetry and monitoring are not required at Pantex.

The DOE Health Physics Appraisal Report of Mason & Hanger-Silas Mason Co., Inc., May 4-8, 1987, specifically addresses the personnel accident dosimeters. It refers to DOE Orders 5480.5 and 5480 Chapter XI and states that:

"Pantex Plant does not in any way do nuclear material processing. Therefore, a nuclear criticality is considered relatively incredible by virtue of the nature of the operation and the type of controls utilized. Nuclear Accident Dosimetry will not be required in those areas which do not have a credible criticality hazard."

L. RADIOLOGICAL PROTECTION

RP.5-1 (External Dosimetry (Routine & Accident Use))

This DOE report and supporting documentation was reconsidered and reviewed by DOE-AL, DOE-AAO and Mason & Hanger and determined to be proper documentation of justification for eliminating personnel accident dosimetry.

L. RADIOLOGICAL PROTECTION
RP.7-1 (Internal Dosimetry)

Recommendation: Formalize existing procedures for measurement and assessment of doses from intakes of radioactive material.

ISA Conclusions:

- * Minimum detectable levels for the bioassay measurement instruments have not been established.
- * Formal quality assurance for the internal dosimetry program is not established.
- * A formal procedure for calculation of doses from intake of radioactive materials is not established.

Cause Analysis:

- * An NWQA program was not established and QC requirements were not mandatory. The responsibility for obtaining bioassay samples had not been centralized into one organization.

NQA-1 Basic Requirements 1 (Organization), 2 (Quality Assurance Program), and 5 (Instructions, Procedures, and Drawings) were not being met.

Corrective Actions:

- * Milestone 1: Determine minimum detectable limits Complete
11/87

Minimum detectable limits of the liquid scintillation detector used for tritium analysis have been determined and documented.

- * Milestone 2: Modify IOP 3407.2 and Safety Standard 322.1 to augment QC. Complete
02/88

Procedures for performing bioassay of urine samples and operation of the liquid scintillation detector are provided in IOP 3407.2. Safety Standard 322.1 covers collection of samples for bioassay.

IOP 3407.2 was developed to add requirements for the collection of urine and fecal samples needed for analysis. Safety Standard 322.1 was modified to expand the definition of responsibilities for collection of samples as well as the additional quality controls needed for the process.

L. RADIOLOGICAL PROTECTION
RP.7-1 (Internal Dosimetry)

* Milestone 3: Develop a baseline technical document providing basis for calculation of tritium doses.	Complete
11/87 |
|--|-------------------|

The algorithm used for calculation of tritium doses is included in the computer program used for that purpose. A technical baseline document has been developed defining the technical basis for the algorithm and the validity for calculating tritium doses to Pantex personnel.

M. PERSONNEL PROTECTION
PP.5-1 (Surveillance)

Recommendation: **Expand frequency and scope of monitoring operations to establish, maintain, and report accurate assessments of current potential exposure risks for personnel from chemicals and physical agents.**

TSA Conclusions:

- * Air sampling is generally limited to initial hazard assessments or off-normal operations. This tends to bias the exposure monitoring database with worst-cast data.
- * Operations are not routinely monitored to confirm the continued adequacy of controls. For example, MOCA is used almost daily in the Plastics Shop in a well controlled operation. However, only five air samples that were all collected within one week in 1986 exist to document exposure potential for the facility. This does not meet the intent of DOE 5480.10, Section 9.b.(4), which requires periodic monitoring to assure maintenance of satisfactory conditions.
- * The Industrial Hygiene Section records, including all non-radio-logical occupational exposure data, are kept in several separate databases. There does not appear to be a well developed or implemented plan to identify or meet long-range objectives for data management, retrieval, integration, storage, or use.
- * Industrial hygiene monitoring data are not utilized to provide routine management or summary reports to examine or review health protection performance. Industrial hygiene monitoring data is reviewed only on a case-by-case basis.

Cause Analysis:

- * Routine monitoring of operations to confirm the continued adequacy of controls was given a lower priority since initial hazard evaluation and control of new or changed operations or frequent monitoring of operations exceeding the PEL was considered top priority due to manpower limitations.

The industrial hygiene records were kept in several databases because the records were on PC's of limited storage capacities and different supervisors were assigned responsibilities for different databases and hazards. This same lack of consolidation prevented the easy retrieval and manipulations of data in order to provide summary reports to management.

NQA-1 Basic Requirements 1 (Organization), 10 (Inspection) and 17 (Quality Assurance Records) were not being met.

M. PERSONNEL PROTECTION
PP.5-1 (Surveillance)

Corrective Actions:

- * Milestone 1: Write a companion IOP to the present 3418.1 IOP to establish sampling strategies based on monitoring priorities and sample result statistics. Complete 12/87
- * Milestone 2: Write an IOP governing handling of individual occupational exposure data. Complete 03/88

An additional Laboratory Technician has been added to the Industrial Hygiene Section to support the expanded frequency and scope of monitoring operations.

Air sampling will be expanded to address initial and routine exposure control monitoring and process control monitoring to confirm the continuing adequacy of work place controls. Companion IOP 3418.2 has been written to specify the types of monitoring to be done and the respective frequencies for monitoring. Routine monitoring data that is obtained will be representative of normal operations.

Periodic process control monitoring will be done in accordance with DOE 5480.10, Section 9.b.(4) which requires periodic monitoring to assure maintenance of satisfactory conditions. IOP 3418.2 specifies the frequency of this monitoring based on priorities set in IOP 3418.1.

IOP 3418.9 was issued which established procedures for handling all exposure data maintained by Industrial Hygiene for any one employee to assure timely retrieval and assessment of individual occupational exposure data.

Occupational exposure control monitoring data will be utilized to examine and review health protection performance and to provide annual summary reports to management. A report has been transmitted to the Division Manager of ES&H which gives a summary of the health protection performance for CY-88.

M&H is proceeding with the procurement and installation of an Occupational Health Information System that will integrate the medical, health physics and industrial hygiene records and permit operations on the integrated databases.

**M. PERSONNEL PROTECTION
PP.7-1 (Occupational Safety)**

Recommendation: Initiate an Injury Management System to reduce the severity of injuries and illnesses resulting in lost workdays.

SA Conclusions:

- * The Pantex occupational injury rates for the period 1982-1986 as compared to DOE averages are as follows:

	<u>TRC</u>	<u>LWC</u>	<u>LWD</u>
Pantex	1.7	0.8	27.2
DOE Total	2.2	1.1	17.2
Pantex Production	1.3	0.6	19.5
DOE Production	1.1	0.3	7.1
Pantex Security	2.7	1.8	83.6
DOE Security	4.3	3.1	43.4
National Safety Council (81-5)	6.6	2.9	52.4

TRC - Total Recordable Cases per 100 worker-years

LWC - Lost Workday Cases per 100 worker-years

LWD - Lost Workdays per 100 worker-years

- * The Pantex incidence rate for injury frequency is lower than DOE averages for the period 1982-1986. Both TRC and LWC rates are below DOE totals. However, the lost workdays per 100 persons - severity rate is significantly higher than DOE averages. Additionally, Pantex production incidence rates (TRC and LWC) are higher than DOE production averages.
- * The TRC and LWC frequency rates for Pantex Security are also better than DOE Security averages. However, the LWD is twice the DOE Security average severity rate.
- * There is no injury management system that includes the support and involvement of top management, the medical staff, line supervision, safety staff, and all employees.

Cause Analysis:

- * Cause analysis revealed the management system did not include the support and involvement of all managers, staff, line supervision, and all employees in the control of lost work days due to injuries. There was a lack of effective organization and procedures per NQA-1 Basic Requirements 1 (organization) and 5 (instructions, procedures and drawings).

M. PERSONNEL PROTECTION
PP.7-1 (Occupational Safety)

Corrective Actions:

- * **Milestone 1: Perform study on frequency and severity of occupational injuries and illnesses.** **Complete 01/88**

Pantex has evaluated the existing safety programs and training to determine if modifications could be made or additional steps could be taken to reduce the frequency and severity of occupational injuries and illnesses.

The evaluation included all injury and lost workday cases to determine if there was a common factor to the injuries or case based on job assignment, type of injury, etc.

- ***Milestone 2: Issue safety standard implementing the injury management system.** **Complete 02/88**

Safety Standard 304 (Absenteeism, Management of Occupational Injury/Illness) was issued, which defines the responsibilities of top management, medical staff, line supervision, safety staff and the employees.

- ***Milestone 3: Complete orientation and training of appropriate personnel.** **Complete 01/89**

Two Plant Manager's Bulletins (Nos. 579 and 596) were issued on this subject. Monthly Safety Staff Meetings are used as a vehicle for top management involvement. A memo was issued, explaining the importance of Plant wide involvement in the occupational injury/illness Management Program.

- ***Milestone 4: Perform National Safety Council study on the severity of injuries and illnesses resulting in lost workdays to determine the root cause.** **Complete 03/89**

Findings and recommendations from the National Safety Council report will be reviewed and an action plan developed which will improve the effectiveness of our injury management system.

N. FIRE PROTECTION

FP.1-1 (Life Protection)

Recommendation: Improve the emergency exiting arrangements at Cell 8 of Bldg. 12-44.

TSA Conclusions:

- * For the nuclear facilities reviewed, NFPA 101, Chapter 4-2.2.4, classifies the hazard of content as high, due to the nature of fumes that could be released in the event of a fire. Chapters 28-2.5.2 and 28-2.6.1 do not allow dead-end exits nor a travel distance exceeding 75 feet.
- * Cell 8, Building 12-44 has travel distances exceeding 100 feet, all dead ended.
- * The revolving door used as one exit from Cell 8, Bldg. 12-44, does not meet the minimum standards of NFPA 101, Chapter 5-2.1.3.1 for use as an exit.
- * The two Cell 8, Bldg. 12-44 interlocked blast doors do not meet the intent of NFPA 101, Chapter 5-2.1.5, for providing ready opening from the inside as they are interlocked to prevent either door from opening if the other is not closed.
- * Present occupancy limit of 16 persons for Cell 8, Bldg. 12-44, is not strictly enforced. It was exceeded during the Appraisal Team tour on June 3, 1987, with prior approval.
- * Operations in Cell 8, Bldg. 12-44, are shut down as a standard procedure during the time visitors are present. The occupancy limit would appear to be reducible to a figure nearly half of the present limit.
- * It is virtually impossible to meet all NFPA 101 requirements with Cell 8, Bldg. 12-44, but there is definitely room for improvement.
- * The long-range improvement is to move the operations conducted in Cell 8, Bldg. 12-44, to a new facility.

Cause Analysis:

- * It was recognized by Mason & Hanger that Cell 8, Bldg. 12-44 was not an ideal facility for staging Special Nuclear Material. However, considering all aspects of safety, Cell 8 was chosen because personnel radiation exposure was reduced approximately 3 fold through the use of this facility as opposed to using the previous facilities. Root cause analysis of this recommendation points out NQA-1 Basic Requirement 3 (Design Control) to be inadequate.

N. FIRE PROTECTION
FP.1-1 (Life Protection)

Corrective Actions:

- * **Milestone 1: Eliminate the interlocking of the two cell 8 blast doors (equipment airlock doors).** **Complete 08/87**

The two Cell 8 blast doors were modified to disable the interlocking system. The interlocks were required for the high explosives operations previously conducted in the Cell.

- * **Milestone 2: Develop occupancy limit for Cell 8** **Complete 09/87**

Following the TSA, an evaluation was made of the personnel limit for Cell 8 considering personnel requirements for operations and life safety concerns. From the evaluation it was determined that the limit should be maintained at 16 persons. With the installation of the robotics pit handling system the occupancy limit was again evaluated and it was determined that the limit could be reduced to 10 persons. Operating procedures (O&I Standard 7-5044.8) have been revised accordingly.

- * **Milestone 3: Modify the latching mechanisms of the two Cell 8 blast doors to provide single action unlatching.** **Complete 12/87**

The latching mechanisms of both blast doors (equipment air lock doors) were modified to be single action unlatching with the door unlocked (i.e., locking pin removed). Previously the doors required two actions to unlatch. Operating procedures (listed in O&I Standard 7-5044.8) have been revised to require that when the Cell is occupied the interior blast door shall be kept open and the locking pin on the outer blast door removed (unlocking the door) to provide faster emergency exiting. Signage requiring the same has also been provided on the doors.

Related actions and improvements include the long range plans to move the 12-44 Cell 8 operations to the planned new SNM Component Staging Facility. The SNM Component Staging Facility is an FY1988 Subproject (No. 88-D-123) of the Security Enhancements Project and is currently in Title I design review. Beneficial Occupancy of the facility is estimated to be January, 1993.

N. FIRE PROTECTION
FP.1-2 (Life Protection)

Recommendation: Provide protected ways of travel from Cell 8 of Bldg. 12-44 and Bays 4 and 5 of Bldg. 12-58 to the exit discharges from the ramps.

TSA Conclusions:

- * The exit ways of travel from Cell 8, Bldg. 44, and Bays 4 and 5, Bldg. 12-58, pass through unsprinklered portions of the ramp.
- * Trash carts and/or combustible pallets of equipment can be found in the ramp areas serving as the exit ways of travel.
- * Trash carts accumulate in the ramp near Bldg. 12-49 while awaiting sorting prior to disposal of the trash.
- * Bldg. 12-81, used for recharging forklift batteries, is not separated by an approved, rated fire door, although Bldg. 12-81 is sprinklered.
- * The above conditions present a danger to the exit ways of travel from smoke and/or flames should a fire occur involving them. Occupants of these cell/bays could be trapped within them should a fire occur in the ramp.

Cause Analysis:

- * Original designs for the 12-44 Cells did not include sprinkler protecting the ramps in front of the cells. Recent cell designs have included such protection as an additional means of protecting occupants in case of fire since travel distances exceed those recommended by NFPA 101, Life Safety Code.

Previous Mason & Hanger fire protection surveys recognized that the travel distance and exits requirements were not strictly met. Corrective actions concentrated on reducing and controlling combustibles in the exit path, i.e., trash carts. The DOE/AL position on Pantex assembly cells, such as Cell 8, is that the intent of NFPA 101 has been met with the existing protection and controls.

The root cause of this recommendation stems from NQA-1 Basic Requirements 3, (Design Control) and 16 (Corrective Action).

N. FIRE PROTECTION
FP.1-2 (Life Protection)

Corrective Actions:

- * **Milestone 1: Provide sprinkler protection for the 12-44 Cell 8 and 12-58 Ramps.** **Complete 01/89**

Sprinkler protection has been installed over approximately 120 feet of 12-44 Cell 8 ramp and 190 feet of 12-58 ramp. This provides protection for the ways of travel from Cell 8 and the 12-58 Bays to required outside exits.

- * **Milestone 2: Relocate MAA trash inspection station to the south end of the 12-86 Ramp.** **Complete 10/88**

The trash inspection station was relocated from the 12-49 straddle ramp location to a remote location at the south end of the 12-86 Ramp. The 12-86 Ramp location is well away from bays and cells where occupants could be trapped by a fire and from ramp traffic. In addition, trash pickup procedures have been improved to reduce the accumulation of carts observed by the TSA.

Sprinkler protection is being installed to cover the 12-86 Ramp trash inspection area (approximately 100 feet of ramp). Bid documents have been prepared and the contract is expected to be awarded this month. This is expected to be complete by 05/89.

Other related action and improvements include:

- a. A work request has been written to install sprinkler protection to cover the trash cart stations in the 12-44 Ramps. This is expected to be complete by 05/89. This will provide interim protection for the stations until the planned sprinkler protection for the entire 12-44 Ramp can be installed.
- b. A project has been initiated to provide sprinkler protection for the following MAA Ramps to cover exit accesses from bays and cells:

12-44 Ramp
12-85/92/96 Ramp
12-50/60 Corridor
12-40/55/56 Ramp

This is planned as an FY1990 Miscellaneous GPP project, pending availability of funds.

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N. FIRE PROTECTION
FP.2-1 (Public Protection)

Recommendation: Extend valve supervision to all Post Indicator Valves on the high and low-pressure water supply systems and to all section and control valves on automatic fire protection systems protecting nuclear facilities.

TSA Conclusions:

- * Valve supervision to key valves on the new high pressure water supply extensions has been provided for, though the present fire alarm loop is not capable of handling these signals.
- * Pantex Plant has proposed to DOE to replace the present fire alarm loop with a system with sufficient capacity to handle supervisory signals as well as fire and trouble signals.
- * Control valves on some fire protection systems are presently supervised.
- * All sprinkler control valves on all fire protection systems are chained, locked, and sealed, whether supervised or not.
- * Lack of valve supervision can result in a system's effectiveness being impaired without the knowledge of the Security and Fire Departments.
- * The consequences of a fire occurring while a system is impaired could result in an unacceptable risk to employees but would not be expected to pose an added threat to the public.

Cause Analysis:

- * A Line Item Construction Project was submitted in 1984 covering the need for extending valve supervision to all Post Indicator Valves (PIV's) of the water supplies and control valves of sprinkler systems. Although fire protection systems are inspected and tested on a regular basis and valves are locked and sealed, the electrical supervision of all PIV's and sprinkler control valves was seen as an enhancement and was included in the existing long-range modernization plan.

N. FIRE PROTECTION
FP.2-1 (Public Protection)

Corrective Actions:

- * **Milestone 1: Extend valve supervision to all control and sectional valves of the automatic sprinkler systems protecting the following facilities (nuclear facilities):** **Complete 09/88**

Bldg. 12-26 (3 systems)
Bldg. 12-44 Cell 8
Bldg. 12-58

This action included the supervision of the outside Post Indicator Valve (PIV) in the water supply line to each of the automatic sprinkler systems listed above, plus any inside section and control valves in the systems. The above sprinkler systems are supplied by the high pressure water system. Supervision was also provided for 12 key sectional PIV's of the high pressure system in the vicinity of the above listed buildings. Supervisory signals are transmitted to the Fire Department. This action will reduce the likelihood that any of the systems could be impaired by a closed valve without the knowledge of the Fire Department.

- * **Milestone 2: Extend valve supervision to all unsupervised sectional valves of the high pressure system and key PIV's of the low pressure system not now supervised.** **In Progress 09/92**

Milestone 2 is part of the FY1988 Line Item Project - Fire Protection Upgrading (Project No. 88-D-124). Currently A-E negotiations are underway. Prior to the June, 1987 TSA, it was a Pantex policy to supervise inside and outside control and sectional valves of automatic sprinkler systems and sectional valves of the high pressure water system. All new projects include such supervision, and supervision of the existing unsupervised valves was included in the above Line Item project. Currently, there are 193 sectional PIV's in the high pressure water system of which 123 are supervised with alarm to the Fire Department.

APPENDIX M

DOE ASSESSMENT OF PANTECH ACTIONS ON TSA

APPENDIX M

NOTE: The memorandum includes the results of two follow-up activities.

Safety and Health Team assessed the same areas as those covered by the TSA except Personnel Protection and the life protection portion of Fire Protection. These areas and Explosive Safety were covered by the OSHA Team.

United States Government

Department of Energy

memorandum

DATE AUG 02 1989

REPLY TO
ATTN OF EH-342

SUBJECT Results of Technical Safety Appraisal and Explosives Safety Survey Follow-ups at the Pantex Plant, Amarillo, Texas.

TO J. M. Barr, RADM, USN
Deputy Assistant Secretary for
Military Application
Office of Defense Programs

Two follow-ups were conducted at the Pantex Plant April 25 and 26, 1989. We appreciate the cooperation shown to us by area office and contractor staffs in accommodating this dual effort. These follow-ups verified the corrective actions taken in response to the recommendations made in the Technical Safety Appraisal (TSA) report dated November 1987 and the Explosives Safety Survey (ESS) report dated March 24, 1988.

Attachment 1 is a tabulation of the status of the TSA recommendations as a result of our verification. We determined that 5 of the 20 recommendations should remain open. The field verifier's worksheets are provided in Attachment 2.

Attachments 3 and 4, respectively, provide the same information for the ESS. We determined that 4 of the original 17 recommendations should remain open. However, the verification of 2.f. lead to a new concern, identified as 2.1. in Attachment 3. The log, for storage in Building 11-25, showed a quantity of explosive material beyond the posted limit. Actions should be taken to prohibit such practices. This new concern and its associated original recommendation that remains open, indicate that efforts should be made to correct the usage of the "library vault" that stores the researcher's experimental material.

Please submit any modifications to the action plans addressing the remaining open recommendations within 30 days. Apprise us of their status and submit quarterly status reports.

Any questions or comments should be directed to Norman Davison (FTS 233-5485).

Robert Barber
Acting Director
Office of Safety Compliance

Attachments

cc: w/attachments
P. Ramey, AAO
R. Hymer, AL

cc: w/o attachments
B. Twining, AL
D. Krenz, AL
R. Starostecki, EH-30
J. McDonald, DP-22

ATTACHMENT 1

TECHNICAL SAFETY APPRAISAL FOLLOW-UP

<u>Recommendation</u>	<u>Status</u>		<u>Comment</u>
	<u>Open</u>	<u>Closed</u>	
OA.1-1		x	None
OA.4-1		x	None
OA.6-1		x	None
ER.2-1	x		The update of the implementing procedures for the emergency plan has not been completed.
ER.4-1		x	None
ER.5-1	x		The linkage between published emergency response levels and credible facility hazards has not been established in the emergency plan.
TS.7-1		x	None
TS.7-2		x	None
TS.7-3		x	A continuing effort is needed to minimize forklift incidents.
FR.1-1		x	None
CS.4-1		x	None
RP.1-1		x	None
RP.3-1		x	None
RP.5-1	x		Specific exemptions to DOE Order 5480.11 relative to nuclear accident dosimetry require EH-1 approval. This can be addressed separately or accomplished through the implementation plan approval process for this order.
RP.7-1		x	None
PP.5-1		x	None
PP.7-1	x		Can be closed following implementation of an appropriate action plan.
FP.1-1		x	None
FP.1-2		x	None
FP.2-1	x		Requires completion of sectional valve supervision.

ATTACHMENT 2

Field Verifier's Worksheets
Technical Safety Appraisal Follow-up
of the
Pantex Plant Nuclear Operations

TSA FIELD VERIFICATION

Facility: PANTEX PLANTConcern No. OA.1-1 Short Title: Develop Management Directive for non-weapon QA program.

VERIFICATION ACTIONS:

Quality Standards Manual 600 has been issued to describe the Non-weapon Quality Assurance (NWQA) program. This manual describes the responsibilities, authorities and method of operation of the QA Division and those of the other non-weapon QA units. Implementation of program is underway. First Division audit is scheduled for May of 1989. Training of NWQA core personnel and inspectors was recently been completed.

FIELD OFFICE RECOMMENDATION: CLOSEDVERIFIER'S RECOMMENDATION: CLOSED

QS 600 describes NWQA program and Initiation of program is well underway.

SIGNATURE: R. Hasky DATE: 4-26-89 FACILITY COUNTERPART: L. Block
PHONE EXT.: _____ACCEPTED: Blake P. Brown 4-26-89 Tom T. Damm 6/14/89
Team Leader Date Compliance Manager DateEH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PANTEX PLANT

Concern No. OA.4-1 Short Title: Enlarge Scope of Internal Audit

VERIFICATION ACTIONS:

Technical audits are being performed by outside contractors to ensure technically qualified persons are conducting them. Five audits have been completed. Use of outside contractors provides auditors which are independent from day to day operations. Status letters from Plant to Corporate are issued to inform Corporate of status of audit items. Safety Standard 319.11 requires ES&H to coordinate Corporate audits. It also requires audits at intervals of not less than every 3 years Corporate ES&H is responsible for scheduling Audits.

FIELD OFFICE RECOMMENDATION: CLOSED

VERIFIER'S RECOMMENDATION: CLOSED

use of outside contractors meets the requirements for the use of qualified technical personnel independent from day to day operations, for use in internal audits.

SIGNATURE: P. Hasky DATE: 4-26-89 FACILITY COUNTERPART: R.T. Taylor
PHONE EXT.: _____

ACCEPTED: Blake P. Brown 1 John H. Damm 6/14/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PANTEX PLANT

Concern No. OA.6-1 Short Title: Develop directive which defines Internal Audit Program.

VERIFICATION ACTIONS:

General Standard 027 has been issued to define the function of the Internal Audit Department. Standard also establishes goals and describes manner in which program is to operate standard assigns responsibility for follow-ups on findings and format for the Internal Audit Reports

FIELD OFFICE RECOMMENDATION: CLOSED

VERIFIER'S RECOMMENDATION: CLOSED
GS 027 meets the requirements for defining the Internal Audit Program

SIGNATURE: R. Hasley DATE: 4-26-89 FACILITY COUNTERPART: R.T. Taylor
PHONE EXT.: _____

ACCEPTED: Blak P. Brown 1 June 7/89 6/16/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PANTEX

Concern No. ER. 2-1 Short Title: Emergency Plan/Procedures Revision

VERIFICATION ACTIONS:

The PANTEX Emergency Plan of February 1989 (Revision 1) was reviewed and found to be current. The Plan establishes review and update requirements for the Plan and implementation documents. This requirement is for a minimum of an annual review for all documents, with a minimum of quarterly review of more volatile information (e.g. emergency notification). A schedule has been established for updating and issuing emergency preparedness procedures, which calls for all procedures to be updated by Nov. 1, 1989. While, currently, the schedule for updating these procedures is being met, this reviewer has a concern that the schedule can continue to be maintained because of increasing demands on the emergency response staff (4 people). It is noted that the quality of emergency response procedures to date has been excellent. The Field Office Discontinuation of Emergency Response (ESR) concern that was essentially the same as the TSA review.

FIELD OFFICE RECOMMENDATION: Close

REVIEWER'S RECOMMENDATION: OPEN, until all emergency plan implementation procedures are re-evaluated.

SIGNATURE: Thief Man DATE: 4-25-89 FACILITY COUNTERPART: Dick Burke
PHONE EXT.: 5000

ACCEPTED: Blake P. Green 4-26-89 7/1/89 6/14/89
Team Leader Date Compliance Manager Date

COMMENTS: Open

The update of the implementing procedures for the emergency plan has not been completed.

TSA FIELD VERIFICATION

Facility: PALTEX

Concern No. ER. 4-1 Short Title: Emergency equipment testing/inspection

VERIFICATION ACTIONS:

- Reviewed calibration and preventive maintenance listings for all emergency response equipment, and spot checked this equipment against the calibration requirements. All eqpt. checked was found to be properly calibrated and maintained.
 - This equipment is integrated into existing systems, so no new procedures are required. Existing calibration and preventive maintenance systems were found to be appropriate.
- Inspected emergency response equipment in the emergency response storage trailer and the emergency response vehicles. All equipment was found to be in good working order. (A representative sample was checked.) Checked inventory on all fire extinguishers on emergency response vehicles and found them to be current.

FIELD OFFICE RECOMMENDATION: Close

VERIFIER'S RECOMMENDATION: close

SIGNATURE: Tony Mays DATE: 4-25-87 FACILITY COUNTERPART: Dick Burks
PHONE EXT.: 5000

ACCEPTED: Bob P. Brown 4-26-87 Tom J. Dan 6/14/87
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PANTEX

Concern No. ER.5-1 Short Title: EALs for PANTEX emergencies

VERIFICATION ACTIONS:

- EPP - 1000 ^(The PANTEX Emergency Plan) has been revised to address the emergency response levels of DOE Order 5500.2A. However, a link has not been provided in EP-1000 or in implementing procedures between these ERLs and credible radiological or hazardous materials accidents at PANTEX.

Tables I and II were added to address actions expected for various radiation levels or toxic materials releases. However, these are not linked to ERLs.

Discussions with responsible PANTEX personnel indicated that this had been a misinterpretation by them of the intent of this recommendation.

FIELD OFFICE RECOMMENDATION: CLOSED

VERIFIER'S RECOMMENDATION: OPEN, until link between credible PANTEX emergencies and DOE 5500.2A emergency response levels are provided in the PANTEX Emergency Plan.

SIGNATURE: TJ. May DATE: 4-26-89 FACILITY COUNTERPART: Dick Burke
PHONE EXT.: 5030

ACCEPTED: Blair P. Bryan 4-26-89 Tom W. Davis 6/14/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Open

The linkage between published emergency response levels and credible facility hazards has not been established in the emergency plan.

TSA FIELD VERIFICATION

Facility: PANTEX

Concern No. TS. 7-1 Short Title: Trainee/QA for Packing/Transportation

VERIFICATION ACTIONS:

- Reviewed Plans of Instructions (Lesson Plans) for all training provided for personnel involved in packing and transportation, and found them to be professionally prepared (Education & Training Organization reviewed and approved them)
- Reviewed training and qualification status for all the above personnel and found them satisfactory
- Visited through conduct of OJT examinations with the first line supervisor (Robert Jones) and found his approach to be satisfactory
- Discussed feedback from personnel on the quality of training
- Reviewed QA Program Plan for Shipping Containers and found it to be satisfactory - It was approved in May 1988.

FIELD OFFICE RECOMMENDATION: CLOSE

VERIFIER'S RECOMMENDATION: CLOSE

SIGNATURE: T. J. May DATE: 4-26-89 FACILITY COUNTERPART: Robert Jones
PHONE EXT.: _____

ACCEPTED: Blair P. Brown 4-26-89 John T. Brown 6/15/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PAI-EX

Concern No. TS. 7-2 Short Title: Improve waste packaging procedures

VERIFICATION ACTIONS:

- Review OYI 7-5656 "Low Level Radioactive Waste Packaging" (current version (Mar. 15, 1989) and version that was in effect during TSA. Significant additional details were added to the previous edition re 744 Shipping Containers.
- Subsequent to all other packages in transportation per current regulations were reviewed. The lessons learned from the review recommendations were also found to apply to these procedures, in that these procedures had been reviewed, revised to provide data.
- Interview with the facility's scanner indicated that the scanner had been removed by packaging unit.

FIELD OFFICE RECOMMENDATION: CLOSE

VERIFIER'S RECOMMENDATION: CLOSE

SIGNATURE: T. J. Miller DATE: 4-26-89 FACILITY COUNTERPART: Robert J. ...

PHONE EXT.:

ACCEPTED: Blake P. Brown 4-26-89 Tom J. ... 6/15/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PANTEX

Concern No. TS. 7-3 Short Title: Forklift Operations

VERIFICATION ACTIONS:

- MCH completed a "Review of PANTEX Forklift Incidents 1986-1988" in January 1988. This report concluded that there was no evidence of a trend related to forklift incidents during this time frame.
- Confirmed that speed monitors have been installed on 63 of the 100 forklifts. The remainder 37 under contract for 1989. The contract for 1989 and 1990 is in progress.
- The contract for 1989 has been revised to provide for progressive discipline for violations of the forklift safety rules, including a 15-day suspension for individuals who have had 3 or more infractions.
- The contract for 1989 to 1990 is in progress. The contract for 1990 is in progress.

FIELD OFFICE RECOMMENDATION: CLOSE

VERIFIER'S RECOMMENDATION: CLOSE However, the Contractor should continue to monitor the area and provide training to the personnel.

SIGNATURE: TJ May DATE: 4-26-89 FACILITY COUNTERPART: J.W. Tamm
PHONE EXT.: _____

ACCEPTED: Blake P. Brown 4-26-89 Tom H. Dorman 6/15/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

A continuing effort is needed to minimize forklift incidents.

TSA FIELD VERIFICATION

Facility: Pontex PlantRecommendation No. FR 1-1 Short Title: Provide Independent ReviewVERIFICATION ACTIONS: Reviewed corrective actions with D. L. Carson
Nuclear Health Protection Dept. covering

- 1) Revised safety standards 307.1, 330.6 and ICF 347
- 2) Charter and recorded meeting of the Nuclear Safety Committee to assure consistent decisions and applications to nuclear facilities as recommended.
- 3) Triennial Review are conducted and reported to the Commission, in order to assure for judging performance.
- 4) Audit Records

FIELD OFFICE RECOMMENDATION: C/SVERIFIER'S RECOMMENDATION: C/S

The Nuclear Critical Safety Review Committee (NCSRC) charter has been amended to form a program to review of the disordered nuclear facilities. The Committee will address aspects of overall safety at the nuclear facilities.

SIGNATURE: Blair Korman DATE: 4/26/91 FACILITY COUNTERPART: Carson

PHONE EXT: _____

ACCEPTED: Blair Korman 4/26/91 Ben H. Duran 6/16/99
Team Leader Date Compliance Manager DateEH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: Panther Plant

Concern No. CS-4-1 Short Title: Post Criticality Safety Limits

VERIFICATION ACTIONS:

- 1) Reviewed corrective actions with D.C. Corath, Dept. 1 Health Protection Dept. and with Jim Griffith, Program Manager.
- 2) Discussed and reviewed safety standard 330.6 which was changed to change chapter of the Nuclear Criticality Safeguards (NCSRS) manual. Criticality limits in location.
- 3) Reviewed safety standard 303 for responsibility for posting limits.
- 4) Reviewed record of NSRC meetings limits were discussed and operations important to assure limits were posted and operations were conducted in accordance with limits.
- 5) Reviewed limits and operations in Bldg 12-44, cell 5, Zone 4. Magazines - 34B-RF3 and 36A-OR.

FIELD OFFICE RECOMMENDATION: Close

VERIFIER'S RECOMMENDATION: Close

Limits have been posted and a system established to assure that limits are reviewed and updated. Limits posted and operations inspected against the limits.

SIGNATURE: Rich P. Brown DATE: 4/25/99 FACILITY COUNTERPART: Corath

PHONE EXT.: 6622

ACCEPTED: Rich P. Brown 4/25/99 Jim Griffith 6/16/99
Team Leader Date Compliance Manager Date

EH COMMENTS: Closure

TSA FIELD VERIFICATION

Facility: Per. TexConcern No. RP 1-1 Short Title: Perform Internal Audit

VERIFICATION ACTIONS:

- 1) Held discussions with contractor staff: Ed Carothers, Randy Taylor and others.
- 2) Reviewed outside consultant report on audit announced June/July 1988
- 3) Reviewed IOP and ES&H audit/appraisal 3/19/88 revised 4/25/89 dated 3/20/89 and IOP 2264 #4, Aug 3, 88 Purdue, which details selection criteria for audit team member selection. The ES&H IOP establishes the procedure for the conduct of audits and appraisal and upon the team member suggestion was changed to better define responsibility. All audits are now being completed by competent individuals and are timely.

FIELD OFFICE RECOMMENDATION: CloseVERIFIER'S RECOMMENDATION: Closed
 SIGNATURE: Leo F. Fand DATE: 4/26/89 FACILITY COUNTERPART: Ed Carothers
 PHONE EXT.: _____

 ACCEPTED: Blair P. Bowen 4/26/89 James H. Davis 6/16/89
 Team Leader Date Compliance Manager Date
COMMENTS: Good

TSA FIELD VERIFICATION

Facility: PanthyConcern No. RP 3-1 Short Title: Radiation PostingVERIFICATION ACTIONS: Held discussions with Panthy staff
(DL Conathure, Tom Kelly, R. Mann)

- 2) Reviewed work request 37429 changing and install of blue lights and Sinalente
- 3) Reviewed IOP 3409.2 (Nov, 4/21/89) Posting of Pan
- 4) Areas and Standards 321, Jan 16, 4/19/89 (Gds to Rad Pos)
- 4) Looked at results while on tour.
Items 2-3 above satisfied the concerns of RP 3-1 and a team verified corrective action. This whole area i.e. "posting" will be re-evaluated. The implementation of DOE 54FO.11 at this and all other sites.

FIELD OFFICE RECOMMENDATION: CloseVERIFIER'S RECOMMENDATION: ClosedSIGNATURE Leo J. Fant DATE: 4/26/89 FACILITY COUNTERPART: DL Conathure

PHONE EXT.: _____

ACCEPTED: Blake V. Brown 4/26/89 Frank J. Dornin 6/16/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PantexConcern No. RP 5-1 Short Title: Removal of PAVs and NADs.

VERIFICATION ACTIONS: Held discussion with plant staff & Carothers and Rady Taylor and others and also reviewed

- 1) Ltr PM Ramsey to C.O. Alley, 2/21/89 Removal of Fixed Continuity Alarms and PAVs from Pantex plant which authorized the removal. The decision was based on studies by DOE/AH and DOE WCC which supported the removal because of the relatively incredible risk of a criticality even occurring at Pantex. B
- 2) Pantex and DOE/AH ^{may} ~~will~~ have to get an additional approval (exemption) to 5480.11 which should occur if and when the Pantex Implementation Plan is accepted.

FIELD OFFICE RECOMMENDATION: CloseVERIFIER'S RECOMMENDATION: Close

SIGNATURE: Lois Faust DATE: 4/26/89 FACILITY COUNTERPART: Ok Carothers
PHONE EXT.: _____

ACCEPTED: Blk. P. Brown 4/26/89 Tom T. Derrain 6/22/89
Team Leader Date Compliance Manager Date

COMMENTS: Open

Specific exemptions to DOE Order 5480.11 relative to nuclear accident desimetry require EHL-1 approval. This can be addressed separately or accumulated through the implementation plan approval process. See this case.

TSA FIELD VERIFICATION

Facility: SentryConcern No. RP 7-1 Short Title: Formalize Procedures for Internal Dose Assessment

VERIFICATION ACTIONS: Held discussions with contacts staff Dr Carother, Richard Benne
 2) Reviewed IOP 3407, #8, 11/7/88 (Operating Tri Cont Scient Counter), IOP 322.1, #5, 4/21/89 (Biological Monitoring - Control Program, The result of an outside audit of the tritium monitoring program, IOP 3407.2, 4/21/89 (Cells and Control of Bioassay Samples) and MHSMP-89-16, 4/89 (Tech. Description and Basis for Internal Dose Assessment of Tritium Exposure).
 3) The above documents ~~establish~~ satisfy the concerns raised in RP 7-1 and all were found satisfactory

FIELD OFFICE RECOMMENDATION: Close.VERIFIER'S RECOMMENDATION: Close.SIGNATURE: LG Faint DATE: 4/26/89 FACILITY COUNTERPART: Dr Carother

PHONE EXT.: _____

ACCEPTED: _____
 Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: ParaguayConcern No. PP 5-1 Short Title: Expand Scope of Monitoring for Chemical/Physical Agents.VERIFICATION ACTIONS: Discussed with Ruby Taylor, Dh Carathur - TJ Fog.

- 2) Reviewed IOP 341F.1, ¹C, 1/11/89, (Ind. Hygiene); IOP 341F.2 ¹B, 1/11/89 (I.H); and IOP 341F.9, ¹B, 1/20/89 (I.H). These 3 IOPs set the procedure to establish policy/priorities for exposure control monitoring program; to establish frequency and scope of the program and to establish procedures for mgmt., retrieval, integration, storage and use of the expanded monitoring program.
- 3) The action/procedure in 2 above satisfy all requirements of PP 5-1. Further improvement will be made (integration of medical and rad. protection data with this data) upon receipt of large data base computer system already approved.

FIELD OFFICE RECOMMENDATION: CloseVERIFIER'S RECOMMENDATION: Close

Item of interest. Exposure to lead was found at the firing range. Solution is pending but release around use of clad bullets. Might be worthwhile to communicate to other sites.

SIGNATURE: Ly Faust DATE: 7/26/89 FACILITY COUNTERPART: TJ Koger

PHONE EXT.: _____

ACCEPTED: _____ 1 John T. De 6/20/89
 Team Leader Date Compliance Manager Date

COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: Fairfax

Concern No. PP-7-1 Short Title: Seizing Mgt. System

VERIFICATION ACTIONS: 1) Held discussions with H. Phillips and King Taylor.

2) Reviewed STC 304, #1, 2/26/FF; The consultant reports assessing the current Mgt System & MHSN Safety Staff Mar. 1989 Monthly Report.

3) A review by the Nat'l Safety Council was done also. Basically act agreed that management was not totally involved in safety issues. To help this safety STC 304 was issued and two plant managers bulletin (#579: 590) was issued on the subject and an action plan involving the consultants and NSC recommendations was initiated. It is to be drafted by 5/10/FF.

4) All the above actions should produce desirable results however at this time it is too early to judge what the results will be.

FIELD OFFICE RECOMMENDATION: Keep open

VERIFIER'S RECOMMENDATION: Since it is too early to judge results of act taken to date and the total action plan is not yet in place, no suggestion is to keep open until June 1990. If a noticeable reduction in lost time injuries has occurred then close this finding out. Field office concurs with this recommendation.

SIGNATURE: Leo E. Farnet DATE: 4/26/89 FACILITY COUNTERPART: H. Phillips

PHONE EXT.: _____

ACCEPTED: Robert J. Packer 4/26/89 Tom J. Kinn 6/21/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Open

Can be closed following implementation of an appropriate action plan.

TSA FIELD VERIFICATION

Facility: PANTEX PLANTConcern No. FP 1-1 Short Title: Improve emergency existing of
12-44 cell 8

VERIFICATION ACTIONS:

Interlock between inner and outer blast doors has been removed. Single latch action has been installed on both blast doors. Inner blast door is required to be left open, when cell is occupied. Outer Blast door is required to have locking pin removed when cell is occupied. Occupancy has been reduced from 16 to 10 in the cell at one time. Occupancy is controlled by requesting entry from supervisor and signing in on board that only allows 10 signatures. Cell 8 is only an interim facility until new facility is built.

FIELD OFFICE RECOMMENDATION: CLOSEDVERIFIER'S RECOMMENDATION: CLOSED

Action has been completed on modifications to blast doors (interlock + single latch). Reduction and control of occupancy has been accomplished.

SIGNATURE: [Signature] DATE: 4-26-89 FACILITY COUNTERPART: J.L. Barnard
PHONE EXT.: _____ACCEPTED: [Signature] 4-26-89 [Signature] 6/21/89
Team Leader Date Compliance Manager DateEHC COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PANTEX PLANTConcern No. FP. 1-2 Short Title: Provide Protected ways from 12-44 cell B and 12-58 bays 4 & 5 to exit.

VERIFICATION ACTIONS:

Sprinkler system has been installed for 12-44 cell B and 12-58 ramps to provide protected exits. Trash inspection station has been moved to the south end of 12-86 ramp (away from 12-58 bay 4 & 5). Sprinkler system is being installed over each trash cart parking area. There was no combustible material present in the areas around 12-44 cell B and 12-58 bays 4 & 5, except within trash carts. Bldg. 12-81, used for recharging forklift batteries, still does not have a fire rated door. Work request dated March 27, 1989 has been issued to install fire door on bldg 12-81. Schedule Fire door replacement is August 1989. Bldg 12-81 door is presently required to be closed, except during passage, until fire door is installed

FIELD OFFICE RECOMMENDATION: CLOSEDVERIFIER'S RECOMMENDATION: CLOSED

sprinklers have been installed and trash inspection station has been moved to provide protected ways. Fire door is scheduled for installation.

SIGNATURE: R. Hasky DATE: 4-26-89 FACILITY COUNTERPART: J.L. Barnard

PHONE EXT.: _____

ACCEPTED: BP Nissen 4-26-89 1 Jim H. O... 6/21/89
Team Leader Date Compliance Manager Date

EH COMMENTS: Closed

TSA FIELD VERIFICATION

Facility: PANTEX PLANT

Concern No. FP.2-1 Short Title: Extend auto fire protection control valve supervision for systems protecting nuclear facilities

VERIFICATION ACTIONS:

Control valves on automatic fire protection systems protecting nuclear facilities are now supervised. Selected valve was operated and verified to indicate such operation at Fire station. Fire department controls keys to all control valves in fire protection system.

Plan is to extend valve supervision to all sectional valves with a completion date of 9/92. Upgrade to existing monitoring system for valves is in progress. Monitoring system is a computer with complete backup computer and emergency power.

FIELD OFFICE RECOMMENDATION: OPEN

VERIFIER'S RECOMMENDATION: OPEN

concern to be closed based on completion of sectional valve supervision.

SIGNATURE: R. Hasley DATE: 4-26-89 FACILITY COUNTERPART: J.L. Barnard
PHONE EXT.: _____

ACCEPTED: Blake P. Brown 4-26-89 Sam H. Dan 6/21/89
Team Leader Date Compliance Manager Date

REMARKS: Open

Requires completion of sectional valve supervision.

ATTACHMENT 3

<u>Recommendation</u>	<u>Status</u>		<u>Comment</u>
	<u>Open</u>	<u>Closed</u>	
2.a. (1)	X		Approval of a full exemption required for closure.
2.a. (2)		X	Prohibition of control room use must be enforced.
2.b. (1)		X	None
2.b. (2)	X		Requires implementation of proper labeling.
2.c.		X	Drains' contained refuse and need routine cleaning.
2.d. (1)		X	None
2.d. (2)		X	None
2.d. (3)		X	None
2.e. (1)		X	None
2.e. (2)		X	None
2.e. (3)	X		Some chutes remain partly blocked or have unsafe landing areas.
2.f.	X		Inventory control practices for storage in Building 11-25 remain inadequate.
2.g.		X	None
2.h.		X	None
2.i.		X	None
2.j.		X	None
2.k.		X	None
2.l.	X - New concern		The log, for storage in Building 11-25, showed a quantity of explosive material beyond the posted limit was placed in storage. It is recommended that actions be taken to prohibit such practice.

Field Verifier's Worksheets

Explosives Safety Survey

of the

Pantex Plant

FIELD VERIFICATION WORKSHEET

Activity: DDSB Follow-up

Facility: PANTEX

Recommendation No. 26(1)

Short Title: Container Label Removal

Facility Contact: Darrell Boyer

Organization: SAFETY Phone:

Verification Actions:

Reviewed Draft version of standard that addresses the use of explosive material containers for other materials and its appropriate labeling requirements

Verifier's Recommendation: Close

Basis: *Standard included as part of the labeling system required for 26(2).*

Specific Items Required For Closure (If Applicable):

Verified By: *[Signature]* 4/24/89 Accepted *[Signature]* 4/26/89
Signature Date Team Leader Date

EH Comments: None

Closed: Yes ✓ No EH Manager *[Signature]* 5/8/89
Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DOESP Follow-up Facility: Partex
 Recommendation No. 26. (2) Short Title: Container Mislabeling
 Facility Contact: Darrell Coyer Organization: Safety Phone: :

Verification Actions:
Verified purchase request for new labels
(Initial purchase order not fulfilled)

Inspector's Recommendation: Open
 Basis: No changes in operating procedures pending receipt of labels.

Specific Items Required For Closure (If Applicable):
Verify labeling system and its documentation

Verified By: [Signature] 4/24/89 Accepted [Signature] 4/26/89
 Signature Date Team Leader Date

Comments:
Requires implementation of proper labeling.

Completed: Yes No ✓ EH Manager [Signature] 5/9/89
 Signature Date

FIELD VERIFICATION WORKSHEET

Activity: QDES Follow-up

Facility: PANTAK

Recommendation No. ES 88-2C

Short Title: Explosive Material Containment

Facility Contact: Deirdre Boyer

Organization: SAFETY Phone:

Verification Actions:

Visually Verified

Blot 12-43, Float Control, water pump system

Blot 12-17, Modified sump

Tested sump level controlled alarm

Verifier's Recommendation: CLOSE

Basis: Pump systems and filters are ensuring proper containment of explosive materials

Pumps should be periodically cleaned

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/24/89
Signature Date

Accepted [Signature] 4/26/89
Team Leader Date

EH Comments: Drains contained refuse and need routine cleaning.

Closed: Yes ✓ No

EH Manager [Signature] 5/9/89
Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DDST Follow-up Facility: PANTex
 Recommendation No. ES 88 2d.7 Short Title: FILTER Maintenance/Testing
 Facility Contact: Darrell Boyer Organization: SAFETY Phone:

Verification Actions:

Reviewed Maintenance Record For FILTER WATER H.E.
11-50 R-111 Filter Room, Eq # 680-4550
11-44, Eq # 680-4542
12-43 Eq # 680-4424
This action is periodically checked by Maintenance Supervisor
visually reviewed Log in Bld 11-44

Verifier's Recommendation: Close

asis: Reviewed Logs, Maintenance records

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/26/89 Accepted [Signature] 4/26/89
 Signature Date Team Leader Date

Comments: None

osed: Yes ✓ No

EH Manager [Signature] 5/3/89
 Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DD ESB Follow-up Facility: Pantex

Recommendation No. ES 88-2d. (2) Short Title: Pipe Disassembly

Facility Contact: _____ Organization: _____ Phone: _____

Verification Actions:
Reviewed PLANT SAFETY Standard, # 331.3, TRANSFER SYSTEMS
EXPLOSIVE MATERIALS.

Verifier's Recommendation: Close

Basis: Document review reflected requirements.
ALL equipment installation controlled by Formwork work
request and CONTAMINATIONS determinations.

Specific Items Required For Closure (If Applicable):

Verified By: *[Signature]* 4/25/89 Accepted *[Signature]* 4/25/89
 Signature Date Team Leader Date

EH Comments: None

Closed: Yes ✓ No _____ EH Manager *[Signature]* 5/9/89
 Signature Date

FIELD VERIFICATION WORKSHEET

Activity: ODESB Follow-up Facility: Router
 Recommendation No. ES88-2d.(3) Short Title: Pipe Flanges
 Facility Contact: Darrell Boyer Organization: Safety Phone: :

Verification Actions:
Renewed Plant Safety Standard 331.3, Transfer Systems - Explosive Materials, and Plant Standard Maintenance Instruction #107, Explosive Contaminated Systems.

Inspector's Recommendation: Close
 Basis: Documents state that systems subject to explosive contamination will be fabricated with flanged connections.

Specific Items Required For Closure (If Applicable):

Inspected By: Alan D. Proffert 4/24/89 Accepted Tom P. Dineen 4/25/89
 Signature Date Team Leader Date

Comments: None

Inspected: Yes ✓ No _____ EH Manager Edwin P. [Signature] 5/2/89
 Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DDESB Follow-up

Facility: PANTEX

Recommendation No. ES 88-2E(1)

Short Title: Emergency Egress Routes

Facility Contact: W STEVENSON

Organization: Development Division Phone: :

Verification Actions:

Visually Verified

Verifier's Recommendation: Close

Basis: Panic hardware installed, Personnel and Explosive limits posted (Bld 11-203)

There is the need for a supervisors check list to ensure this is an ongoing procedure

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/25/89
Signature Date

Accepted [Signature] 4/25/89
Team Leader Date

EH Comments: None

Closed: Yes ✓ No _____

EH Manager [Signature] 3/9/89
Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DDES B Follow-up Facility: PANTex
 Recommendation No. ES88-2E(2) Short Title: Emergency EXIT Blockage
 Facility Contact: BU Stevenson Organization: Development Division Phone: :

Verification Actions: Visually Verified
Reviewed PANT Safety Standard # 320.1, Snow and Ice Removal
Section C, 16 Addresses snow and ice blocking of emergency exits.
Development Standard 6-5000 has been revised and requires
emergency EXIT doors are checked at the beginning of each shift.

Inspector's Recommendation: Close

Notes: Documents reviewed for revisions

Specific Items Required For Closure (If Applicable):

Inspected By: [Signature] 4/25/89 Accepted [Signature] 4/25/89
 Signature Date Team Leader Date

Comments: None

Inspected: Yes / No _____ EH Manager [Signature] 5/9/89
 Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DDSB Follow-up Facility: PANTEX

Recommendation No. ESBE-2E(3) Short Title: Safety Chutes Obstructions/surface

Facility Contact: Darren Boyer Organization: _____ Phone: _____

Verification Actions:

VISUALLY VIEWED AN SHIP ESCAPES FOR BUILDINGS 12-9, 12-10, 12-19, AND 11-36. SEVERAL LANDINGS WERE OBSERVED TO HAVE HAD UNEVEN SURFACES, AND OBSTRUCTIONS SUCH AS A DITCH, PARK VEHICLE AND MATERIAL IN THE CHUTES

Verifier's Recommendation: OPEN

Basis: ACTION NOT COMPLETE

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/24/89 Accepted [Signature] 4/25/89
Signature Date Team Leader Date

EH Comments: SOME CHUTES REMAIN PARTLY BLOCKED OR HAVE UNSAFE LANDING AREAS

Closed: Yes ~~✓~~ No ✓ EH Manager [Signature] 5/9/89
Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DDESP Follow-up

Facility: PanTel

Recommendation No. ES&S-2F

Short Title: Explosives Inventory

Facility Contact: Darrell Boyer

Organization: _____ Phone: _____

Verification Actions:

Visual verification

Reviewed Standard 6-5017 revision,

Did 11-25 Log doesn't provide appropriate inventory documentation and
Ensure Explosive limits are not exceeded

Did 12-57, All materials inventoried

Did 12-21, All materials inventoried

Verifier's Recommendation: OPEN

Basis: Action Not Complete

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/24/89
Signature Date

Accepted [Signature] 4/25/89
Team Leader Date

Comments: Inventory control practices for storage in Building 11-25
remain inadequate.

Closed: Yes _____ No ✓

EH Manager

[Signature]
Signature

5/9/89
Date

FIELD VERIFICATION WORKSHEET

Activity: DP ESC Follow-upFacility: PentexRecommendation No. ESSE-26Short Title: Magazine Grounding TestingFacility Contact: W HAYSOrganization: Preventive Maintenance Phone:

Verification Actions:

Visually reviewed Grounding/Lightning Protection Testing logs, Schedule log sheets.

Preventive Maintenance Work Order #0365, check list identifies All The Testing of Metallic Items Attached To explosive Storage MAGAZINES

Verifier's Recommendation: Close

Basis: Testing Procedures in place
Semi Annual Visual Inspection

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/24/89
Signature DateAccepted [Signature] 4/25/89
Team Leader DateEH Comments: NoneClosed: Yes ✓ No

EH Manager

[Signature] 5/9/89
Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DOESC Follow-up

Facility: PANTER

Recommendation No. ES88-29

Short Title: Storage Magazine Contents

Facility Contact: K Collins
E Gorken

Organization: Assembly Div. Phone: :
Development (Records)

Verification Actions:

Visually Verified
Reviewed Storage Inventory documents

Verifier's Recommendation: Close

Findings:

Explosive materials have been removed. Only extraneous
materials for Sandia projects are stored in the magazine.

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/26/85
Signature Date

Accepted [Signature] 4/25/89
Team Leader Date

Comments: None

Completed: Yes ✓ No

EH Manager

[Signature] 5/9/89
Signature Date

M-41

(Use Back For Additional Space)

FIELD VERIFICATION WORKSHEET

Activity: DOSE Follow-up

Facility: Antar

Recommendation No. ES88-22

Short Title: Explosives Storage/Operations SOPs

Facility Contact: B Leedy

Organization: Development Phone: :

Verification Actions:

Visual Verification

Verifier's Recommendation: Close

Basis:

Machining operation residue has been removed, and the storage practice discontinued.

Specific Items Required For Closure (If Applicable):

Verified By: Alan D. Bostick 4/24/89
Signature Date

Accepted: [Signature] 4/25/89
Team Leader Date

EH Comments: None

Closed: Yes ✓ No _____

EH Manager: [Signature] 5/2/89
Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DPESC Follow-up

Facility: Pantex

Recommendation No. ES 88-21

Short Title: Cabinets, Glass Doors

Facility Contact: BJ Stenerson

Organization: Rockwell International Phone:

Verification Actions:

Visually Verified

Verifier's Recommendation: Close

Basis:

Cabinets Not in use, To be removed from building

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/25/89
Signature Date

Accepted [Signature] 4/25/89
Team Leader Date

Comments: None

Closed: Yes ✓ No

EH Manager [Signature] 5/9/89
Signature Date

FIELD VERIFICATION WORKSHEET

Activity: DDSP Follow-up

Facility: PanTex

Recommendation No. ES 88-211

Short Title: ELECTRICAL SERVICE LINES

Facility Contact: Parrell Boyer

Organization: SAFETY, MAJOR HAZARD Phone:

Verification Actions:

VISUALLY VERIFIED
SITE LOCATIONS FS-3, FS-11 AND BUILDING 11-5

Verifier's Recommendation: CLOSE

Basis: ALL SITE ELECTRICAL LINES HAVE BEEN BURIED UNDERGROUND
EXCEPT, FIRMING SITES AND SECURITY LIGHTS.

Specific Items Required For Closure (If Applicable):

Verified By: [Signature] 4/25/89 Accepted [Signature] 4/25/89
Signature Date Team Leader Date

EH Comments: None

Closed: Yes ✓ No EH Manager [Signature] 5/8/89
Signature Date

APPENDIX N

PANTEX TIGER TEAM: INTERIM FINDING CONCERNING HEALTH PHYSICS PROGRAM

Memorandum

DATE: October 12, 1989
TO: EH-1
FROM: Pantex Tiger Team: Interim Finding Concerning Health Physics Program
SUBJECT: The Under Secretary

On October 12, 1989, I was notified by the Pantex Tiger Team Leader that there is a concern about the adequacy of the radiation protection program at Pantex. Specifically, the Team is concerned that there is an insufficient number of trained health physics professionals and technicians assigned to radiation protection. Although the Team does not believe that the problem poses an imminent threat either to the public or to the workers at Pantex, they are concerned that there is a problem with:

- (a) the adequacy of the radiation protection program;
- (b) resources necessary to provide an adequate emergency response in the event of an on-site contamination incident; and
- (c) resources necessary to monitor routine operations adequately.

In response to this interim finding, the area office directed the contractor to reassign about eleven (11) staff with necessary background to supplement the radiation protection group. This remedial action is responsive.

Apparently, there have been substantive changes in the organizational staffing of this function at Pantex since the 1987 TSA which included favorable findings concerning the Pantex HP program.

I have reported the foregoing to the cognizant line authority (DP-1), who advised me that he would immediately determine whether these remedial steps are adequate and ascertain the extent of any further changes needed by both the contractor and area office.

We will continue to keep you apprised of developments.

Peter N. Brush
Acting Assistant Secretary
Environment, Safety and Health

cc: Acting Assistant Secretary
for Defense Programs