97-0003383

Department of Energy
Washington, DC 20585

October 21, 1997

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, N.W.
Suite 700
Washington, D.C. 20004

Dear Mr. Chairman:

In response to your letter of September 12, 1997, concerning lightning protection for collocated high explosives and nuclear materials at the Pantex Plant, the Department of Energy has formed the Lightning Protection Project Team (LPT). The LPT is being led by the Amarillo Area Office (AAO) and includes representatives from Defense Programs (DP), Albuquerque Operations Office (AL), Sandia National Laboratories, Lawrence Livermore National Laboratory, Los Alamos National Laboratory (LANL), and Mason & Hanger Corporation. Enclosure 1 is the memorandum forming the LPT initially. Since its issuance, Mr. Dick Yactor (LANL) has been assigned to the LPT. The LPT has been tasked with analyzing the hazards presented by lightning to nuclear explosives operations at Pantex and implementing the controls necessary to mitigate that threat.

The LPT met on October 9, 1997, at Pantex to develop a draft project plan, Enclosure 2, to which the LPT is currently working. This plan will be submitted to the Management Team (MT) for approval. The MT will have appropriate membership from DP, AL and the AAO. Defense Programs is coordinating a lessons-learned effort to assure that the Integrated Safety Process (ISP) implementation at Pantex takes into account the recent dynamic balancer experience.

The LPT has divided the task into four phases: hazard analysis, threat assessment, controls, and implementation. Consistent with the ISP approach, the results of each phase will be submitted to the MT for approval and the Independent Review Team for technical review. Upon completion of the first three phases of the effort, the team will submit a report addressing the threat from lightning, the controls necessary to mitigate the threat, and a plan for the implementation and maintenance of these controls. The Board staff will be kept apprised of the LPT's progress and is invited and encouraged to attend any of their meetings.

To allow the LPT sufficient time to appropriately apply the ISP process, I am requesting an extension for submitting the requested technical report until February 20, 1998. Should you have any questions, please contact me or have your staff contact David Chaney at (301) 903-8308.

Sincerely,

Gene Ives
Deputy Assistant Secretary
for Military Application and
Stockpile Management
Defense Programs

2 Enclosures

97/3383

United States Government | Department of Energy

memorandum

Albuquerque Operations Office
Amarillo Area Office

DATE: OCT 6 1997

REPLY TO
ATTN OF: AAO:SHS:RWY

SUBJECT: Formation of Lightning Protection Project Team

TO: Distribution

A guiding principle of the Integrated Safety Process (ISP) is to design safety into an activity by designing out hazards, when possible, and mitigating any remaining hazards through the use of tailored controls. A generic issue has been identified with regard to the ability of the facility design and protective systems used at Pantex to provide adequate protection against potentially high consequence accidents resulting from lightning. An essential element of ISP, therefore, is a thorough understanding of the hazard presented by lightning to nuclear explosive operations at Pantex and the development of the controls necessary to mitigate that threat. The implementation of this element of ISP requires the formation of a multidisciplinary Lightning Protection Project Team (LPT) to resolve the issue and identify the controls necessary to support safe operations.

The LPT team leader will be Bob Young of the Amarillo Area Office. In accordance with the ISP guide, the LPT will report to the Management Team which is responsible for directing the work, (e.g., defining expectations, approval of work plans and schedules, and review/approval of completed projects) of the project teams. The team's first meeting is tentatively scheduled for October 9, 1997. The objective for this first meeting will be the development of the plan and schedule for responding to the Defense Nuclear Facilities Safety Board's request for a report providing a detailed analysis of the threat from lightning to collocated high explosives and nuclear material, the controls necessary to mitigate the threat, the technical basis for the adequacy of these controls, and the plan for implementing and maintaining these controls.

Attached is the current organization of the LPT. If you have any questions, comments or wish to make substitutions for assigned personnel, please contact Don Brunell of my staff at (806) 477-3053.

William S. Goodrum
Area Manager

Attachment
File: 97-182

cc w/attachment:
Gene Runkle, DOE/AL, OSHD
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Debbie Monette, DOE/AL, WPD
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ATTACHMENT 1

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Lightning Protection Project Team

Leader: Bob Young
MHC: Ken Tolk
SNL: Kim Merewether
AL: Willy Molina
LLNL: Mike Ong
LANL: ??

PRE-DECISIONAL DRAFT

Lightning Protection Project Team
Project Plan

October 9, 1997- First team meeting

Develop Final Project Plan
This effort should be accomplished at the team's first meeting. The project plan will define the scope of the team's effort and establish a firm milestone schedule for completion of these tasks. In accordance with the Integrated Safety Process (ISP) guidelines the project plan will be presented to the Management Team for approval.

October 14 through November 7, 1997

Hazard Analysis
In this phase of the project the Lightning Protection Project Team (LPT) will perform an analysis of the potential lightning threat at Pantex. The objective of the analysis will be to determine the magnitude of the voltage/current that may be present in a nuclear explosive area, bay or cell, resulting from a lightning strike. The team will define the worst case scenarios for the various facility configurations, including protective systems, in use at Pantex. Due to time constraints, this analysis will be based on existing data. For configurations/scenarios where test data and analytical techniques are insufficient to accurately quantify the threat, the team will base its conclusions on the most conservative (worst case) assumptions. The team will also develop recommendations for further testing should facility availability and funding permit.

This phase of the project is expected to require approximately 1 month to complete. In accordance with the ISP guidelines, the hazard analysis will be presented to the Management and Independent Review Teams for approval and technical review.

November 21 through December 24, 1997

Threat Assessment
In this phase of the project the LPT will evaluate the susceptibility of the weapon systems, and explosives components to the voltages and currents that may exist within a nuclear explosive area as the result of a lightning strike. Included in this evaluation will be an assessment of the effectiveness of the equipment/tooling used in operations or staging on the threat to these systems and components.

This phase of the project is expected to require approximately 1 month to complete. In accordance with the ISP guidelines the threat assessment will be presented to the Management and Independent Review Teams for approval and technical review.

January 2-24, 1998

Controls

In this phase of the project the LPT will combine the results of the first two phases to determine the controls, both administrative and engineered, including detection systems, necessary to mitigate the threat to those weapon systems and explosives components determined to be at risk from the effects of a lightning strike. The team will also recommend inspection and testing criteria necessary to ensure the functionality of any controls developed or taken credit for in this phase.

This phase of the project is expected to require approximately 3 weeks to complete. In accordance with the ISP guidelines the recommended controls will be presented to the Management and Independent Review Teams for approval and technical review.

January 30, 1998

Submit report to the Management Team documenting the results of the first three phases. Begin development of the project plan to assess the threat of lightning to explosives operations conducted in non-nuclear facilities at Pantex.

February 2, 1998 -

Implementation of Controls

In this phase of the project the LPT will validate the existing controls as well as the testing and maintenance programs used to ensure their functionality. The team will also implement the modifications to any of the existing controls and the installation of new controls necessary to mitigate the threat posed by lightning to nuclear explosive operations at Pantex.

In accordance with the ISP guidelines the configuration, controls and maintenance requirements, resulting from this phase will be presented to the Management and Independent Review Teams for approval and technical review.