

[DOE Letterhead]

September 29, 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 accordance with Dr. Victor H. Reis' letter of December 20, 1996, summaries of the third periodic review, covering the period of April 1 to August 31, 1997, by the cognizant line managers regarding status of actions started under Defense Nuclear Facilities Safety Board Recommendation 93-6 Implementation Plan, Revision 1, are provided for your information.

Enclosure 1 contains the summary of the review results conducted by the staff of the Deputy Assistant Secretary for Research and Development for archiving activities related to testing operations at the Nevada Test Site and the supporting laboratories, and associated with the Retiree Corps program.

Enclosure 2 contains the summary of the review results conducted by the staff of the Deputy Assistant Secretary for Military Application and Stockpile Management for archiving activities related to weapons operations at Pantex and the supporting laboratories.

If you have any questions, please contact me at 202-586-4879 or have your staff contact Marty Schoenbauer at 301-903-3489 or Ray Ferry at 301-903-3988.

Sincerely,

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

2 Enclosures

## Nevada Test Site (NTS) Activities

All archiving and test readiness activities associated with the NTS are proceeding as planned. No issues were presented by any of the participating organizations who were contacted and interviewed in August 1997. The participants were: Ed Rucker, Nevada Operations Office (NV); Bill Bookless, Lawrence Livermore National Laboratory (LLNL); Charlie Miller, Los Alamos National Laboratory (LANL); and Mark Dickinson, Sandia National Laboratories (SNL). The following is a summary of the discussions presented:

- Joint archiving activities completed:
  - \* Device delivery and insertion videotaping was completed. This consisted of 3.5 hours of videotaping and included personnel from: LLNL (five), LANL (two), SNL (two), and Wackenhut Services, Inc. (WSI) (one).
  - \* Recording trailer park and ground zero setup, which included LLNL and LANL. LLNL overview videotaping was completed. This consisted of 6 hours of videotaping and the following personnel: LLNL (three), LANL (one), Bechtel Nevada (BN) (three), and a retired contractor.
  - \* Ground zero cranes videotaping was completed. This consisted of 6 hours of videotaping and the following personnel: LLNL (four), LANL (one), BN (four), and retired contractors (two).
  - \* A listing of Federal employees and retirees from NV, Environmental Protection Agency, and the National Oceanic and Atmospheric Administration was provided to BN. This listing will be used to ensure the appropriate Federal personnel are interviewed.
  - \* Organizations involved in operations at the NTS also participated in the Nuclear Weapons Information Group (NWIG) meeting conducted from April 1-3, 1997.
- Joint future archiving activities:
  - \* Completion of the stemming module, which includes a compact disk (CD) that can be used by different agencies. The CD will be completed by the end of September 1997 and will be using the approved NWIG standards.

Specific laboratory activities, which support archiving in addition to the above:

SNL:

- Completed videotaping the 16-week shock physics class.
- Continued interviews with three individuals on underground nuclear tests.
- Completed a lessons-learned session of special materials.
- Completed the following two project officer reports (POR), which means five more need to be completed.
  - \* DIAMOND FORTUNE Cavity Gas Report, POR 7470-2, was published.
  - \* HUNTERS TROPHY Containment Diagnostics Report, POR 7506, was published.

Enclosure 1

- Continue the work on waveform data validation and conversion. This entails converting waveform data from 16 different formats to a single common format and then validation.
- Completed 67,000 seismic data waveforms that were validated and converted from VAX/VMS to UNIX/OS systems.
- Software was written to convert the data for HLOS tests, which were executed between 1980 and 1987, and SNL was a participant. This software has been used to convert 11 out of 19 events for SNL-digitized data.
- SNL has started the visible weapon project. This demonstration is in progress and entails a CAD 3D virtual-reality file of the W88 fireset. The project will allow the user to access the fireset in a virtual reality-type setting and click on any specific component to gather information about it as specified by the user. During the initial phase, the project will hyperlink with the knowledge preservation video, safety-related information, and design information on selected components. The goal is to apply all available online information to the entire weapon system.

#### LLNL:

- Completed two videotaping sessions on rack/canister design, two sessions on shipping and tower installation, two sessions on big hole drilling, and one session on test authorities.
- Completed a videotaping session on bomb fraction tracers, including narrating footage from a hot cell.
- LLNL is searching through Nevada Test Operations' documentation of nuclear tests associated with stockpile systems for safety-related records, creating bibliographic entries for the records we had previously identified and the new ones, and scanning the new ones into the electronic archive for full-text search and retrieval.
- Completed processing the video from the Joint Test Organization/NV/BN emplacement sessions into the LLNL electronic library for electronic search and browse access.

#### LANL:

- Completed videotaping sessions on assembly and preparation of event criteria and downhole hardware.

#### Test Readiness Activity:

##### REBOUND

- REBOUND was conducted on July 2, 1997.
- Diagnostic dry runs for timing and control, arming and firing, and data recording were conducted to maintain system readiness.
- An experiment execution authority request containing documented information associated with the safety basis such as non-criticality, containment features, and the hazard analysis was approved.
- Associated personnel were exercised on device receipt and storage and device assembly and insertion.
- REBOUND experiment package(s) was delivered to NTS, Area-27, and subsequently transported by convoy (in the device transportation vehicle) to the U1a complex and successfully inserted into the zero room (X-Cut "A"). Personnel Assurance Program and

WSI escorts were employed, and WSI security operations were, and continue, in force. Diagnostics buildup in the zero room was completed, along with high-explosive insertion.

- Grouting of the containment passageway for REBOUND was completed, along with receiving execution authority.
- REBOUND was successfully executed on July 2, 1997.
- The critical positions, which were exercised for REBOUND, will be included in the annual test readiness completion report.

HOLOG (scheduled for September 1997):

- The first full-up integrated signal dry run was executed on May 22, 1997. All remote control systems from the surface for the holography, velocimetry, and imaging and control diagnostic systems were exercised and functioned properly. Diagnostic equipment installation in the trailer park and in the underground diagnostic alcoves was progressing well.
- The complex readiness assessment for the HOLOG experiment, chaired by the U1a Project Manager, LANL, was conducted on May 21, 1997. The purpose of the assessment was to ensure the essential elements of the complex, including its structures, systems, components, tests, and documentation, were in a state of readiness for experiment insertion, subsequent stemming, and experiment execution.
- The HOLOG execution authority package was sent to DP-10 for review and approval on June 10, 1997.
- Diagnostics dry runs for timing and control, arming and firing, and data recordings are being conducted to maintain system readiness.
- The LLNL HOLOG hazards assessment, with associated errata sheets, was approved by NV on April 24, 1997. (This is a requirement for execution authority.)
- Draft plans are in review for the HOLOG material control and accountability plan, button up and reentry, and security.
- A dummy HOLOG 1261C model (experiment 5) package was fabricated and express mailed to LLNL on May 2, 1997, as requested. The package was used for "show and tell" at the nongovernment organization meeting in Washington, D.C., the week of May 7, 1997. LLNL was very impressed with the responsiveness of BN in successfully completing the model, especially considering the short timeframe coupled with limited resources.
- The HOLOG integrated engineering design review, sponsored by LLNL, was held on May 14, 1997.
- The first full-up integrated signal dry run was executed on May 22, 1997.

Specific laboratory activities, which support test readiness in addition to the above:

LLNL and LANL completed a 5-year (since the last underground nuclear test) stocktake meeting, which gathered subject-matter experts to look specifically at readiness issues associated with laboratory nuclear test functions - as differentiated from fielding procedures executed at the NTS - such as diagnostic systems design and assembly, weapons design and engineering, and containment and nuclear chemistry. Draft findings have been written and submitted to laboratory management.

## Summary of Weapons Operations-Related Archiving Activities

At the August 19, 1997, meeting of the Executive Management Team (EMT), Wayne Lunsford, Los Alamos National Laboratory (LANL); Jerry Dow, Lawrence Livermore National Laboratory (LLNL); Corey Knapp, Sandia National Laboratories (SNL); and Jeff Yarbrough, Mason & Hanger; discussed the status of their respective nuclear laboratory Weapon Safety Specification (WSS) development programs. The WSS development program, including archiving actions in support of Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 93-6, is on schedule. The latest WSS issue with full archiving is:

<u>Weapon</u>	<u>Issue</u>	<u>Date</u>
B53	B	January 1997
W56	C	March 1997
B61 3/4/10	C	July 1997
B61 7/11	C	July 1997
W62	B	April 1997
W69	D	April 1996
W76	A	September 1996
W78	In draft	Issue A planned for September 1997
B83	In draft	Issue A planned for September 1997
W87	In draft	Issue A planned for September 1997

The Integrated Weapon Activities Plan that shows Seamless Safety-21 (SS-21) startup dates for all weapon systems and their corresponding WSS issue dates has been provided to the DNFSB staff.

The EMT discussed the advantages and disadvantages of the different development and archiving methods employed and the value of the information gained. There is full agreement the WSS document is a valuable tool as a single source for the identification of all hazards inherent in the weapon design, either predicted as an aging effect or identified through the surveillance cycles and performance of ALTs or MODs. (These hazards are documented in design drawings and reports, significant finding reports, unsatisfactory reports, Q-forms, and via archiving programs that document previously undocumented anecdotal design, operations, and safety information.) Each presenter, including Luis Salazar, LANL, and Jim Harrison, SNL (input provided separately), was in full agreement that the archiving process has shown no significant design or that safety information was previously overlooked. The archiving sessions have disclosed process and procedural information that aided the development of credible deviation procedures and improved the efficiency of weapon disassembly and surveillance activities. Additionally, the WSSs have proven very valuable to the SS-21 process development and hazard assessment task teams.

Enclosure 2

Additional archiving activities that support WSS development:

SNL, LLNL, and Pantex:

- Completed the W87 laboratory and Pantex panel in Livermore, California.
- Scheduled a second group interview session for September 10, 1997.

SNL:

- Started new interviews with five individuals (W88, B53, neutron generators).
- Continued interviews with three individuals on firing sets and radars.
- Transcribing information for both the W76 program or W78 group archiving program videotaped sessions conducted by SNL, LANL, and Pantex.

LLNL:

- Drafted the B83 WSS and scheduled archiving sessions to support an end of Fiscal Year 1997 release.
- Completed three videotaping sessions on artillery-fired atomic projectiles and the W45 for knowledge preservation purposes.