UNITED STATES GOVERNMENT **DEPARTMENT OF ENERGY**

memorandum

National Nuclear Security Administration
Los Alamos Site Office
Los Alamos, New Mexico 87544

DATE: JUL 31 2007
REPLY TO:
ATTN OF: 5485.3/SBT/5DW-006
SUBJECT: Response to Justification for Continued Operations Related to Seismic Hazards Assessment

TO: Robert McQuinn, ADNHHO, Nuclear & High Hazards Ops, LANL, MS-E517

Reference:
1) AD-NHHO: 07-145: Transmittal of Documents Relative to an Increased Seismic Hazard to LANL Nuclear, High-Hazard Non-nuclear, and Accelerator Facilities, June 22, 2007
2) ADE:07-017: Site-Specific Probabilistic Seismic Hazards Assessment Update Implemented by LANL, June 22, 2007

Reference 1 requested Los Alamos Site Office (LASO) approval of a Justification for Continued Operations (JCO) relative to the results of the ten year update of the Los Alamos National Laboratory (LANL) Probabilistic Seismic Hazards Assessment (PSHA) that indicates the seismic hazard at LANL is greater than previously understood.

BACKGROUND

DOE O 420.1B requires a Natural Phenomena Hazards (NPH) assessment review to be conducted at least every 10 years. LANL completed an update to their PSHA in June 2007. Reference 2 transmitted that update to LASO. Results from this update indicate that the seismic hazard at LANL is greater than that presented in the previous update in 1995. Reference 1 explains that the magnitude of the design basis earthquake used to evaluate the seismic hazard to existing facilities must be increased to reflect this new information.

LANL recognized that this condition resulted in a sitewide Unreviewed Safety Question since the revised study indicated an increased probability and magnitude of a design basis earthquake. LANL subsequently submitted a JCO as allowed in DOE G 424.1-1A, Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements (the Guide), as an alternative to ceasing operations when an unplanned condition arises that would otherwise require shutting down nuclear facilities. In completing the JCO, LANL evaluated the safety of the situation relative to each nuclear facility based on the high level results of the updated PSHA and qualitatively evaluated the need for any compensatory measures for each nuclear facility until a quantitative analysis of the impact of the new seismic data on the performance of safety structures, systems, or components (SSCs) for each facility could be performed.

EVALUATION

The results of the new PSHA, when used with the assessment methodologies given in the implementing standards for DOE O 420.1B, will result in higher derived annual probabilities for LANL structures failing to meet acceptable behavior limits. Further analysis will be required to provide a complete understanding of how the increased seismic risk affects the overall risk of LANL nuclear and high hazard facilities, and what controls and/or modifications may be needed to offset this increased risk. The new PSHA, the JCO, and the accompanying Unreviewed Safety Question Determination (USQD) indicate that the risk accepted by LASO on behalf of the National Nuclear Security Administration (NNSA) is greater than previously understood. As suggested by the Guide, LANL submitted the JCO, which included a qualitative evaluation of the need for any additional compensatory measures for each facility and requested LASO to approve continued operations.

The submitted JCO does not propose any controls offsetting the increase seismic risk for Site Wide Transportation, Chemistry and Metallurgy Research (CMR), TA-55 Plutonium Facility (PF)-4, Waste Characterization, Reduction, and Repackaging (WCRR), Radioassay Nondestructive Testing (RANT), TA-54 Waste Operations (Area G), or the Beryllium Technology Facility (BTF). This conclusion is based on a combination of known vulnerabilities to the previous seismic risk for older facilities, new controls recently implemented to limit the MAR exposed to seismic hazards for RANT and WCRR, and the known significant seismic design margin used for PF-4. Controls are proposed for Weapons Engineering Tritium Facility (WETF) and Radiological Waste Treatment (RLWT), but without a detailed evaluation, there is no clear understanding of the difference in risk being accepted. The JCO includes a qualitative argument that there is no discernable increase in risk (of nuclear or other hazardous material release) for the Safe Secure Transport (SST) facility, Nuclear Environmental Sites, Dual Axis Radiographic Hydrodynamic Test Facility, and TA-53 facilities.

CONCLUSIONS

The LASO concludes that it is appropriate, given the nature of seismic risk, to allow some limited time for LANL to fully analyze, develop, and implement facility specific corrective actions resulting from the increased seismic risk. LASO recognizes that the magnitude of this effort requires a project management approach that must be carefully planned and budgeted. Therefore, LANL shall provide a funded and resource-loaded project plan to LASO no later than September 21, 2007. This effort shall be completed by June of 2009, which is two years from the date of Reference (2). The plan shall prioritize completion of a seismic analysis for individual facilities based on their unmitigated consequences of a seismic event. Based on the information provided by LANL, LASO concluded that allowing continued operation of existing facilities during this time period does not present an unacceptable risk to the public given the nature of the current known seismic risk. However, LASO understands that the results of the detailed facility and system level analyses may likely result in reductions in design margins or increases in risk that would require evaluation and subsequent approval of facility specific JCOs.

While awaiting this plan, LANL shall formalize and implement the controls proposed in Reference 1 for WETF and RLWT. The controls proposed for WCRR and RANT

were approved by NNSA as part of recent safety basis submittals and are currently being implemented and verified. LASO expects working level interaction during the development of the plan to ensure that the Laboratory and LASO are coordinated to the greatest degree possible before submitting the plan for approval.

The Government considers this action to be within the scope of the existing contract and therefore, the action does not involve or authorize any delay in delivery or additional cost to the Government, either direct or indirect. If you believe there is such an impact, you should immediately notify me and not implement this performance direction.

Donald L. Winchell, Jr.
Manager

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