CODT-94-0304

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DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW
1ST REVIEW DATE: 1-12-99
AUTHORITY: ☐AOC ☐ADC ☐ADD
NAME: NAZIR KHALIL
2ND REVIEW-DATE: 10-6-99
AUTHORITY: ADD
NAME:
DETERMINATION (CIRCLE NUMBER(S))
1. CLASSIFICATION RETAINED
2. CLASSIFICATION CHANGED TO:
3. CONTAINS NO DOE CLASSIFIED INFO
4. COORDINATE WITH:
5. CLASSIFICATION CANCELLED
6. CLASSIFIED INFO BRACKETED
7. OTHER (SPECIFY):

Dear Phil:

Subject: Update to LLNL Pit Temperatures for Storage and Containment Failure Conditions (U)

References: A. "Pit Failure Temperatures During Accident Conditions (U)," G. Dittman, CODT-94-0041, February 16, 1994.

B. "Interim Pit Storage (U)", R. E. Clough, COMWX-93-0225, May 14, 1993.

The table below contains revised information that had been previously transmitted in references A and B. It shows LLNL pit failure temperatures under accident conditions and allowable temperatures for normal storage conditions.

The following rationale was used to establish these temperatures for LLNL pits.

Storage Temperature: The pit surface temperature below which LLNL will ensure that any of its pits will remain a sealed vessel even if gross internal damage occurs and that the reuse pit baseline internal condition (i.e., quality) entering storage is expected to remain the same during storage.

Failure Temperature: An accident situation resulting in a pit surface temperature and time of exposure at this temperature either of which when exceeded will result in LLNL not being able to ensure pit integrity.

Sigma 1, 2, 3, 10
RESTRICTED DATA
This document contains restricted data as defined in the Atomic Energy Act of 1954. Unauthorized disclosure subject to Administrative and Criminal Sanctions.

Derivative Classifier: G. L. Dittman
G. L. Dittman APL for Warhead Safety

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LLNL also attempted to determine in a brief study, the pit surface temperatures corresponding to the high temperature limits imposed by the weapon STS on several tactical and strategic weapon systems. Transient exposures were discounted in this instance and only storage or long duration exposures (i.e., weeks or months at the temperatures involved) were considered. This evaluation indicated that the LLNL pits would have been at a temperature of no more than about 130°F for most of their operational life. It was our desire to stay close to this temperature for storage of the reuse pit candidates to keep the pit internal conditions unchanged which led to the initial storage temperature recommendation of 140°F. Since it now appears that a significant operational impact will result if this temperature level continues to be imposed, we have reevaluated the situation and agree with the LANL recommendation to raise the limit to 65°C (149°F). This storage temperature limit is reflected in the table and is tied to the joint LANL/LLNL recommendation for reuse pit candidates[1] and enduring stockpile pits.

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1 T. Seitz and W. Shotts, "Coordinated LANL and LANL Recommendations for Future Reuse of Pits from Dismantled Warheads," COPD-93-44, April 28, 1993.

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