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PM 3:18

LAWRENCE LIVERMORE NATIONAL LABORATORY  
CLASSIFIED TELECOMMUNICATIONS MESSAGE  
(See reverse side for instructions)

4. Precedence designation ("X" appropriate box):

For normal use                      Emergency use only  
Action:  Routine     Priority     Immediate     FLASH  
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For Communication Center use

002676

6. From/originator (enter name, mail code and telephone extension)

LLNL  
R.E. CLOUGH, DEP. ASSOC. DIR. FOR WEAPONIZATION  
L-125, LIVERMORE, CALIFORNIA

7. Official Signature: *R.E. Clough* 3:15 (TIME) P.M.  
(Signature of authorizing official)

8. Date DECEMBER 22, 1992

9. To: \_\_\_\_\_ Communication Center routing

- GTF RADM W.G. ELLIS/D.D. OLSON, DOE WA (MC 2145)
- ALF B.G. TWINING/S.J. GUIDICE/H.T. SEASONS, DOE ABQ (MC 2072)
- PMF J. JOHNSON, AAO (MC 2075)
- PMF R. LOGHRY/E.J. HENKE, MASON & HANGER/PANTEX PLANT, AMARILLO (MC 1390)
- LAF P. CUNNINGHAM/R. GUTIERREZ/J. HASCHKE, LANL (MC 2180)
- GTF P. LOVELL, DOE, WA (MC 2145)

Distribution:  
Comm Center  
Lee MacLean, COMW L-125    Jack Robbins, COMW L-125  
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SUBJECT: CRACKED W48 PIT (U)

Be brief - Eliminate unnecessary words

10. Originator (on separate lines, enter name, routing symbol and tel. no.)

R.E. CLOUGH  
L-125  
(510) 422-8296

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(Name and Title)

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LL 6303 (Rev. 5/80) 7600-7066  
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LLNL  
Dec 22, 1992  
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### Cracked W48 Pit

There are continued and compelling technical reasons to address the cracked W48 Pit at Pantex in an expedient manner. We have said that from the time of the incident on November 12th, there has been continuing degradation of the unit. The chemical, metallurgical, physical, and radioactive properties of [ ] plutonium and its corrosion products are active and complicated. The potential for further chemical reactions between the plutonium and available moisture, air, and organic materials continues with time. Radiolytic decomposition of the first plastic bag is a real possibility, and a compatibility test is being set up at LLNL to evaluate this aspect. All of these reactions are exothermic and thus, if they occur, will release heat and gas causing increases in temperature and pressure. The unit is definitely in an unstable and increasingly deleterious state and can only deteriorate further with time. The increasing time from when there was a visual record of the unit only adds to the uncertainties; the radiographs can mainly show the metal parts and cannot reveal the state of the high explosive, adhesive or the condition of the bags. The radiographs taken two weeks ago indicate the [ ] appear to be involved and it needs to be kept intact and separate.

The probability for a significant accident to occur while DOE deliberates is probably small and definitely unpredictable, but the consequences of such an accident are quite serious. They include breaching the container, releasing radioactivity, and perhaps burning a small amount of the high explosive. In fact, there is a very real probability of the gasket seal of the container leaking alpha contamination due to radiation damage with time; the container was not leak checked when it was closed and to do so now means disturbing the unit unnecessarily. It should be noncontact monitored on a continuing basis and taped up if found leaking radioactivity.

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The delays also increasingly complicate the ability to establish why the pit cracked in the first place. This in turn, complicates and extends the dismantlement of the remaining W48s. It was hoped that the pit could be available early after the failure for disassembly and evaluation at LLNL in order to look carefully at the plutonium to see if there were indications on how it was involved.

There may have been a leak path allowing moisture to come in contact with the plutonium causing reaction products that added to the loading.

With the delays this will probably not be possible now because there has been time for additional reactions to occur. The further plutonium reactions could also extend the initial failure and make the evaluation of the cause more difficult. Attention and care is being applied to the packaging and transportation of the pit to LLNL so that additional damage is minimized.

LLNL's recommended approach of getting the unit into an argon inert gas atmosphere as quickly as possible should have been already implemented. This render-safe-procedure of the inert gas blanket around the plutonium and removing the high explosive is the only manner in which the situation can be stabilized. The DOE decision to not proceed puts DOE and Pantex at risk.

LANL concurs with the above position.

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