



configuration, packaging, and age. The condition of these 54 families was characterized by opening, inspecting, brushing, and repackaging a ten percent sample of each family. Several higher-risk families were identified. These include families with plutonium metal stored in direct contact with plastic or alpha-phase plutonium stored in air. Inspection, brushing, and repackaging of potentially pyrophoric plutonium have continued with priority given to the higher-risk families. As of February 29, 1996, 1024 of the 1858 packages have been processed and brought into compliance with 1-82500-HSP-31.11. All material subject to 1-82500-HSP-31.11 in Buildings 771 and 779 is now in compliance. Work is continuing to bring the remainder of the 1858 packages into compliance with 1-82500-HSP-31.11 by September 30, 1996. Results of this work, as summarized in Reference (c), show that individual containers of plutonium, even within the same family, range from zero to one hundred percent oxidation. However, the average amount of oxidation observed is substantially less than was assumed in References (a) and (d).

A summary of the six reasons why USQD-RFP-93.1170-TLF concluded that a USQ condition existed, and the status of each follows:

1. "The probability of occurrence of a spontaneous breach and/or fire in a container of plutonium has increased from incredible to highly unlikely. Therefore, the probability of occurrence of an accident previously evaluated in a safety analysis has increased." This issue is still valid. When all material subject to 1-82500-HSP-31.11 is back in compliance with that procedure (currently scheduled for September 30, 1996), plutonium storage will be back to the condition assumed in the FSARs. This will substantially reduce the probability of a spontaneous breach and/or fire in a container of plutonium, but it will not make such an event incredible. We now believe that the probability of a spontaneous breach or fire in a container of plutonium, which is in compliance with 1-82500-HSP-31.11, is extremely unlikely ( $1E-4$  to  $1E-6$ /yr) rather than incredible ( $<1E-6$ /yr) as assumed in existing FSARs. Therefore, DOE acceptance of the risk associated with this increase in perceived probability will be needed to close this USQ.
2. Some criticality limits credit material form and geometry as a control to prevent an inadvertent nuclear criticality. Since control of material form and geometry has been lost, "the probability of occurrence of an inadvertent nuclear criticality has increased from highly unlikely to unlikely. Therefore, the probability of occurrence of an accident previously evaluated in a safety analysis has increased." The material in Buildings 771 and 779 is back in compliance with 1-82500-HSP-31.11, so this issue is no longer applicable to those buildings. This issue is probably still valid in Building 707, and possibly valid in other

buildings. Confirmation would require a detailed review of each criticality limit. The issue will be resolved when all material is back in compliance with 1-82500-HSP-31.11 (currently scheduled for September 30, 1996).

3. Because of the potential increase in the quantity of dispersible plutonium powders, "the Building 776/777 consequence to the public from a wind event has increased by a factor of 7 to 9, nearly doubling the composite Building 776/777 risk to the public within 50 miles. Therefore, the consequence of an accident previously evaluated in a safety analysis has increased." Since the average oxidation observed [as documented in Reference (c)] is substantially less than assumed in Reference (d), this issue is no longer a USQ.
4. Because of the potential increase in the quantity of dispersible plutonium powders, "the consequence to the maximum offsite individual of a design basis earthquake on Building 776/777 has increased by 7% from 1.5 Rem to 1.6 Rem. Therefore, the consequence of an accident previously evaluated in a safety analysis has increased." For the same reason listed for item 3 above, this issue is no longer a USQ.
5. "Failure to comply with HSP/FLP 31.11 reduces the margin of safety as defined in the administrative controls of the Operational Safety Requirements for Buildings 371, 559, 707, 771, 776/777, and 779." Since all material subject to 1-82500-HSP-31.11 in Buildings 771 and 779 is back in compliance, this issue is no longer a USQ for those buildings. The issue will be resolved when all material is back in compliance with 1-82500-HSP-31.11 (currently scheduled for September 30, 1996).
6. As discussed in item 2 above, "oxidation of plutonium metal results in a loss of shape control. For those NMSLs and CSOLs that rely on geometry for one contingency, this constitutes a loss of double contingency, reducing the margin of safety as defined in the basis for the administrative controls for Buildings 371, 771, 776/777, and 779 and the double contingency controls for Buildings 559 and 707." For the same reasons discussed in item 2 above, this issue is no longer a USQ for Buildings 771 and 779. It is probably still valid for Building 707 and possibly valid for other buildings. The issue will be resolved when all material is back in compliance with 1-82500-HSP-31.11 (currently scheduled for September 30, 1996).

David A. Brockman  
March 14, 1996  
96-RF-01560  
Page 4

SUMMARY

The storage of potentially pyrophoric plutonium at Rocky Flats remains a USQ for four of the six reasons originally presented in USQD-RFP-93.1170-TLF [Reference (a)]. Results of inspections to date, as reported in Reference (c), indicate that the two issues directly related to Building 776/777 no longer represent a USQ. One issue will not be resolved by the inspection, brushing, and repackaging activities. The probability of a spontaneous breach or fire in a container in compliance with 1-82500-HSP-31.11 is extremely unlikely, but not incredible as assumed in the 1987 FSARs. This is not an increase in real risk, but it is an increase in the frequency assumed in safety analyses.

RESPONSE REQUIREMENT

We request DOE to accept the risk associated with this reassessment of probability so that the USQs associated with USQD-RFP-93.1170-TLF will be resolved when all material subject to 1-82500-HSP-31.11 is back in compliance with that procedure.

If you have any questions or comments, please contact T. L. Forker of Nuclear Safety. He can be reached at extension 7535 or pager 1429.



Vik Mani, Vice President  
Safety, Engineering & Technical Services  
Kaiser Hill Company, L.L.C.

TLF:1a

Orig. and 1 cc - D. A. Brockman

cc:  
P. M. McEahern  
J. C. Selan

4/4