

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 25, 1998

MEMORANDUM FOR: G. W. Cunningham, Technical Director
FROM: J. Kent Fortenberry / Joe Sanders
SUBJECT: SRS Report for Week Ending September 25, 1998

J. Roarty and R. Robinson were onsite this week reviewing H-area criticality issues. J. DeLoach and R. Schapira were onsite this week observing site activities relative to Recommendation 93-3.

Demonstrating Conversion of Plutonium Metal to δ -Phase in FB-Line: WSRC is preparing to convert two plutonium metal buttons to δ -Phase in order to eliminate the susceptibility to alpha-beta phase change at relatively low temperature. This activity provides a contingency for plutonium metal storage in APSF in the event that testing is unable to prove that the plutonium metal will not expand upon phase change and rupture the 3013 storage containers. The weekly report of August, 8, 1997, noted that WSRC was preparing to perform direct metal casting using the FB-Line induction furnaces. To date, three buttons have been produced from classified parts located onsite. This same process will be used with the addition of a process step to add gallium (to produce δ -Phase alloy). In addition to providing a contingency for APSF, this same process will also demonstrate the viability of de-classifying, both chemically and physically, the approximately 1½ metric tons of classified metal parts from RFETS.

Status of Sand, Slag and Crucible (SS&C) Shipments from RFETS to SRS: DOE EM-76, with responsibility for plutonium shipping packages and certifications, has authorized DOE-SR and DOE-RFFO to use 6M, 9965 and 9968 shipping packages to transport SS&C samples and standards in a quantity up to 20 curies of plutonium (~57 grams). The samples are intended to verify that the F-Canyon flowsheet used for SRS SS&C can accommodate the RFETS SS&C. This shipment should have occurred this week; however, inappropriate standards were produced (i.e., instead of containing plutonium-bearing SS&C, another form of plutonium was used) which will result in a 1-2 week delay.

EM-76 has also authorized shipment of bulk RFETS SS&C in quantities containing less than 20 curies of plutonium per container for the same shipping packages. This only accommodates SS&C very "lean" in plutonium, and should satisfy canyon operation through approximately 2/99. In the meantime, DOE-SR and WSRC are revising the SARP for the 9975 shipping container to accommodate significantly higher internal pressures (~900 psi) which will allow shipment of SS&C with a higher plutonium content. The hope is that this revised SARP will be approved by EM-76 prior to 2/99. If not, additional delays may be experienced.