

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 7, 1997

MEMORANDUM FOR: G. W. Cunningham, Technical Director
FROM: J. Kent Fortenberry / Joe Sanders
SUBJECT: SRS Report for Week Ending November 7, 1997

Actinide Packaging and Storage Facility (APSF) Geotechnical Review - Results from a WSRC review of the APSF design with the design subcontractors, Stone & Webster and Geomatrix, identified two areas requiring further investigation. First, a soil boring shows a soft zone at the southern end of the facility (proposed location of the truck bay) about 135 feet below the surface with a thickness of 8-9 feet. A nearby cone penetration test shows the same soft zone with a thickness of about 4.5 feet. Additional cones will be pushed in the next few weeks to further define the thickness and extent of this soft zone. If remediation is required, options might include moving the facility northward 50-100 feet, grouting the soft zone, or using pilings. Also, preliminary analyses indicated the analyzed fundamental frequency of the soil-structure system was higher than expected (15 vs. 10 hertz). Representatives from WSRC are reviewing the analysis methodology and results this week.

Both of these items have the potential to impact design and result in project delays. Both of these issues might have been identified earlier in the design process (final design is approximately 80% complete) had the in-house WSRC technical expertise been used to review or follow the design earlier.

Repackaging Collapsed Oxide Cans at FB-Line - WSRC has completed an evaluation of potential energetics that might be encountered during repackaging of the collapsed oxide cans at FB-Line (see 9/26/97 weekly report). These collapsed cans contain primarily plutonium oxide rather than plutonium metal. The small amount of plutonium hydride and plutonium nitride available to react, and the dispersion of this material within a large quantity of plutonium oxide, should limit the reaction during opening to something less than that experienced at Hanford last December. Using reasonably bounding assumptions, WSRC has concluded that these cans can be safely repackaged. Nonetheless, FB-Line Management has agreed to look carefully at the repackaging activity and to perform a job hazards analysis on the oxide repackaging procedure before repackaging the collapsed cans. For collapsed cans of plutonium metal, WSRC is still evaluating the potential reactions involved.

Tritium Extraction Facility (TEF) Geotechnical Investigation - The first phase of the TEF geotechnical investigation (site characterization) has been initiated. The anticipated scope includes:

- 10 to 12 180' Seismic Cone Penetration Test soundings;
- 2 to 4 60' Seismic Cone Penetration Test soundings;
- 2 180' Standard Penetration Test borings; and
- 2 180' Undisturbed sample borings.

The results of this phase will be used to define the second and final phase of the investigation. This should culminate in a final report around March 1998 which will determine whether the current site spectra is applicable, whether subsurface remediation is necessary, and provide information for supporting analyses.