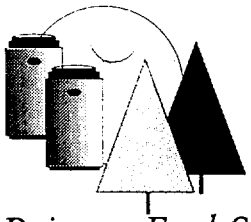
72-22



Private Fuel Storage, L.L.C.

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John L. Donnell, P.E., Project Director

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Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

March 25, 1999

SUBMITTAL OF COMMITMENT RESOLUTION INFORMATION
PRIVATE FUEL STORAGE FACILITY
DOCKET NO. 72-22 / TAC NO. L22462
PRIVATE FUEL STORAGE L.L.C.

Reference: PFSLLC Letter, Donnell to Delligatti, Commitment Resolution Letter # 2, dated March 18, 1999

Please find enclosed Private Fuel Storage responses to NRC Commitment Resolution comments (Reference).

If you have any questions regarding this response, please contact me at 303-741-7009.

Sincerely,

John L. Donnell
Project Director
Private Fuel Storage L.L.C.

NFO61

cc:
John Parkyn
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ENCLOSURE

RAI 2-3 (second round), Flooding Analysis

NRC Comment – The PMF flow rate of 53,000 cfs appears low. Values based on other calculations methods indicated that it may be on the order of 150,000 cfs. PFS needs to provide further justification for their PMF approach. Two significant parameters that effect the PMF results are the time of concentration and soil conditions (eg, saturated vs non-saturated). PFS needs to justify the models and values used in the PMF calculation.

Also, the PMF analysis (Calculation G(B)-12) needs to consider the effect of the berm and the water surface profiles (specifically A2) should show the storage pad elevation.

PFS Response – Calculations 0599602 G(B)–12 Revision 1, 0599602 G(B)–16 Revision 0, and 0599602 G(B)–17 Revision 0 are attached for your information and review.

Calculation 0599602 G(B)–12 has been revised to evaluate the sensitivity of the results to various curve numbers (CN's). In addition to a CN value of 70, section 8 (page 23 & 24) discusses the analysis using CN values of 75, 80, 90, and 96. Results are presented in Figure 12 and the HEC-1 inputs and outputs are documented in Attachment 4 of the calculation. The results indicate that the PMF flows are not very sensitive to the CN number (i.e., a CN of 96 results in a PMF of 67759 cfs).

Page 25, 26, and 27 of the calculation provide additional discussion/justification of the concentration time (Tc). An additional computer run was made to demonstrate that even for the worst combination (with CN=96 and a short concentration time Tc =11 hours), the calculated PMF flow = 85,000 cfs. Table 6 of the calculation provides a comparison of PMF flows of 53,000 cfs and 85,000 cfs. A PMF flow of 85,000 cfs will cause the water levels in various sections to increase about 1 ft. The lowest corner of the PFSF site (elevation 4462 ft) is still 5.3 ft above the flood level (Figure 13, section A2, 4456.72 ft).

It should be noted that the top of concrete elevation for the cask storage pads is 4475 ft for the southern most row of pads (highest) and 4463 ft for the northern most row of pads (lowest).

Calculation 0599602 G(B)–16 presents the 100-year and PMF flood analysis, for the drainage basin with the existing natural topography in the western part of the site, where the 3-mile long rail line will be located. This calculation is similar to Calculation 0599602 G(B)-12, but the drainage basin is on the rail line (western) side.

Calculation 0599602 G(B)–17 presents the 100-year and PMF flood analysis, for the drainage basin with the site access road and rail line embankment & culverts in place, for both eastern and western floodways of the site. The results of the analysis show that water levels in the two floodways near the PFSF site will not be affected by the placement of the embankments. However, upstream from the embankments, water levels will increase and overtop the access road and the railroad. The PMF berms, being higher than the overtopping water level will be able to protect the PFSF site from flooding (see pages 8 and 13 in S&W Calculation No. 0599602 G(B)-17, Rev.0).

Comparison with the Clive Facility Analysis

PFS has also compared the Surface Hydrology Analysis prepared for the LLRW Disposal Facility at Clive, Utah with the PFSF flood analysis for the site at Skull Valley in Tooele County, Utah. The Clive facility is located about 23 miles to the northwest of the PFSF site and has similar ground cover and infiltration conditions.

At the Clive, Utah site, a 46 square mile basin was evaluated by Envirocare for a LLRW disposal facility and reviewed by the NRC (Final Environmental Impact Statement to Construct and Operate a Facility to Receive, Store, and Dispose of 11e.(2) Byproduct Material Near Clive, Utah, Docket No. 40-8989 dated August 1993).

A review of a more recent report (Safety Evaluation Report for the Low-Level Radioactive Waste Disposal Facility at Clive, Utah; Envirocare of Utah, Inc.; Part 1, RAE-9538/1-1 Draft, dated April 1998) indicated that the ground cover and infiltration conditions are similar in the two basins. For the PMF analysis, the precipitation data and the assumptions of infiltration and concentration time for the PMF computation were compared and are presented below:

Precipitation Data

PMP (probable maximum precipitation) data were determined based on NOAA Report No. 49 for both basins.

Infiltration Rate

Envirocare used a CN=74 because the soil category of the basin has a high clay content at depths of 4 to 15 inches. This, combined with the sodium content, give the South Clive site soils natural properties for compaction to form an impervious soil layer. In the PFSF drainage basin, S&W used a CN=70. The small differential of the two CN's would not produce significant differences for the PMF analysis. As discussed above, the sensitivity of the CN value to PMF results has been examined in

S&W's calculation No. 0599602 G(B)-12, Rev.1. The conclusion is that the PMF results are not a very sensitive to the CN value.

Concentration Time (Tc)

Envirocare used the Soil Conservation Service (SCS) method, as recommended in HEC-1 model, to estimate Tc as follows:

For an area of 46 mi^2: Tc = 4.13 hr (2.48 hr lag time)

S&W also used the SCS method (see page 26, Table 7 of calculation 0599602 G(B)-12, Rev.1) for the PFSF drainage basin of:

For an area of 270 mi^2: Tc = 58.9 hr.

However, S&W did not use Tc = 58.9 hr to calculate PMF. Instead, S&W used a second approach, the Hathaway's equation, to calculate a Tc = 18 hr, which is more conservative than the SCS method.

Since Tc is a sensitive factor to the PMF results, S&W is in fact, using a more conservative approach in the estimation of PMF.