

CLIENT & PROJECT Private Fuel Storage Facility - Private Fuel, LLC				PAGE 1 OF 5 PLUS 1 PG OF ATTACHMENTS		
CALCULATION TITLE Calculation of Holtec Cask Impact Load and Sliding Distance				QA CATEGORY (X) <input checked="" type="checkbox"/> I - NUCLEAR SAFETY RELATED <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> OTHER		
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S.C. SMITH 6/20/97 <i>S.C. Smith</i>	S.P. JACOB 6/20/97 <i>Steve P. Jacob</i>	S.P. JACOB 6/20/97 <i>Steve P. Jacob</i>	0	NA		X
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OBJECTIVE:

The purpose of this calculation is to calculate the following items based on the results of Holtec's site specific seismic cask analysis as detailed in Reference 1:

- a. The maximum cask sliding distance (vector summation) due to the design earthquake.
- b. The maximum vertical impact load (expressed in G's) of the cask on the pad as it returns to a vertical position from its maximum tip over excursion.

REFERENCES:

1. Multi-Cask Seismic Response at the PFSF ISFSI, Holtec Report HI-971631, Rev 0, 5/19/97, HOLTEC International.

CALCULATION METHOD & ASSUMPTIONS:

Standard Engineering methods will be used. Assumptions will be as noted in the body of the calculation.

CONCLUSIONS:

Results are shown on the following page.

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A. The maximum cask sliding distance (vector summation) due to the design earthquake.

Maximum sliding is for cask #6 (8 casks on the pad, coeff. of friction = 0.2) [Ref. 1, Table 7.15]

$$\text{Distance} = [x(\text{bot})^2 + y(\text{bot})^2]^{0.5} = [(8.395'')^2 + (5.886'')^2]^{0.5} = \underline{10.25''}$$

B. The maximum vertical impact load (expressed in G's) of the cask on the pad as it returns to a vertical position from its maximum tip over excursion.

Maximum vertical impact force of cask on pad [Ref. 1, Fig 9.2] = 3,000,000 lbs.

Weight of cask [Ref. 1, pgs 4 & 5] = 88,857 lbs. (MPC) + 267,664 lbs. (cask) = 356,521 lbs.

$$\text{Maximum deceleration} = 3,000,000 \text{ lbs} / 356,521 \text{ lbs} = \underline{8.41 \text{ g}}$$