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DOCKETED
JUN 21 2000
RULEMAKINGS AND ADJUDICATIONS STAFF
SECY-NRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC (Independent Spent Fuel Storage Installation)	)	ASLBP No. 97-732-02-ISFSI
	)	June 15, 2000

STATE OF UTAH'S NOTICE OF WITHDRAWAL OF CONTENTION UTAH H (INADEQUATE THERMAL DESIGN)

The State of Utah hereby notifies the Licensing Board and parties that it is withdrawing Utah Contention H (Inadequate Thermal Design). Contention H charged that the Applicant, Private Fuel Storage, L.L.C. ("PFS"), had failed to provide an adequate thermal design for the PFS facility. The State was concerned that the thermal analysis performed by the Applicant was inadequate, and that the Staff had not performed its own independent analysis of the thermal design.

In support of its pre-filed testimony, the NRC Staff has now performed an independent thermal analysis of the proposed PFS facility. The Staff has attempted to model a three-dimensional case similar to the scenario the State's witnesses proposed in their depositions and testimony. The Staff's analysis confirms the State's hypothesis that a thermal envelope does develop over the modeled PFS facility, resulting in elevated temperatures compared with "far field ambient" temperatures. Also, as the State had postulated, most of the air entering into the system and made available for convective cooling is drawn in from the sides of the model. The NRC TEMPEST model has predicted that the increase in the

Template = SECY-037

SECY-02

temperature near the inlet ducts of a centrally-located cask will be on the order of 8 °F. This elevated temperature (on the order of 60 °F) was used as input into the COBRA-SFS computer program in which a thermal model of a single HI-STORM 100 storage canister was created. The NRC COBRA model takes into account convective cooling inside the fuel canister in estimating peak fuel cladding temperatures. This model predicts the peak fuel cladding temperature approximately 160 °F lower than the maximum allowable fuel cladding temperature limit for an MPC-24 canister. At an ambient temperature of 80 °F, the NRC COBRA model predicts the peak fuel cladding temperature to be 563 °F. We continue to have questions about FLUENT modeling of the ISFSI system and canister internal temperatures, and also the applicability of the PFS model to the MPC-68; only the MPC-24 canister was modeled. However, given that the COBRA model's predicted cladding temperatures for the MPC-24 canister are significantly below regulatory limits, we think it unlikely that further study would show an exceedance of the limits.

Finally, we believe there is merit to PFS's argument that there exists a significant conservatism when one neglects convection in the HI-STORM/HI-STAR model. Aside from the modeling, if one compares the actual measured values for the TN-24P vertical vacuum (case 1) and vertical helium (case 6) cases, 278 °C and 214 °C (see attached Table), the difference is 64 °C or 115 °F. The vertical vacuum case has essentially no convection, while the vertical helium scenario does have convection. With a small upper plenum and fairly low helium pressure, the TN-24P is not set up to promote convection. The HI-STAR/HI-STORM canister has a larger upper plenum and more helium. It is therefore plausible, without even considering the Holtec FLUENT model, that when convection is

utilized, the difference between no convection (vacuum) and convection for the HI-STAR/HI-STORM canister is considerable, as Holtec claims.

Accordingly, the State has decided to withdraw Contention Utah H.

DATED this 15th day of June, 2000.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of STATE OF UTAH'S NOTICE OF WITHDRAWAL OF CONTENTION UTAH H (INADEQUATE THERMAL DESIGN) was served on the persons listed below by electronic mail (unless otherwise noted) with conforming copies by United States mail first class, this 15th day of June, 2000:

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Comparison of the TN-24P and FLUENT and COBRA Model Predicted Temperatures

				FLUENT*				COBRA
				08/03/1997		08/13/1999		
Case	Orientation	Backfill	Measured Guide Tube T (oC)	Predicted T (oC)[a]	Margin	Predicted T (oC)[b]	Margin	Predicted T (oC)
1	Vertical	Vacuum	278					
2	Horizontal	Vacuum	268					
3	Horizontal	Nitrogen	247					
4	Horizontal	Helium	208					206
5	Vertical	Nitrogen	232					
6	Vertical	Helium	214					211

Notes:

a: - gap between basket and shell modeled
- 1/8" upper plenum
- convection enabled

b: - conduction between basket and shell enhanced w/ Al inserts
- 1/2" upper plenum
- convection enabled

* FLUENT temperatures may be considered proprietary and are not listed on this table.