
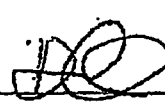
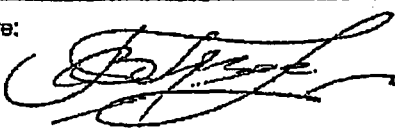
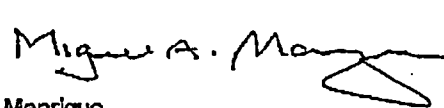



Enclosure 1 to E-25259

Transnuclear, Inc. Calculation NUH32PTH1-0420, "Air Flow within
NUHOMS HSM-H Loaded with 32PTH1 DSC," Revision 0
(Non-proprietary version, without discs)

 TRANSNUCLEAR <small>AN AKEVA COMPANY</small>	Calculation	Calc. No.:	N U H 3 2 P T H 1 - 0 4 2 0		
		Rev. No.:	0		
Calculation Title:		Page:	1	of	9
Air Flow within NUHOMS HSM-H Loaded with 32PTH1 DSC		Project No.:	NUH32PTH1		
		DCR No.:	N/A		
Project Name: NUHOMS® 32PTH1 Transportable and Storage System					
Number of CDs attached: 1					
If original issue, is Licensing Review per TIP 3.5 required?					
<input checked="" type="checkbox"/> No (explain)		<input type="checkbox"/> Yes		Licensing Review No _____	
This calculation is performed to support amendment application subjected to NRC review					
Software utilized: —		Version: —			
Calculation is complete					
Originator's Signature:			Date:		
Davy Qi 			6/27/06		
Calculation has been checked for consistency, completeness, and correctness					
Checker Signature:			Date:		
Slava Guzeyev 			6/27/06		
Calculation is approved for use					
Project Engineer Signature:			Date:		
Miguel A. Manrique 			1/12/07		
Miguel Manrique					

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 TRANSNUCLEAR <small>AN AREVA COMPANY</small>		Calculation		Calc. No.: NUH32PTH1-0420	
				Rev. No.: 0	
		Page:		2	of 9
<u>Revision Summary</u>					
REV.	DATE	DESCRIPTION	AFFECTED PAGES	AFFECTED DISCS	
0	1/12/07	Initial Issue	All	All	

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1.0 Purpose

The purpose is to calculate the airflow rates and air temperatures within the NUHOMS® HSM-H loaded with 32PTH1 DSC with high heat load up to 40.8 kW for normal and off-normal operating conditions.

2.0 Assumptions and Conservatism

The HSM-H/32PTH1 DSC configuration considered in this calculation is similar to the HSM-H/32PTH DSC configuration in HD SAR [1]. [REDACTED]

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 in accordance with 10 CFR 2.390

3.0 Design Input / Data

Total maximum decay heat loads for HSM-H loaded with 32PTH1 DSC are: Q=31.2 kW and 40.8 kW.

The HSM-H airflow calculation is based on the following operating conditions:

The ambient temperatures applied in this calculation are summarized in Table 3-1.

Table 3-1 Summary of Ambient Temperatures Applied [3]

Operating Condition	Ambient Temperature, °F
Normal	0
	106
Off-Normal	-40
	117
Accident-extreme hot ambient	133

Flat stainless steel plates [REDACTED] are used for both top and side heat shields. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED] Table 3-2 lists HSM-H/DSC dimensions used in air flow calculation for HSM-H/32PTH1 DSC design.

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

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4.0 Methodology

The methodology used in this calculation is similar to one described in [2]. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

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Calculation

Calculation No.: NUH32PTH1-0420

Revision No.: 0

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5.0 References

1. SAR, *Safety Analysis Report for the NUHOMS® -HD Horizontal Modular Storage System for Irradiated Nuclear Fuel*, Transnuclear, Inc., NRC Docket No. 72-01030, Rev.4, January 2006.

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6.0 Results

The calculated [REDACTED] airflow temperatures for normal and off-normal conditions are summarized in Table 6-1 for 31.2 kW and 40.8 kW heat loads. [REDACTED]

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Table 6-1 Airflow Calculation Results, 31.2 kW and 40.8 kW per 32PTH1 DSC

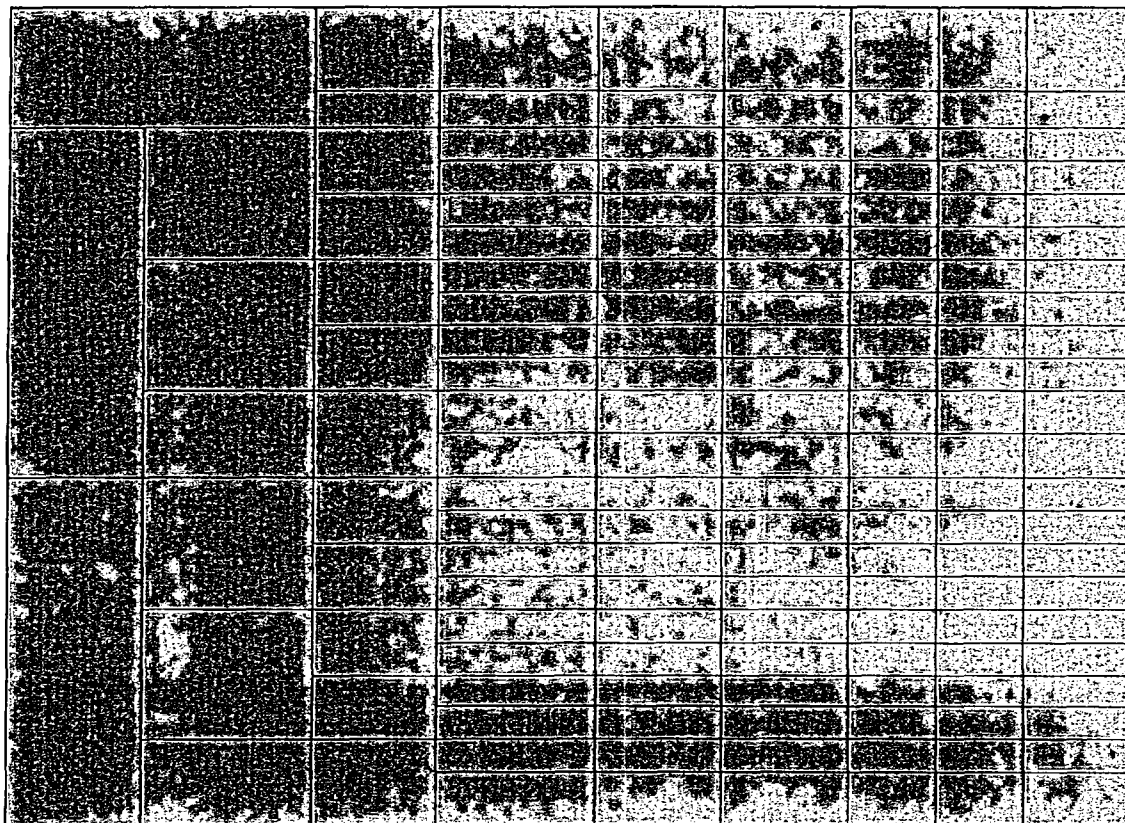
Operating Conditions		T _{amb}																			T _{ext}	
		°F																			°F	
40.8 kW	Off-Normal	-40																			30.4	
		117																			216.3	
	Normal	0																			78.0	
		106																			203.4	
	Accident-extreme hot ambient	133																			235.1	
31.2 kW	Off-Normal	-40																			18.3	
		117																			199.2	
	Normal	0																			64.4	
		106																			186.6	
	Accident-extreme hot ambient	133																			217.4	

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7.0 Conclusion

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