September 25, 1986 HRC/TMI 86-096

DISTRIBUTION DN 50-320 Local PDR NRC PDR DCS

TMI Site r/f TMI HO r/f FJMiraglia

WDTravers

MTMasnik CJCowqi11

TAMos lak LChandler.

M-Town Office

Service List

ACRS

I&E

Docket No. 50-320

Mr. F. R. Standerfer Vice President/Director, THI-2 GPU Nuclear Corporation P. O. Box 480 Hiddletown, PA 17057

Dear Mr. Standerfer:

Subject: Storage of Upper End Fittings

References:

GPUN letter, 410-86-L-0132, dated August 16, 1986, F. R. Standerfer to W. D. Travers, "Storage of Upper End Fittings"

2. GPUN letter, 4410-86-L-0160, dated September 9, 1986, F. R. Standerfer to W. D. Travers, "End Fitting Storage"

MRC memorandum, C. R. Marotta, NMSS-TCB, to L. H. Thonus, 3. MRR-THICPD, dated September 18, 1986, regarding criticality analyses of 55 gallon drums

The Nuclear Regulatory Commission (NRC) staff has completed its review of your August 16, 1986 proposal for storage of upper end fittings and the additional information provided in your September 9, 1986 letter (references 1 and 2). The methodology and assumptions used in your calculational models are conservative. In addition, the staff has performed independent confirmatory calculations. Both your results and the staff's results demonstrate that a large shutdown margin exists for both single drums and a large planar array of 55 gallon drums.

We therefore approve loading and storage of the array of 55 gallon drums as described in your submittal. This approval is contingent upon submittal of related procedures subject to Technical Specification 6.8.2. Since the shutdown margin is provided by the soluble boron your operational procedures should limit those activities (i.e. hydrolasing) which could introduce non-borated water in the storage area. These procedures should also provide for periodic reverification of the boron concentration if the storage interval is protracted.

Sincerely.

COOGNAL SIGNED UT. Without D. Truvers

> W. D. Travers Director TMI-2 Cleanup Project Directorate

OFFICE >	B610060613 860925	
SUPPLANE >		
DATE>	•	
	the state of the s	

OFFICIAL RECORD COPY

A CONTRACTOR							
	, Mr. F	. R. Standerfer		2	Sep:	tember 25, 198	6
		T. F. Dermitt R. E. Rogan S. Levin J. R. Frew J. J. Byrne A. M. Hiller Service Distribut (see attached)	ion List				
							•
SURNAME DATE	TMICPD.	npr Act / Phief. Tech Support	MITAN ST				
NAC FORM	318 (1080) N	RCM 0240		RECORD C	OPY		

ATTACHMENT

SAFETY EVALUATION

Introduction

During defueling the licensee intends to place and fittings in shielded 55 gallon drums which will be inside an overpack container. The drums will be transferred to and placed in a storage area adjacent to the west "D" ring on the 347 ft. elevation of the reactor building. As tooling and mathodologies are developed the end fittings will be sized to fit through the openings in defueling consisters and ultimately transferred off site. There may be some fuel attached to or packed in flow spaces in the end fittings. Since the accumulated fuel contained in a drum or several drums could exceed the minimum mass required for criticality, criticality evaluations were performed taking geometry and neutron absorbtion into account.

Evaluation

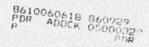
GPUH performed criticality calculations that indicated a shutdown margin significantly greater than 5% (K. was .918 for the worst case planar array). The model they used was very conservative. Among the principal conservations are:

- Reglecting neutron absorption by the stainless steel end fittings.
- 2. Use of arms full of fuel when a few kilograms at most is expected.
- Use of entirely region 3 fuel (highest enrichment) and optimum fuel to water ratio.

The MRC staff's calculations using similar conservative models independently confirmed GPUN's results. The affects of dropping a 55 gallon drum of end fittings or dropping a load onto a stored drum are bounded by previously analyzed conjects drop accidents.

Conclusions

The staff has determined that the transfer and storage of end fittings in shiplded 55 gallon drums does not present a significant criticality risk provided that 4950 ppm boron is maintained in any contained water. Load drop accidents have been bounded by previous analyses regarding fuel cantisters. The scope of activities falls within the bounds of the activities previously analyzed in the Programmatic Environmental Impact Statement. The end fitting transfer and storage does not constitute an unreviewed safety question as defined by 10 CFR 50.59 and can be implemented without significant risk to the health and safety of the public.



Dr. Thomas Murley Regional Administrator U.S. Nuclear Regulatory Commission 631 Park Avenue King of Prussia, PA 19406

John F. Wolfe, Esq., Chairman Administrative Judge Atomic Safety and Licensing Board Panel U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Dr. Oscar H. Paris Administrative Judge Atomic Safety and Licensing Board Panel U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Dr. Frederick H. Shon Administrative Judge Atomic Safety and Licensing Board Panel U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Dr. Judith H. Johnsrud Environmental Coalition on Nuclear Power 433 Orlando Avenue State College, PA 16801

Ernest L. Blake, Jr., Esq. Shaw, Pittman, Potts, and Trowbridge 1800 M. Street, NW Washington, D.C. 20036

Atomic Safety and Licensing Board Panel U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Secretary U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Frederick S. Rice, Chairman
Dauphin County Board of Commissioners
Dauphin County Courthouse
Front and Market Streets
Harrisburg, PA 17101

Thomas M. Gerusky, Director Bureau of Radiation Protection Department of Environmental Resources P.O. Box 2063 Harrisburg, PA 17120

Ad Crable Lancaster New Era 8 West King Street Lancaster, PA 17601 Willis Bixby, Site Manager U.S. Department of Energy P.O. Box 88 Middletown, PA 17057-0311

David J. McGoff
Office of LWR Safety and
Technology
NE-23
U.S. Department of Energy
Washington, D.C. 20545

William Lochstet 104 Davey Laboratory Pennsylvania State University University Park, PA 16802

Frank Lynch, Editorial The Patriot 812 Market Street Harrisburg, PA 17105

Robert B. Borsum Babcock & Wilcox Nuclear Power Division Suite 220 7910 Woodmont Avenue Bethesda, MD 20814

Michael Churchhill, Esq. PILCOP 1315 Walnut Street, Suite 1632 Philadelphia, PA 19107

Marvin I. Lewis 7801 Roosevelt Blvd. #62 Philadelphia, PA 19152

Jane Lee 183 Valley Road Etters, PA 17319

Walter W. Cohen, Consumer Advocate Department of Justice Strawberry Square, 14th Floor Harrisburg, PA 17127

Mr. Edwin Kintner
Executive Vice President
General Public Utilities
Nuclear Corporation
100 Interpace Parkway
Parsippany, NJ 07054

US Environmental Prot. Agency Region III Office ATTN: EIS Coordinator Curtis Building (Sixth Floor) 6th and Walnut Streets Philadelphia, PA 19106