

# REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8207080415 DOC,DATE: 82/07/02 NOTARIZED: YES DOCKET #  
 FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana & 05000315  
 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316  
 AUTH.NAME AUTHOR AFFILIATION  
 HUNTER,R.S. Indiana & Michigan Electric Co.  
 RECIP.NAME RECIPIENT AFFILIATION  
 DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Responds to Generic Ltr 82-21, "Natural Circulation  
 Cooldown." Review of current plant operation & procedural  
 mods & training implemented.

DISTRIBUTION CODE: A046S COPIES RECEIVED:LTR 1 ENCL 1 SIZE:-----<sup>3</sup>  
 TITLE: Response to NUREG -0737/NUREG-0660 TMI Action Plan Rgmts (OL's)

## NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	ORB #1 BC 01	7 7		
INTERNAL:	ELD/HDS3	1 0	IE/DEP DIR 33	1 1
	IE/DEP EPDS	1 1	IE/DEP/EPLB	3 3
	NRR/DE DIR 21	1 1	NRR/DE/ADCSE 22	1 1
	NRR/DE/ADMQE 23	1 1	NRR/DHFS DIR 28	1 1
	NRR/DHFS/DEPY29	1 1	NRR/DL DIR 14	1 1
	NRR/DL/ADL 16	1 1	NRR/DL/ADOR 15	1 1
	NRR/DL/ADSA 17	1 1	NRR/DL/ORAB 18	3 3
	NRR/DSI DIR 24	1 1	NRR/DSI/ADDP25	1 1
	NRR/DSI/ADRP 26	1 1	NRR/DSI/ADRS 27	1 1
	NRR/DSI/AEB	1 1	NRR/DSI/ETSB	1 1
	NRR/DSI/RAB	1 1	NRR/DST DIR 30	1 1
	NRR/DST/ADGP 31	1 1	NRR/DST/ADT 32	1 1
	REG FILE 04	1 1	RGN3	1 1
EXTERNAL:	ACRS 34	10 10	FEMA-REP DIV	1 1
	INPO,J.STARNES	1 1	LPDR 03	2 2
	NRC PDR 02	1 1	NSIC 05	1 1
	NTIS	1 1		



# INDIANA & MICHIGAN ELECTRIC COMPANY

P. O. BOX 18  
BOWLING GREEN STATION  
NEW YORK, N. Y. 10004

July 2, 1982  
AEP:NRC:0440A

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2  
Docket Nos. 50-315 and 50-316  
License Nos. DPR-58 and DPR-74  
GENERIC LETTER NO. 81-21; NATURAL CIRCULATION COOLDOWN

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Denton:

As required by Generic Letter No. 81-21 entitled "Natural Circulation Cooldown," we have reviewed our current plant operations in light of the St. Lucie, Unit No. 1 event and the discussions presented in the Generic Letter and have implemented procedural modifications and training which should enable our operators to avoid as well as recognize reactor vessel voiding if it occurs and to properly react to it during natural circulation cooldown.

As stated in our response to Item II.K.2.17 - "Potential for Voiding in RCS during Transients" of NUREG-0737 contained in our letter No. AEP:NRC:0649 dated December 29, 1981, the Westinghouse Owners Group has performed a study, with supporting analysis, which addresses the potential for void formation in Westinghouse - designed nuclear steam supply systems during natural circulation cooldown/depressurization transients. This study has been submitted to the NRC by the Westinghouse Owners Group by letter No. OG-57, dated April 20, 1981, and is applicable to the Donald C. Cook Nuclear Plant. In addition, a generic natural circulation cooldown guideline has been developed by the Westinghouse Owners Group and was submitted to the NRC by letter No. OG-64, dated November 30, 1981. The generic guideline takes the results of the study into account so as to preclude void formation in the upper head region during natural circulation cooldown/depressurization transients, and specifies those conditions under which upper head voiding may occur. The generic guidance developed by the Westinghouse Owners Group will be utilized in updating, if necessary, our existing natural circulation cooldown procedure as part of the efforts for Item I.C.1 of NUREG-0737.

A046

10/10/1944

Dear Mr. [Name]  
[Address]  
[City]  
[State]  
[Country]

I am very pleased to hear from you and  
thank you for your letter of the 10th inst.  
[Address]  
[City]  
[State]  
[Country]

Yours truly,  
[Signature]

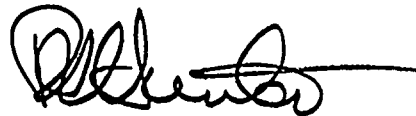
I am very pleased to hear from you and  
thank you for your letter of the 10th inst.  
[Address]  
[City]  
[State]  
[Country]

I am very pleased to hear from you and  
thank you for your letter of the 10th inst.  
[Address]  
[City]  
[State]  
[Country]

It should be noted that our present natural circulation cooldown procedure was revised in October, 1980 to incorporate adequate provisions to prevent void formation in the reactor head as a result of the concerns expressed in IE Circular No. 80-15 and is consistent with the information contained in Generic Letter No. 81-21. As such, a controlled natural circulation cooldown, conducted in accordance with our procedure, should not result in reactor vessel head voiding. Best-estimate calculations with an approximate 80% condensate storage tank inventory have verified that sufficient condensate - grade auxiliary feedwater supplies exist to support the cooldown method employed in our natural circulation cooldown procedure. This calculation assumed a conservatively high constant auxiliary feedwater flow rate representative of the required flow to remove decay heat at reactor trip. In addition, when credit was taken for decreasing core decay heat rate, the minimum tank inventory required by the Technical Specifications was found to be sufficient to insure adequate core cooling.

The revision to our procedure assumed a hot spot (head) temperature of 650°F since void formation has not been observed when the reactor has tripped and the saturation temperature corresponding to the RCS pressure of 2250 psi is approximately 650°F. Data from St. Lucie and our analysis work was then used to estimate an envelope of cooldown rates. A "safe" cooldown rate of 25°F/hr was identified and this rate along with the assumed hot spot temperature was used in revising our procedure to guard against a St. Lucie - type event. Appropriate warnings that stagnant reactor coolant could exist in the RCS, which could flash to steam at any time during depressurization, were also incorporated into the procedure. Finally, training for licensed operators pertaining to reactor vessel voiding during natural circulation cooldown was performed during requalification exercises.

Very truly yours,



R. S. Hunter  
Vice President

/md

cc: John E. Dolan - Columbus  
R. W. Jurgensen  
W. G. Smith, Jr. - Bridgman  
R. C. Callen  
G. Charnoff  
Joe Williams, Jr.  
NRC Resident Inspector at Cook Plant - Bridgman



STATE OF NEW YORK )  
COUNTY OF NEW YORK)

R. S. Hunter, being duly sworn, deposes and says that he is a Vice President of Licensee Indiana and Michigan Electric Company, that he has read the foregoing response to Generic Letter No. 81-21 and knows the contents thereof; and that said contents are true to the best of his knowledge and belief.



R. S. Hunter

Subscribed and sworn to before me this 2<sup>nd</sup> day of July, 1982.

  
Notary Public

KATHLEEN BARRY  
NOTARY PUBLIC, State of New York  
No. 41-4606792  
Qualified in Queens County  
Certificate filed in New York County  
Commission expires March 30, 1983

Vertical line