

50-315

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

FILE NUMBER
INCIDENT REPORT

TO:

Mr. J. G. Keppler

FROM:

Indiana & Michigan Power Company
Bridgman, Michigan
R. W. Jurgensen

DATE OF DOCUMENT

9/1/76

DATE RECEIVED

9/7/76

☒ LETTER☐ NOTORIZED

PROP

INPUT FORM

☐ ORIGINAL☒ UNCLASSIFIED

NUMBER OF COPIES RECEIVED

One signed copy

☒ COPY

DESCRIPTION

Ltr. re their 8/6/76 and 8/18/76 ltrs..
trans the following:

ACKNOWLEDGED

DO NOT REMOVE

(1-P)

PLANT NAME:

Cook #1

ENCLOSURE

Licensee Event Report (RO 50-315/76-31)
on 8/5/76 concerning unreviewed safety
questions identified by Westinghouse
Electric Corp.

(5-P)

NOTE: IF PERSONNEL EXPOSURE IS INVOLVED
SEND DIRECTLY TO KREGER/J..COLLINS

FOR ACTION/INFORMATION 9/9/76

RJL

☒ BRANCH CHIEF:

Ziemann

W/3 CYS FOR ACTION

☒ LIC. ASST.:

Diggs

W/1 CYS

ACRS 16 CYS HOLDING/SENT TO LA

INTERNAL DISTRIBUTION

☒ REG FILE☒ NRC PDR☒ I & E (2)☒ MPC☒ SCHROEDER/IPPOLITO☒ HOUSTON☒ NOVAK/CHECK☒ GRIMES☒ CASE☒ BUTLER☒ HANAUER☒ TEDESCO/MACCARY☒ EISENHUT☒ BAER☒ SHAO☒ VOLLMER/EUNCH☒ KREGER/J. COLLINS

EXTERNAL DISTRIBUTION

☒ LPDR: St. Joseph, MI.☒ TIC:☒ NSIC:

CONTROL NUMBER

Q 9061



INDIANA & MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT
P.O. Box 458, Bridgman, Michigan 49106

September 1, 1976

Mr. J.G. Keppler, Regional Director
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Operating License DPR-58
Docket No. 50-315

Dear Mr. Keppler:

On August 18, 1976, we reported two items which had been identified by Westinghouse Electric Corporation as unreviewed safety questions.

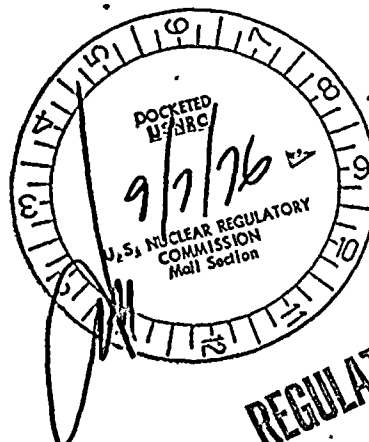
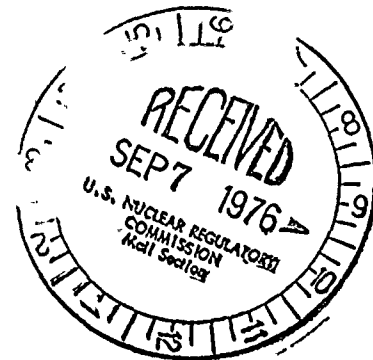
Attached is the Licensee Event Report for that Reportable Occurrence which we failed to submit with the letter.

Sincerely,


R.W. Jurgensen
Plant Manager

/bab

cc: R.S. Hunter
J.E. Dolan
G.E. Lien
R. Kilburn
R.J. Vollen BPI
R.C. Callen MPSC
K.R. Baker RO:III
P.W. Steketee, Esq.
R. Walsh, Esq.
G. Charnoff, Esq.
G. Olson
J.M. Hennigan
PNSRC
R.S. Keith
Dir., IE (40 copies)
Dir., MIPC (4 copies)



REGULATORY DOCKET FILE COPY

9061

[PLEASE PRINT ALL REQUIRED INFORMATION]

EVENT DESCRIPTION

SYSTEM CODE		CAUSE CODE		COMPONENT CODE						PRIME COMPONENT SUPPLIER		COMPONENT MANUFACTURER				VIOLATION	
0	7	R	C	F	Z	Z	Z	Z	Z	Z	N	W	1	2	0	N	
7	8	9	10	11	12					17	43	44			47	48	

08	SEE ATTACHED LETTER.	
7 8 9		80
09		
7 8 9		80
10		
7 8 9		80

11	FACILITY STATUS E	% POWER 100	OTHER STATUS NA	METHOD OF DISCOVERY d	DISCOVERY DESCRIPTION NOTIFIED BY VENDOR
7 8	9	10 11 12	13	44 45	46 80
12	FORM OF ACTIVITY RELEASED Z	CONTENT OF RELEASE Z	AMOUNT OF ACTIVITY NA	LOCATION OF RELEASE NA	
7 8	9	10 11	44	45 80	

NUMBER			TYPE	DESCRIPTION
13	0	0	0	NA

NUMBER			DESCRIPTION
1	4	0 0 0	NA

[illegible]

TYPE			DESCRIPTION
1	6	Z	NA

17	NA
----	----

[illegible]

19 | 7 8 9 80

PHONE: 616-465-5901

INDIANA & MICHIGAN POWER COMPANY

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

August 18, 1976

Donald C. Cook Nuclear Plant Unit No. 1
Docket No. 50-315
DPR No. 58

Mr. J. G. Keppler, Regional Director
U.S. Nuclear Regulatory Commission
Office of Inspection & Enforcement
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

By letter dated August 6, 1976, we advised you of certain items identified by Westinghouse Electric Corporation as unreviewed safety questions. These items concerned: 1) the temperature of the water in the upper head of the reactor vessel assumed in the accident analysis, and 2) new test data on departure from nucleate boiling (DNB) involving rod bow. Subsequent to this letter, there was a meeting on August 9, 1976 between Westinghouse, the NRC staff and ourselves as well as other utility representatives to discuss both of these items. In telephone conversations on August 12-13, 1976 the NRC requested that the following action be taken with respect to both the total peaking factor limit, F_Q and the nuclear enthalpy hot channel factor, $F_{\Delta H}$ at the Donald C. Cook Nuclear Plant, Unit No. 1.

I. Total Peaking Factor, F_Q

Loss of coolant accident analysis is to be performed assuming that the upper head temperature is equal to the hot leg temperature, and as a result of that analysis the following action is to be taken:

August 18, 1976

1. For each 10°F rise in peak clad temperature resulting from the above analysis, the F_Q limit should be decreased by a value of 0.01,
2. Adjust F_Q to account for peak clad temperature from presently approved ECCS analysis (For each 10°F below 2200°F , there is a 0.01 margin in F_Q),
3. Remove the existing 0.07 rod bow power spike penalty (LOCA) from existing total peaking factor (F_Q) Technical Specification limit, and
4. Include any appropriate steam generator tube plugging penalty.

II. Nuclear Enthalpy Hot Channel Factor, $F_{\Delta H}^N$

The interim position taken by the NRC staff based on new rod bow data presented by Westinghouse requires that the $F_{\Delta H}^N$ limit on the Donald C. Cook Nuclear Plant Unit 1 be reduced to account for the suspected loss of thermal margin in accordance with the following formula:

<u>Cycle</u>	<u>Reduction in $F_{\Delta H}^N$</u>
1	Ramp with slope equal to (4% penalty/15,000 MWD/MTU)
2	6%
3	7%

The reductions in $F_{\Delta H}^N$ may be treated on a region by region basis. Credit may be used for increase in reactor coolant flow and/or a decrease in the core coolant inlet temperature to partially or totally offset these $F_{\Delta H}^N$ reductions.

Results of Analysis

A generic sensitivity analysis applied to the Donald C. Cook Nuclear Plant Unit No. 1 on the basis presented under item I above was performed assuming the fluid temperature of the upper head to equal the temperature of the hot leg. The results of the analysis resulted in a total peaking factor at 100% power, (F_Q) of 2.01. This value was arrived at by adjusting the current Technical Specification limit of 1.98 to remove the .07 rod bow penalty to result in a F_Q limit of 2.05. The upper head temperature correction was then applied which resulted in a 40°F rise in peak clad temperature, thus requiring the F_Q to be lowered to 2.01.

August 18, 1976

A review of the thermal margin on the Donald C. Cook Nuclear Plant Unit 1 with respect to DNB analyses has led to the following conclusions:

1. Our current technical specification limit for $F_{\Delta H}^N$ is 1.51 at 100% power. This limit was set to restrict maximum local power to satisfy the LOCA analyses. The analyses of transients which are limited by DNB permitted a value of $F_{\Delta H}^N$ of 1.55. Thus for the Donald C. Cook Nuclear Plant Unit No. 1, there is a 2.6% margin available between the LOCA limited $F_{\Delta H}^N$ values in the Technical Specifications and the value ΔH applicable for DNB analyses.

2. Additional thermal margin is available from current values listed in the safety analyses in that a.) actual flow exceeds the 88,500 gallons per minute per loop assumed in the design basis, and b.) the original DNB analyses included in the FSAR was based on assumptions much less restrictive than the current peaking factor and operating limitations the Donald C. Cook Nuclear Plant Unit No. 1 is allowed by the current Technical Specifications.

Action with respect to the Donald C. Cook Nuclear Plant Unit No. 1

As a result of the aforementioned, no reduction in F_Q , total peaking factor, will be required from the values currently listed in the Technical Specifications.

With regard to the $F_{\Delta H}^N$, we agree to operate the plant in accordance with the aforementioned restriction on $F_{\Delta H}^N$ limit for Cycle 1 suggested by the NRC. However, in considering this penalty, we will take into account the actual limit in $F_{\Delta H}^N$ where the non LOCA accident calculations were performed (1.55) compared to the current Technical Specification limit of 1.51 for $F_{\Delta H}^N$ at 100% power. This limit will be imposed by subtracting 2.6% from any penalty indicated by the NRC formula given above for Cycle 1. The current depletion of the fuel for Cycle 1 when this penalty is applied will restrict the $F_{\Delta H}^N$ to values below 1.51.

With respect to subsequent cycles, we anticipate that the DNB accident analyses based upon peaking factor and operating limitations similar to those in our Cycle 1 analyses will indicate that the thermal margin is considerably in excess of that indicated in the safety analysis report and that no penalty on $F_{\Delta H}^N$ will

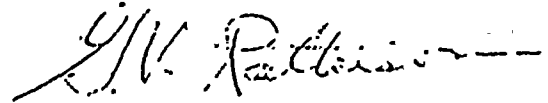
Mr. J. G. Keppler

- 4 -

August 18, 1976

be required.

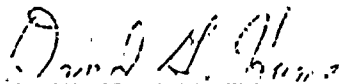
Very truly yours,



G. V. Patterson
Vice President

GVP:mam

Sworn to and subscribed to before
me this 18th day of August 1976 in
New York County, New York



Notary Public

DAVID G. HUME
NOTARY PUBLIC, State of New York
No. 31-4608113
Qualified in New York County
Commission Expires March 30, 1977

cc: B. Rusche - U.S.N.R.C.
John E. Dolan
D. D. Comey
R. C. Callen
K. R. Baker
P. W. Steketee
R. Walsh
Gerald Charnoff
G. Olson
J. M. Hennigan
R. S. Keith - Bridgman
Plant Nuclear Safety Review Committee
Director, IE (40 copies)
Director, MIPC (4 ")
R. S. Hunter



INDIANA & MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT
P.O. Box 458, Bridgman, Michigan 49106

D. LAMHAM

September 1, 1976

Mr. J.G. Keppler, Regional Director
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Operating License DPR-58
Docket No. 50-315

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Sincerely,


R.W. Jurgensen
Plant Manager

/bab

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J.M. Hennigan
PNSRC
R.S. Keith
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Dir., MIPC (4 copies)

SEP 3 1976

1942

301 032

LICENSEE EVENT REPORT

CONTROL BLOCK:

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1 6

[PLEASE PRINT ALL REQUIRED INFORMATION]

LICENSEE NAME							LICENSE NUMBER							LICENSE TYPE					EVENT TYPE					
0	1	M	I	D	C	1	0	0	-	0	0	0	0	0	-	0	0	4	1	1	1	1	0	1
7	8	9				14	15									25	26				30	31	32	

CATEGORY		REPORT TYPE	REPORT SOURCE	DOCKET NUMBER					EVENT DATE					REPORT DATE										
0	1	CON'T	T	L	0	5	0	-	0	3	1	5	0	8	0	5	7	6	0	8	1	8	7	6
7	8	57	58	59	60	61					68	69				74	75					80		

EVENT DESCRIPTION

02	SEE ATTACHED LETTER FROM INDIANA AND MICHIGAN POWER COMPANY TO NRC RO: III DATED	80
03	AUGUST 18, 1976.	80
04		80
05		80
06	(RO 50-315/76-31)	80

SYSTEM CODE		CAUSE CODE	COMPONENT CODE					PRIME COMPONENT SUPPLIER	COMPONENT MANUFACTURER				VIOLATION			
0	7	R C	F	Z	Z	Z	Z	Z	N	W	1	2	0	N		
7	8	9	10	11	12	13	14	15	16	17	43	44	45	46	47	48

CAUSE DESCRIPTION

08	SEE ATTACHED LETTER.	80
09		80
10		80

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
11		E		100			NA			d		NOTIFIED BY VENDOR																															
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
12		Z		Z			NA			NA																																	
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

PERSONNEL EXPOSURES

NUMBER			TYPE	DESCRIPTION
13	000	Z	NA	

PERSONNEL INJURIES

NUMBER				DESCRIPTION	
1	4	0	0	0	NA

PROBABLE CONSEQUENCES

1	5	NA
7	8	9

LOSS OR DAMAGE TO FACILITY

			TYPE	DESCRIPTION
1	6		Z	NA

PUBLICITY

17	NA
----	----

ADDITIONAL FACTORS

18	NA
----	----

19 7 8 9 80

NAME: R.S. Keith

PHONE: 616-465-5901

INDIANA & MICHIGAN POWER COMPANY

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

August 18, 1976

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RECEIVED
JAN 14 1964
U.S. DEPARTMENT OF
COMMERCE
WASHINGTON, D.C.

August 18, 1976

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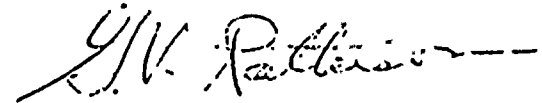
Mr. J. G. Keppler

- 4 -

August 18, 1976

be required.

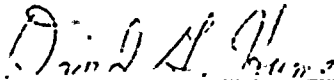
Very truly yours,



G. V. Patterson
Vice President

GVP:mam

Sworn to and subscribed to before
me this 18th day of August 1976 in
New York County, New York



Notary Public

DAVID G. HUME
NOTARY PUBLIC, State of New York
No. 31-4608113
Qualified in New York County
Commission Expires March 30, 1977

cc: B. Rusche - U.S.N.R.C.
John E. Dolan
D. D. Comey
R. C. Callen
K. R. Baker
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