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ACCESSION NBR: 8602100174 DOC. DATE: 86/02/03 NOTARIZED: NO DOCKET #

FACIL: 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316

AUTH. NAME AUTHOR AFFILIATION

ALEXICH, M. P. Indiana & Michigan Electric Co.

RECIP. NAME RECIPIENT AFFILIATION

DENTON, H. R. Office of Nuclear Reactor Regulation, Director (post 851125

SUBJECT: Requests hydrostatic testing of identified Inservice Inop Class 1 & 2 piping at lower pressures than 1974 ASME Code criteria. Avoidance of unnecessary personnel exposure to radiation hazards cited. Fee paid.

DISTRIBUTION CODE: A047D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 13

TITLE: OR Submittal: Inservice Inspection/Testing

NOTES: 05000316

OL: 12/23/72

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	WIGGINGTON, D		1	1				
INTERNAL:	ACRS	16	10	10	ADM/LFMB		1	0
	ELD/HDS3		1	0	NRR BWR ADTS		1	1
	NRR BWR EB		1	1	NRR PWR-A ADTS		1	1
	NRR PWR-A EB		1	1	NRR PWR-B ADTS		1	1
	NRR PWR-B EB		1	1	NRR/TAMB		1	1
	REG FILE	04	1	1	RGN3		1	1
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Rec'd w/check $150.00

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INDIANA & MICHIGAN ELECTRIC COMPANY

P.O. BOX 16631
COLUMBUS, OHIO 43216

February 3, 1986
AEP:NRC:0070V

Donald C. Cook Nuclear Plant Unit No. 2
Docket No. 50-316
License No. DPR-74
INSERVICE INSPECTION PRESSURE TEST - CODE RELIEF

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

Dear Mr. Denton:

This submittal and its attached flow diagrams are made pursuant to 10 CFR Section 50.55a(g)(6)(i). The piping sections listed below are classified as ISI Classes 1 and 2 and are subject to hydrostatic testing during the 1986 Refueling Outage and the subsequent 10-year ISI outage for Unit 2 in accordance with Articles IWB-5000 and IWC-5000 of the ASME Code, Section XI, 1974 Edition. These sections of piping cannot be tested to the code requirements without modifying the systems and/or exposing personnel to unnecessary radiation hazards. We are therefore requesting code reliefs to test the piping at a lower pressure.

1. Emergency Core Cooling System, Flow Diagram 2-5143 (Attached)

Piping Boundaries

(a) Accumulator No. 1 Discharge Piping - Valves IMO-110, SI-166-1, IRV-155, SI-168-1

(b) Accumulator No. 2 Discharge Piping - Valves IMO-120, SI-166-2, IRV-165, SI-168-2

(c) Accumulator No. 3 Discharge Piping - Valves IMO-130, SI-166-3, IRV-175, SI-168-3

(d) Accumulator No. 4 Discharge Piping - Valves IMO-140, SI-166-4, IRV-185, SI-168-4

ISI Code Class-2 Requirements:

For a system design pressure of 2485 psig, Article IWC-5000 of Section XI code requires the piping to be tested at a pressure of 3106 psig and temperature not less than 100°F.

ADD:EB (Bullard) A047 1/1

Rec'd w/check $150.00

Code Relief Request:

We propose to test the above sections of piping at a pressure of 2280 psig at a temperature above 100°F. The test will be performed during Mode 3 with the Reactor Coolant System (RCS) pressure at 2280 psig and ≥ 500°F. The RCS pressure will be used to block the check valves (SI-166-1, SI-166-2, SI-166-3, SI-166-4) closed, thus limiting maximum pressure to 2280 psig.

Basis For Relief Request:

The section of piping upstream of check valves SI-166-1 through 4 cannot be tested at a pressure of 3106 psig without making extensive temporary modifications to keep the valves closed. The modifications would require: (1) disassembly of the valves, (2) welding of temporary blocks (on the downstream side) inside the valve bodies to hold a "jack screw" type arrangement to keep the valve closed, (3) removal of the temporary blocking devices from the valves after testing, and (4) performing necessary non-destructive testing to ensure the integrity of the valve bodies before returning them to service. The piping downstream of these valves is part of the RHR System and carries radioactive fluid during normal operation. Therefore, plant personnel would be subjected to substantial radiation exposure and radioactive contamination in order to carry out any modifications for the test.

We believe this to be a reasonable code relief request, since the proposed test pressure is, in fact, higher than the 2235 psig nominal operating pressure in the short sections (less than 5 feet) of the piping systems for which the relief is requested.

2. CVCS - Reactor Letdown and Charging, Flow Diagram 2-5129 (Attached)

Piping Boundaries:

(a) 2-Inch Aux. Spray Piping -
Valves QRV-51, CS-325

(b) Normal Charging Loop 4 Cold Leg -
QRV-62, CS-328-L4, CS-326 and CS-327

(c) Alternate Charging Line to Loop 1 Cold Leg -
Valves - QRV-61, CS-328-L1

ISI Code-1 Requirement for Item (a):

For operating pressure of 2235 psig, Article IWB-5000 of Section XI code requires the piping to be tested at a pressure 2458 psig and temperature not less than 100°F.

ISI Code Class-2 Requirement for Items (b) and (c):

For a design pressure of 2735 psig, Article IWC-5000 of Section XI code requires the piping to be tested at a pressure of 3418 psig at temperature not less than 100°F.

Code Relief Request:

We propose to test the above sections of piping at a pressure of 2280 psig at a temperature above 100°F. The test will be performed during Mode 3 with the RCS pressure at 2280 psig and ≥ 500°F. The RCS pressure will be used to block the check valves CS-329L1, CS-329L4 and CS-325 closed, thus limiting maximum pressure to 2280 psig.

Basis for Relief Request for Items 2(a), 2(b) and 2(c):

This is a similar situation to Relief Request No. 1. Check valves CS-328L1, CS-328L4, and CS-325 are located on the charging lines to the RCS System. These valves must be disassembled and temporarily modified to block them closed in order to perform the required hydrostatic tests and plant personnel would be exposed to high radiation and radioactive contamination during the modification.

We believe this to be a reasonable code relief request, since the proposed test pressure is, in fact, higher than 2235 psig nominal operating pressure in the sections of piping between 23 to 115 feet long for which the relief is requested.

3. CVCS - Reactor Letdown and Charging, Flow Diagram 2-5129 (Attached)

Piping Boundaries:

Letdown Lines -
Valves QRV-112, QRV-160, QRV-161, QRV-162

ISI Code Class-2 Requirement:

For a design pressure of 2485 psig, Article IWC-5000 of Section XI code requires the above piping to be tested at a pressure of 3106 psig and temperature not less than 100°F.

Code Relief Request:

We propose to test the above section of piping at a pressure of 2280 psig at a temperature above 100°F during Mode 3 using RCS pressure. Valves QRV-111 and QRV-112 will be opened with QRV-160, QRV-161 and QRV-162 closed.

Basis for Relief Request:

The above section of piping cannot be tested at a pressure of 3106 psig without modification since no test connection exists. This piping carries radioactive fluid during normal operation. Therefore, plant personnel would be subjected to substantial radiation exposure and contamination in order to add a test connection.

As an alternative, extending the test boundary to QCR-301 was considered. This would involve using QPX-301 located on the downstream piping outside the regenerative heat exchanger room as a test connection. This consideration was also rejected because valve QCR-301 and the flange bolted to the inlet flange of safety valve SV-051 are 600-lb. class, which cannot withstand the above test pressure.

We believe this to be a reasonable code relief request, since the proposed test pressure is, in fact, higher than 2235 psig nominal operating pressure in the sections of piping approximately 65 feet long for which relief is requested.

4. Emergency Core Cooling System (SIS), Drawing 2-5142 (Attached)

Piping Boundaries:

Valves IMO-51, SI-142L1 - Boron Injection Loop No. 1
Valves IMO-52, SI-142L2 - Boron Injection Loop No. 2
Valves IMO-53, SI-142L3 - Boron Injection Loop No. 3
Valves IMO-54, SI-142L4 - Boron Injection Loop No. 4

ISI Code Class 1 Requirement:

For an operating pressure of 2235 psig, Article IWB-5000 of the ASME Code, Section XI, requires that the piping be tested at a pressure of 2458 psig and a temperature not less than 100°F.

Code Relief Request:

We propose to test the above section of piping at a pressure of 2280 psig and a temperature above 100°F. The test will be performed during Mode 3 with the RCS pressure at 2280 psig and ≥ 500°F. The RCS pressure will be used to block check valves SI-142L1 through L4 closed, thus limiting maximum pressure at 2280 psig.

Basis for Relief Request:

This is a similar situation to Relief Request No. 1. The sections of the piping system upstream of check valves SI-142L1 through L4 cannot be tested at a pressure 2458 psig without making temporary modifications (blocking the valve disc) to keep

the check valves closed. Since the piping sections are part of the primary system, plant personnel would be subjected to substantial radiation exposure and contamination in order to carry out such modifications for the test.

We believe that this is a reasonable code relief request, since the proposed test pressure is in fact higher than the 2235 psig nominal operating pressure in the sections of piping, each approximately 44 to 55 feet long, for which code relief is requested.

5. Auxiliary Spray to Reactor Coolant System and Pressurizer, CVCS - Reactor Letdown and Charging System, Drawing 2-5129 (Attached)

Piping Boundaries:

Valves QRV-51	CS-326
Valves QRV-61	CS-322
Valves QRV-62	

ISI Code Class 2 Requirement:

For a design pressure of 2735 psig, Article IWC-5000 of the ASME Code, Section XI, requires that the piping be tested at a pressure of 3418 psig, and a temperature not less than 100°F.

Code Relief Request:

We propose to test the above section of piping at a pressure of 2800 psig.

Basis for Code Relief:

In order to perform the pressure test in this ISI Class 2 Sections of piping, valve QRV-51 has to be used as an isolation valve. This 1,500-lb. class, air-operated control valve is designed to withstand test pressure of 3418 psig in the open position. However, it cannot be used as an isolation valve because it was designed for a differential pressure of 1200 psig.

The valve cannot be kept closed during pressure testing at 3418 psig without extensive temporary rigging. The modification would require: (1) removal of the air operator and installation of a "strong back" to keep the valve closed during the testing, (2) removal of the "strong back" after the testing, and (3) re-installation of the air operator on the valve and restoring the valve to operable condition before returning to service. The valve is located inside the regenerative heat exchanger room, which is a very high radiation area and plant personnel would be subjected to radiation exposure of 5 to 7 man rems.

As an alternative, the possibility of using a freeze seal plug downstream of QRV-51 was considered. This would involve extensive working time close to the pressurizer spray valves, which are in a high radiation area. This alternative was rejected because plant personnel would be subjected to an even higher radiation exposure of 8.5 man rems during formation, monitoring and removal of the freeze seal plug.

We believe that this is a reasonable code relief request, since the proposed test pressure is in fact higher than the normal operating pressure of 2235 psig in the approximately 30 feet long section of piping for which code relief is requested.

The NRC granted these code reliefs for Unit No. 1 hydrostatic testing in 1985 (reference NRC's letters dated June 28, 1985 and August 13, 1985).

Attached to this letter are the following flow diagrams:

1) Dwg. No. 2-5143-29, "Emergency Core Cooling (RHR)," Unit No. 2
2) Dwg. No. 2-5129-28, "CVCS - Reactor Letdown and Charging."
3) Dwg. No. 2-5142-26, "Emergency Core Cooling (SIS)," Unit No. 2

In order to avoid unnecessary delays and to restore the unit to power on time as scheduled, we are requesting a response from the NRC by February 20, 1986. If you have any questions or concerns about the material contained herein, please do not hesitate to call us.

Although these code relief requests have been reviewed by appropriate technical and managerial personnel at both AEPSC and the Plant, this document has not yet been reviewed by our Nuclear Safety and Design Review Committee. It will be reviewed by them at their next scheduled meeting.

A check in the amount of $150.00 is attached with this letter for the NRC processing of the aforementioned requests.

This document has been prepared following Corporate procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

M. P. Alexich
Vice President

cm
Attachments

cc: John E. Dolan (w/o attachments)
W. G. Smith, Jr. - Bridgman (w/attachments)
R. C. Callen (w/o attachments)
G. Bruchmann (w/o attachments)
G. Charnoff (w/o attachments)
NRC Resident Inspector - Bridgman (w/attachments)

bc: J. G. Feinstein/K. J. Toth/W. E. Harvey
S. H. Horowitz/T. O. Argenta/R. C. Carruth
J. J. Markowsky/S. H. Steinhart/J. A. Kobyra
R. W. Jurgensen
R. F. Kroeger
M. L. Horvath - Bridgman
J. F. Stietzel - Bridgman
F. S. VanPelt, Jr.
J. B. Shinnock
D. L. Wigginton, NRC - Washington, D.C.
AEP:NRC:0070V
DC-N-6015.1

"NOT FOR D. C. COOK OPERATIONAL USE"

CODE RELIEF #1

INSIDE REACTOR CONTAINMENT

OUTSIDE REACTOR CONTAINMENT

(2) RESIDUAL HEAT EXCHANGERS (W) (HE-17)

ACCUMULATOR TANK (W) (DANE-6)

RECIRCULATION SUMP

GENERAL NOTES

LEGEND

MAIN FLOW

AUXILIARY FLOW

FOR VALVE, INSTRUMENT, SAMPLING PIPE MATERIAL AND OTHER SYMBOLS NOT EXPLAINED ON THIS DWG. AID FOR MARK NUMBER CODES SEE DWG-5104

ALL EQUIPMENT SEISMIC CLASS. I EXCEPT AS NOTED

(W) BY WESTINGHOUSE

ALL EQUIPMENT VALVES UNSTAMPED SUPPLIED BY (W) EXCEPT AS NOTED

NOTE "A"
VALVE INTERLOCKED WITH REACTOR COOLANT SYSTEM PRESSURE SIGNAL @ A/7

TI APERTURE CARD

Also Available On Aperture Card

THIS DWG MADE UNIQUE FOR UNIT #2 AND SUPERSEDES DWG. 2-5143, REV. 22

HAND OPERATED VALVE IDENTIFICATION NUMBERS

1. ONLY "UNIQUE VALVE NUMBERS" APPEAR ON THIS DRAWING. SEE SEPARATE VALVE IDENTIFICATION LIST FOR EQUIVALENT DESIGN (MCR) NUMBERS.
2. "TAG" NUMBERS MODIFIED FOR DRAWING USE AS FOLLOWS:
   TAG #: 2-NSI-V08-W
   APPEARS AS: NSI-V08W
3. INSTRUMENT ROOT VALVE MARK #'S NOT SHOWN ON DRAWING (SEE VALVE IDENTIFICATION LIST) DERIVED BY ADDING TO INSTRUMENT NUMBER:
   FOR SINGLE IMPULSE: V
   FOR DOUBLE IMPULSE: V-UPSTREAM, V-DOWNSTREAM

FOR MICROFILM STATUS SEE REVISION RECORD FOR THIS DWG.

10-25-84	29		
DATE	DR.	APPROVED	

FOR REVISION DESCRIPTION SEE SEPARATE REVISION RECORD FOR THIS DRAWING

INDIANA & MICHIGAN ELECTRIC CO.
DONALD C. COOK NUCLEAR PLANT

FLOW DIAGRAM
EMERG. CORE COOLING SYS.
UNIT NO 2

DR. NO. 2-5143-29

AMERICAN ELECTRIC POWER SERVICE CORP.
NEW YORK

8602100174-01

CODE RELIEF 5
3
2

"NOT FOR D. C. COOK OPERATIONAL USE"

TI APERTURE CARD

Also Available On Aperture Card

INSIDE REACTOR CONTAINMENT
OUTSIDE REACTOR CONTAINMENT

ELEV. 603'-0"
ELEV. 612'-0"
EL. 587'-0"
FL. EL. 633'-0"
EL. 609'-0"

LETDOWN PIPE ORIFICE, RO-105
LETDOWN PIPE ORIFICES RO-106
TO REACTOR COOLANT DRAIN TK. INLET HDR. SEE DWG. 5153A, D/2
ALT. CHARGING LINE TO LOOP 1 COLD LEG SEE DWG. 5128, C/3
NORMAL CHARGING LINE TO LOOP 4 COLD LEG SEE DWG. 5128, K/8.
AUX. SPRAY TO REACTOR COOLANT SYSTEM PRESSURIZER. SEE SK. "G-9" ON DWG. 5128A, E/6.
3" LET DOWN FROM LOOP 4, SEE DWG. 5128, E/6.
REGENERATIVE HEAT EXCHANGER (HE-12)
SV-51 SET AT 600 PSI
TO COMPONENT COOLING SYS. SEE DWG. 5155, J/E, 1SI INSPECTION TO CL. 3.
LET DOWN HEAT EXCHANGER (HE-14)
FROM RESIDUAL HEAT REMOVAL SYSTEM SEE DWG. 5145, L/5
TO PRESSURIZER RELIEF TANK. SEE SK. "G-9" ON DWG. 5128A, E/6.
FROM COMPONENT COOLING SYSTEM SEE DWG. NO. 5155, J/E, 1SI INSPECTION TO CL. 3
SV-52, SET AT 200 PSIG
FAIL TO FILTER
TO DEMINERALIZERS SEE DWG. 5130, A/2
TO REACTOR COOLANT FILTER SEE DWG. 5129A, M/8
TO VOLUME CONTROL TANK. SEE DWG. 5129A, G/4 1SI INSPECTION TO CL. 2.
1SI INSPECTION TO CL. 2
FROM SAMPLING SYSTEM SEE DWG. 5141, K/5.
FROM FAILED FUEL DETECTOR SEE DWG. 5141B, M/2
FROM REFUELING WATER STORAGE TANK. SEE DWG. Nº 5144, E/6, 1SI INSPECTION TO CODE CL. 2.
TO PRESSURIZER RELIEF TANK SEE DWG. 5128A, D/6
SV-56 SET AT 270 PSI
SV-55 SET AT 2735 PSIG
TEE FOR TEMPORARY STRAINER, STN-36
TO REACTOR COOLANT PUMPS SEAL WATER CIRCUIT (4 PUMPS) SEE SK. "E-3" ON DWG. 5128A, B/5
REACH ROD REQ'D.
REACH ROD REQUIRED
SEAL WATER INJECTION FILTERS (QC-107)
5137, G/8.
5137, E/8.
CENTRIFUGAL CHARGING PUMP "W"
150 GPM DESIGN
5600 FT. HEAD
550 GPM MAX.
650 HP
(PP-50)
TEE FOR TEMPORARY STRAINER STN-37
CENTRIFUGAL CHARGING PUMP "E"
150 GPM DESIGN
5600 FT. HEAD
550 GPM MAX.
650 HP
MAX. DISCH. PRESS. 2740 PSIG
(PP-50)
TEE FOR TEMPORARY STRAINER, STN-37
1SI INSPECTION TO CODE CLASS 3 (TYP)
RECIPROCATING CHARGING PUMP
36 GPM 2300 PSI HEAD
(PP-49)
NOTE: FOR MISC. PIPING AT PUMPS SEE SKETCH "H-9" & "L-9"
NOTE: THIS DWG. MADE UNIQUE FOR UN-T #2 AND SUPERSEDES DWG. 1-2-5129 REV. 17

LUBE OIL INSTRUMENTATION AT CENTRIFUGAL CHARGING PUMPS		
INSTRUMENT NO. EAST	INSTRUMENT NO. WEST	FUNCTION
LPS-270	LPS-272	START-STOP AUX PUMP @ 5PSI DECR., @ 25PSI INCR. PRESS.
LPA-270	LPA-272	ANNUNCIATES IN CONTROL ROOM AT 8PSI DECR. PRESS.
LPI-270	LPI-272	0-30 PSI RANGE AT OIL FILTER INLET
LPI-271	LPI-273	0-30 PSI RANGE AT OIL FILTER OUTLET
LTI-270	LTI-272	ON THRUST BEARING HOUSING 0-250°F
LTA-270	LTA-272	OIL TEMP. ALARMS 145°F LOW AT COOLER INLET MANIFOLD

LUBE OIL INSTRUMENTATION AT RECIPROCATING CHARGING PUMP	
INSTRUMENT NO.	FUNCTION
LTI-255	LUBE OIL TEMP. INDICATION
LPI-255	LUBE OIL PRESS. INDICATION
LPS-255	TRIPS RECIP. CHARGING PUMP AT 4PSI DECR. PRESS.

SKETCH "H-9" MISC. PIPING AT CENTRIFUGAL CHARGING PUMPS

SKETCH "L-9" MISC. PIPING AT RECIPROCATING CHARGING PUMP

GENERAL NOTES

LEGEND
MAIN FLOW
AUX. FLOW

FOR VALVE, INSTRUMENT, SAMPLING, PIPE MATERIAL AND OTHER SYMBOLS NOT EXPLAINED ON THIS DWG AND FOR MARK NUMBER CODES SEE DWG 5104.

SEISMIC CLASS I.

VALVE NOTED "A" B/S VALVE OPENS AT 800 PSID

(W) BY WESTINGHOUSE EXCEPT AS NOTED

ALL VALVES & INSTRUMENTATION SUPPLIED BY (W)

EQUIPMENT SUPPLIED BY (W) AS NOTED

1. FOR CODE CLASS 2 & 3 INSTRUMENT CONNECTIONS, THE 1SI BOUNDARY EXTENDS TO AND INCLUDES THE FIRST ROOT VALVE
2. FOR CODE CLASS 2 & 3 VENTS & DRAINS, THE 1SI BOUNDARY EXTENDS TO & INCLUDES THE FIRST NORMALLY CLOSED VALVE
3. RR - INDICATES REACH ROD REQUIRED

HAND OPERATED VALVE IDENTIFICATION NUMBERS
1. ONLY "UNIQUE VALVE NUMBERS" APPEAR ON THIS DRAWING. SEE SEPARATE VALVE IDENTIFICATION LIST FOR EQUIVALENT DESIGN (MCR) NUMBERS.
2. "TAG" NUMBERS MODIFIED FOR DRAWING USE AS FOLLOWS:
TAG Nº: 2-MOV-VCS-V
APPEARS AS: MOV-VCS-V
3. INSTRUMENT ROOT VALVE MARK Nº'S NOT SHOWN ON DRAWING (SEE VALVE IDENTIFICATION LIST) DERIVED BY ADDING TO INSTRUMENT NUMBER:
FOR SINGLE IMPULSE: V1
FOR DOUBLE IMPULSE: V1, V2, TRIPLE VALVE MANIFOLD

DATE	NO.	APPROVED
3-21-85	28	

FOR REVISION DESCRIPTION SEE SEPARATE REVISION RECORD FOR THIS DRAWING

INDIANA & MICHIGAN ELECTRIC CO.
DONALD C. COOK NUCLEAR PLANT
BRIDGMAN MICHIGAN

FLOW DIAGRAM CVCS - REACTOR LETDOWN & CHARGING

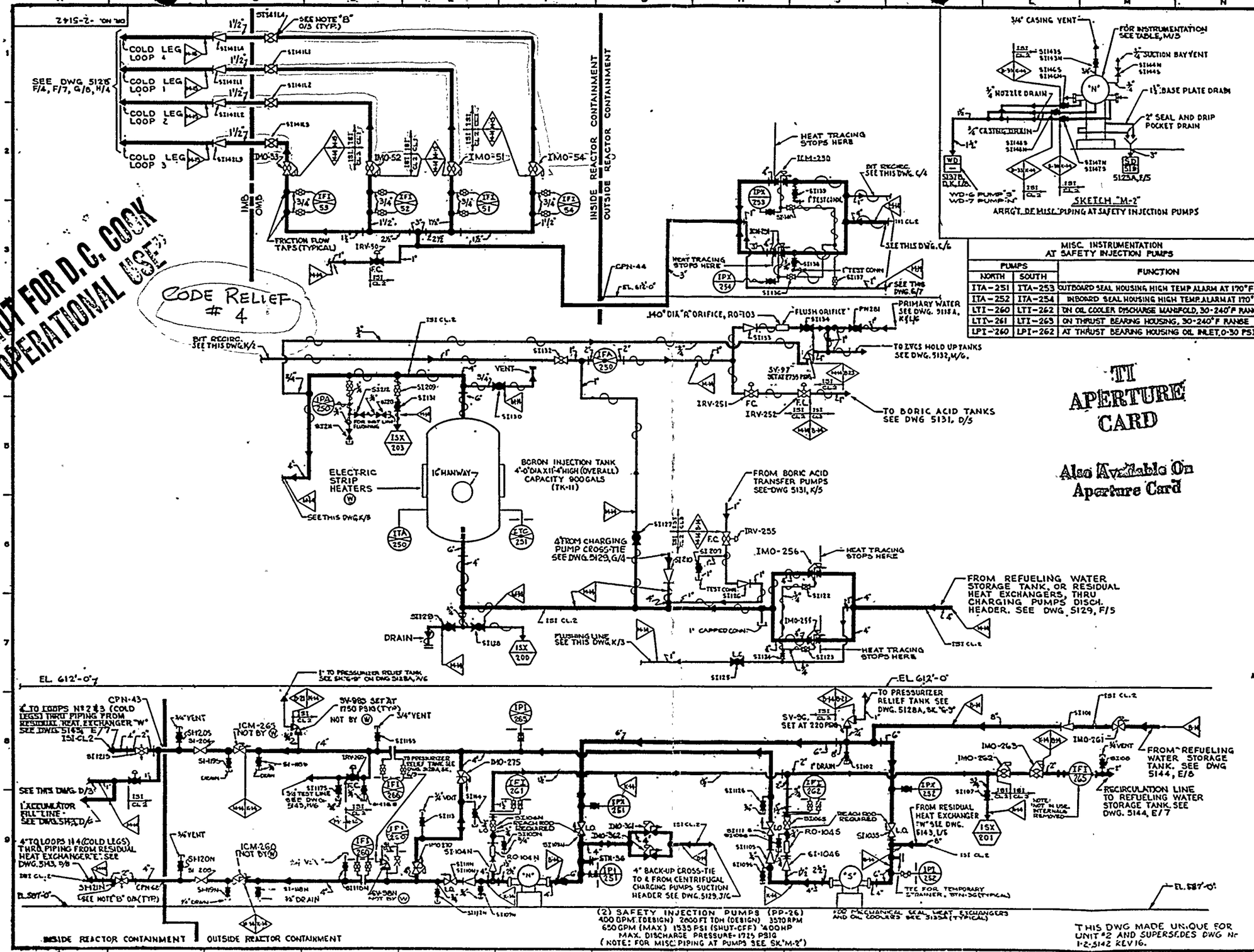
DWG. NO. 2-5129-28

AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY NEW YORK

8602100174-02

"NOT FOR D.C. COOK OPERATIONAL USE"

CODE RELIEF # 4



MISC. INSTRUMENTATION AT SAFETY INJECTION PUMPS		
PUMPS		FUNCTION
NORTH	SOUTH	
ITA-251	ITA-253	OUTBOARD SEAL HOUSING HIGH TEMP ALARM AT 170°F
ITA-252	ITA-254	INBOARD SEAL HOUSING HIGH TEMP. ALARM AT 170°F
LTI-260	LTI-262	ON OIL COOLER DISCHARGE MANIFOLD, 30-240°F RANGE
LTI-261	LTI-263	ON THRUST BEARING HOUSING, 30-240°F RANGE
LPI-260	LPI-262	AT THRUST BEARING HOUSING OIL INLET, 0-30 PSI

GENERAL NOTES.

LEGEND
MAIN FLOW
AUXILIARY FLOW

Ⓦ BY WESTINGHOUSE

FOR VALVE, INSTRUMENT, SAMPLING, PIPE MATERIAL AND OTHER SYMBOLS NOT EXPLAINED ON THIS DWG AND FOR MARK NUMBER CODES- SEE DWG 5104

NOTE "A"
ALL EQUIPMENT, VALVES & INSTRUMENTS SUPPLIED BY W EXCEPT AS NOTED

NOTE "B"
ADJUST VALVES IN FIELD TO LIMIT PUMP RUN OUT THEN LOCK IN POSITION.

NOTE "C"
ALL EQUIPMENT SEISMIC CLASS I EXCEPT AS NOTED.

NOTE "D"
FOR CODE CLASS 2 INSTRUMENT CONNECTIONS, THE ISI BOUNDARY EXTENDS TO & INCLUDES THE FIRST ROOT VALVE.

NOTE "E"
FOR CODE CLASS 2 VENTS & DRAINS THE ISI BOUNDARY EXTENDS TO & INCLUDES THE FIRST NORMALLY-CLOSED VALVE.

NOTE "F"
REFER TO DWG. 2-5123E FOR PORTIONS OF PIPING CONTAINED WITHIN LEAK DETECTION ENCLOSURES.

HAND OPERATED VALVE IDENTIFICATION NUMBERS
1. ONLY "UNIQUE VALVE NUMBERS" APPEAR ON THIS DRAWING. SEE SEPARATE VALVE IDENTIFICATION LIST FOR EQUIVALENT DESIGN (MCR) NUMBERS.
2. "TAG" NUMBERS MODIFIED FOR DRAWING USE AS FOLLOWS:
TAG Nº: 2-MSW-V100-W
APPEARS AS: MSW100W
3. INSTRUMENT ROOT VALVE MARK Nº'S NOT SHOWN ON DRAWING (SEE VALVE IDENTIFICATION LIST). DERIVED BY ADDING TO INSTRUMENT NUMBER:
FOR SINGLE IMPULSE: V1 UPSTREAM
FOR DOUBLE IMPULSE: V1 UPSTREAM, V2 DOWNSTREAM

MF FOR MICROFILM STATUS SEE REVISION RECORD FOR THIS DWG.

DATE	NO.	APPROVED
3-21-85	26	CH

FOR REVISION DESCRIPTION SEE SEPARATE REVISION RECORD FOR THIS DRAWING

INDIANA & MICHIGAN ELECTRIC CO.
DONALD C. COOK NUCLEAR PLANT
BRIDGMAN MICHIGAN

FLOW DIAGRAM
EMERG. CORE COOLING (SIS)
UNIT Nº 2

DR NO. 2-5142-26

AMERICAN ELECTRIC POWER SERVICE CO.
2 BROADWAY NEW YORK

8602100174-03