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May 20, 1983  
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Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Mr. Steven A. Varga, Chief  
Operating Reactors Branch No. 1  
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant  
Docket No. 50-286  
Environmental Qualification (EQ) of Electric  
Equipment Important to Safety - 10 CFR 50.49(g)

Dear Sir:

This letter provides the information required to be submitted to the NRC per Paragraph (g) of 10 CFR 50.49. This paragraph requires licensees to identify the electric equipment important to safety, as defined by subsections (b)(1), (2) and (3) of 10 CFR 50.49, that has already been qualified and to submit a schedule for either the qualification or replacement of the remaining unqualified equipment covered under this rule. Furthermore, this letter provides the additional information requested to be included in response to 10 CFR 50.49(g) per the Commission's April 28, 1983 letter ("Clarification of Environmental Qualification Safety Evaluation Report (SER) for the Indian Point Unit No. 3 Nuclear Generating Plant (IP3)" and, as indicated in the April 28, 1983 clarification letter, it supercedes the 90-day response required to be submitted per the Commission's December 30, 1982 EQ SER.

Enclosure 1 to this letter provides a comprehensive list of all electric equipment important to safety as defined by subsections b(1), (2), and (3) of 10 CFR 50.49, which the Authority has identified to date as requiring qualification pursuant to 10 CFR 50.49. The equipment listed in Enclosure 1 has been divided into three sections as indicated in the Table of Contents of the Enclosure. The first section provides a list of all equipment whose qualification has been demonstrated to date and includes equipment previously reviewed by Franklin Research Center (FRC) as well as equipment that has been installed to date as a result of NUREG-0737 (TMI Action Plan Items). The second section provides a summary of the status and action being taken with respect to equipment appearing in NRC Categories I.B, II.A, and II.C in FRC Technical Evaluation Report No. C5257-456. The third section includes all other equipment required to be qualified pursuant to 10 CFR 50.49.

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The qualification efforts, consisting of analyses, testing and/or replacement, associated with equipment whose qualification has not been demonstrated to date will be completed by March 31, 1985, or earlier if indicated otherwise, provided unforeseen circumstances do not arise that would adversely affect this qualification goal. If such circumstances arise, the NRC will be promptly notified in accordance with paragraph (h) of 10 CFR 50.49.

As indicated above, the Authority's previous submittals regarding environmental qualification of safety-related electric equipment have been expanded to include the TMI Action Plan equipment installed to date as well as additional equipment requiring qualification pursuant to 10 CFR 50.49. Therefore, the list of equipment indicated in Enclosure 1 supercedes all other equipment lists contained in any of the Authority's previous submittals.

With respect to the equipment covered under 10 CFR 50.49(b)(2), it should be noted that the Authority has not identified any non-safety related electric equipment to date whose failure would prohibit accomplishment of the safety functions identified by 10 CFR 50.49(b)(1)(i), (ii), and (iii). The Authority has based this assessment on the original design practices and reviews associated with Indian Point 3, the equipment selection criteria utilized, the various efforts conducted in support of the Authority's ongoing environmental qualification program including an assessment of the existence of (b)(2)-type equipment, previous NRC staff requests, and other ongoing studies. However, if, as a result of these ongoing and any future activities, it is determined that equipment should be included in this category, the Authority will supplement this response and provide plans for the qualification or replacement of such equipment.

With respect to the equipment covered under 10 CFR 50.49(b)(3), it should be noted that Enclosure 1 only includes plant equipment which currently exists at Indian Point 3 and which requires qualification. If, as a result of the Authority's ongoing review of Regulatory Guide 1.97 and other activities, it is determined that additional equipment is required to be installed or existing equipment is required to be upgraded, the Authority will supplement this response and provide plans for the qualification or replacement of such equipment.

As a final note, the Authority is continuing in its efforts to verify the accuracy and completeness of the information provided in Enclosure 1 to this submittal. If any inconsistencies or deficiencies are identified as a result of these efforts, the Authority will promptly notify the Commission and supplement this response accordingly.

Should you or your staff have any questions regarding this matter, please contact Mr. P. Kokolakis of my staff.

Very truly yours,

  
J. P. Bayne  
Executive Vice President  
Nuclear Generation

cc: Resident Inspector's Office  
Indian Point Unit 3  
U. S. Nuclear Regulatory Commission  
P. O. Box 66  
Buchanan, New York 10511

**ENCLOSURE 1**  
**IDENTIFICATION AND LISTING**  
**OF ELECTRICAL EQUIPMENT**  
**IMPORTANT TO SAFETY**  
**PURSUANT TO 10CFR50.49**

**POWER AUTHORITY OF THE STATE OF NEW YORK**  
**INDIAN POINT 3 NUCLEAR POWER PLANT**  
**DOCKET NO. 50-286**  
**MAY 20, 1983**

INDIAN POINT 3

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## ABBREVIATIONS AND DEFINITIONS

C - Reactor Containment

PP - Pipe Penetration Area of the Primary Auxiliary Building

SFP - Steam and Feedline Penetration Area

AFP - Auxiliary Feedwater Pump Room

SI - High Head Safety Injection System

RHR - Residual Heat Removal System (Low head safety injection)

CS - Containment Spray System

ACS - Auxiliary Coolant System

CVCS - Chemical and Volume Control System

RC - Reactor Coolant System

MS - Main Steam System

BF - Boiler Feedwater System

AFW - Auxiliary Feed Water System

SOV - Solenoid Operated Valve

MOV - Valve Motor Actuator

AOV - Air Operated Valve

PCV - Pressure Control Valve (air operated)

LCV - Level Control Valve (air operated)

FCV - Flow Control Valve (air operated)

PT - Pressure Transmitter

FT - Flow Transmitter

LT - Level Transmitter

RWST - Refueling Water Storage Tank

HX - Heat exchanger

ABBREVIATIONS AND DEFINITIONS

(Continued)

- CI - Containment Isolation
- SG - Steam Generator
- CB - Containment Building
- MSIV - Main Steam Isolation Valve
- TE - Temperature Detector
- PORV - Power Operated Relief Valve
- Q - Designates Qualifiable Equipment (documentation to be added to central file)
- QNE - Designates equipment for which qualification has not been established. Nameplate data for this equipment will be developed and compared to qualification report data. Equipment for which qualification cannot be established will be replaced by qualified equipment.
- P (1) - The insulation class of these Limitorque Actuators will be determined from nameplate data to confirm that the actuators are qualified Class H insulation. Any Class B insulated actuators will be replaced with qualified equipment.
- P (2) - The PORV Block Valves at Indian Point 3 have not previously been considered as accident mitigating. The Authority is evaluating various methods for depressurizing the Reactor Coolant System in the event of small break loss of coolant accidents. Use of the PORV's, Auxiliary Spray and AFW Systems individually and in combination are being considered. Qualified equipment will be used for the method(s) selected.
- P (3) - This equipment is located in the pipe penetration area where the only harsh parameter is radiation. A materials analysis of the installed units compared to units that have been successfully tested is being performed. It is expected that this analysis will demonstrate complete qualification.

SECTION 1

INDIAN POINT 3

QUALIFIED EQUIPMENT

SECTION 1  
QUALIFIED EQUIPMENT

FRC Item No.	Component	Manufacturer	Model Number	Location	Remarks
1	Motorized Valve Actuator	Limatorque	SMBOO with Class RH Insulation	Containment	Q
32	Terminal Block	Westinghouse	542247 (805432)	Containment	See Section 2
33	Electrical Penetration	Westinghouse	WX31774, WX31775, WX31776	Containment	Q
36	Igniter Excitor	Westinghouse	GLA43737	Containment	Q
37	Thermocouple	Westinghouse	A2092	Containment	Q
34	Electrical Penetration	Westinghouse	WX31892	Containment	Q
41	Solenoid Valve	ASCO	NP831655E	Pipe Penetration Area	Q
42	Limit Switch	NAMCO	EA180	Pipe Penetration Area	Q
44&45	Electrical Cable	Rcokbestos	Firewall III	Pipe Penetration Area	Q
51	Solenoid Valve	ASCO	NP8316	Pipe Penetration Area	Q
52	Motorized Valve Actuator	Limatorque	SMBOO with Class H Insulation	Containment	See Section 2
53	Motorized Valve Actuator	Limatorque	SMBOO with Class H Insulation	Containment	See Section 2
54	Motorized Valve Actuator	Limatorque	SMBOO with Class H Insulation	Containment	See Section 2
55	Motorized Valve Actuator	Limatorque	SMBOO with Class H Insulation	Containment	See Section 2
56	Limit Switch	NAMCO	EA180	Containment	Q
57	Limit Switch	NAMCO	EA180	Pipe Penetration Area	Q
58	Limit Switch	NAMCO	EA740	Containment	Q
59	Electrical Connector	Conax	N1100133	Containment	Q
60	Transducer, E/P	Fisher Controls	Type 546	Steam/Feedline Penetration Area	Q
61	Transducer, E/P	Fisher Controls	Type 546	Auxiliary Pump Room	Q
62	Motorized Valve Actuator	Limatorque	SMBOO with Class B Insulation	Pipe Penetration Area	See Section 2
63	Motorized Valve Actuator	Limatorque	SMBOO with Class B Insulation	Safety Injection Pump Room	See Section 2
64	Motorized Valve Actuator	Limatorque	SMBOO with Class B Insulation	Safety Injection Pump Room	See Section 2
65	Motorized Valve Actuator	Limatorque	SMB1 with Class B Insulation	Pipe Penetration Area	See Section 2
66	Motorized Valve Actuator	Limatorque	SMBO with Class B Insulation	Pipe Penetration Area	See Section 2
67	Motorized Valve Actuator	Limatorque	SMBO with Class B Insulation	Safety Injection Pump Room	See Section 2
68	Motorized Valve Actuator	Limatorque	SMB2 with Class B Insulation	Containment	See Section 2

SECTION 1  
QUALIFIED EQUIPMENT

(Continued)

FRC Item No.	Component	Manufacturer	Model Number	Location	Remarks
•	Motorized Valve Actuator (SI Isolation)	Limitorque	SMB with Class H Insulation	PP	(TMI)
•	Motorized Valve Actuator (Sampling System Isolation)	Limitorque	SMB with Class B Insulation	PP	(TMI)
•	Solenoid Operated Valve (SOV-958)	ASCO	NP Series	PP	(TMI)
•	Accelerometer	ENDEVCO	2273AM1	Containment	(TMI)
	Cable	Brand Rex Softline	CS75146	Containment	(TMI)
•	Charge Converter	T.E.C.	504A	Containment	(TMI)
•	Coax-Cable	Rock bestos	RSS-6-104	Containment	(TMI)
•	Detector	General Atomic	RD-23.	Containment	(TMI)
•	Pressure Transmitter	ITT Barton	763	Pipe Penetration	(TMI)
•	Level Transmitter	ITT Barton	764	Containment	(TMI)
•	Solenoid Operated Valve	ASCO	8262	PAB	(TMI)
•	Solenoid Operated Valve	ASCO	NP Series	Containment	See Section 2 - Item 20
•	Limit Switch	NAMCO	EA180	PP	

SECTION 2

INDIAN POINT 3  
STATUS AND ACTION PLAN  
FOR  
EQUIPMENT ASSIGNED  
TO  
NRC CATEGORIES I.B, II.A,  
II.B, AND II.C  
IN  
FRC TER C5257-456

INDIAN POINT 3

Section 2

The Franklin Research Center Technical Evaluation Report (TER) contained the following tabulation of equipment assigned to NRC categories I.B, II.A, II.B and II.C at Indian Point 3.

I.B.	EQUIPMENT QUALIFICATION PENDING MODIFICATION ----- (EQUIPMENT ITEM NO(S): 2, 3, 4, 5, 11, 18, 19, 21, 22, 23, 24, 25, 26, 32, 35, 39, 40, 47, 48, 49, 50)	21
II.A	EQUIPMENT QUALIFICATION NOT ESTABLISHED ----- (EQUIPMENT ITEM NO(S): 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 20, 27, 28, 29, 30, 31, 38, 43, 46, 52, 53, 54, 55, 62, 63, 64, 65, 66, 67, 68)	31
II.B	EQUIPMENT NOT QUALIFIED -----	0
II.C	EQUIPMENT SATISFIES ALL REQUIREMENTS EXCEPT QUALIFIED LIFE OR REPLACEMENT SCHEDULE JUSTIFIED (EQUIPMENT ITEM NO(S): 1,56,57,58,60,61) -----	6

## EQUIPMENT IN NRC CATEGORY I.B\*

FRC  
TER  
ITEM

<u>NO.</u>	<u>COMPONENT</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>	<u>LOCATION</u>
2	FLOW TRANSMITTER	BARTON	386	CONTAINMENT
3	PRESSURE TRANSMITTER	FOXBORO	E11GM (MCA)	CONTAINMENT, OUTSIDE CRANEWALL
4	PRESSURE TRANSMITTER	FOXBORO	E11GH	CONTAINMENT, OUTSIDE CRANEWALL
5	FLOW TRANSMITTER	FOXBORO	E13DM (MCA)	CONTAINMENT, OUTSIDE CRANEWALL
11	LEVEL TRANSMITTER	FOXBORO	E13DM (MCA)	CONTAINMENT
18	SOLENOID VALVE	LAURENCE	110114W, 12544W	STEAM/FEEDLINE PENETRATION AREA
19	SOLENOID VALVE	LAURENCE	629BC85PS	PIPE PENETRATION AREA
21	SOLENOID VALVE	SKINNER		CONTAINMENT
22	RTD	SOSTMAN	11901B	CONTAINMENT
23	LEVEL SWITCH	GEMS	LS1900	CONTAINMENT
24	ELECTRICAL CABLE	KERITE		CONTAINMENT
25	ELECTRICAL CABLE SPLICE	RAYCHEM		CONTAINMENT
26	ELECTRICAL CABLE	LEWIS		CONTAINMENT
32	TERMINAL BLOCK	WESTINGHOUSE	542247 (805432)	CONTAINMENT
35	PANEL, I AND C	WESTINGHOUSE		PIPE PENETRATION AREA
39	FLOW SWITCH	BARKSDALE		CONTAINMENT
40	TEMPERATURE SWITCH	UNITED ELECTRIC	6CS TYPE F110A	AUXILIARY PUMP ROOM
47	LIMIT SWITCH	NAMCO	SL3	STEAM/FEEDLINE PENETRATION AREA
48	LIMIT SWITCH	NAMCO	D2400X	PIPE PENETRATION AREA
49	LIMIT SWITCH	MICRO SWITCH	EXAR7313	STEAM/FEEDLINE PENETRATION AREA
50	LIMIT SWITCH	MICRO SWITCH	EXHAR3	PIPE PENETRATION AREA

\*Equipment Qualification pending modification.

INDIAN POINT 3

STATUS OF EQUIPMENT ASSIGNED TO NRC CATEGORY I.B

QUALIFICATION WILL BE DEMONSTRATED FOR  
ALL ITEMS LISTED IN THIS CATEGORY  
BY MARCH 31, 1985 (OR EARLIER IF INDICATED OTHERWISE)

TER Item 2

Flow Transmitter, Barton 386 (FT 946ABCD)

Action: To be replaced when qualified transmitters are available.

Status: Purchase Order 81-IP-4121 (Item 6) procured Foxboro N-El3DH-HIHI BE as replacement units.

TER Items 3,4

Pressure Transmitter, Foxboro E11 (PT 455, 456, 457, 474, 402, 403)

Action: To be replaced with qualified transmitters.

Status: Purchase Order 81-IP-4121 (Items 4 and 7) procured Foxboro N-E11GH HIM BE as replacement units.

TER Items 5,11

Flow Transmitter, Foxboro E13 (FT 924A, 925, 926, 926A, 927, 945A, B, 980, 981, 982)

Action: To be replaced with qualified transmitters.

Status: Purchase Order 81-IP-4121 (Items 2 & 3) procured Foxboro N-El3DH and N-E11DM as replacement units.

TER Items 18, 19

Solenoid Valve, Laurence 110114W, 629BC85PS,  
12544W

Action: To be replaced with qualified valves.

Status: Purchase Order 82-IB written for  
replacement valves.

TER Item 21

Solenoid Valve, Skinner (Fan Cooler Damper Control  
31, 32, 33, 34, 35)

Action: To be replaced with qualified valves dur-  
ing outage of sufficient duration.

Status: Qualified ASCO NP solenoids were procured  
under Purchase Order 80-IP-3385. The  
conduit connection will be sealed to pre-  
vent entry of foreign materials.

TER Item 22

RTD, Sostman 11901B (RC loop temperature)

Action: To be replaced with qualified unit during  
outage of sufficient duration.

Status: Purchase Order 82-IP-1812 for Qualified  
RdF Corp. RTD's P/N 21204 & P/N 21205  
from Westinghouse. Test report is to be  
supplied by Westinghouse

TER Item 23

Level Switch, Gems LS1900 (Sump Level LT938, 939,  
940, 941)

Action: Function to be provided by other  
instrumentation.

Status: Purchase Order 81-IP-4271 procured Fox-  
boro N-El3DH and Purchase Order IPPO 524  
purchased Barton 764. Installation par-  
tially complete (Foundations).

TER Item 24

Kerite Cable\*

Action: Test data being reviewed. Working with other utilities on same problem.

Status: Qualification for LOCA (steam, chemical spray, radiation and aging) exposure has been established by WCAP-7410L and is further supported by other testing on Kerite Cables contained in Test Reports F-C2442-02, F-C2737, F-C3056, F-C3314, F-C3451, F-C3476, F-C3634, F-C4020-1, -2, F-C4158.

TER Item 25

Raychem Splice\*

Action: Test data being reviewed. Working with other utilities on same problem.

Status: Qualification for LOCA (steam, chemical spray, radiation and aging) exposure has been established by other WCAP-7410L and is further supported by other testing on Raychem WCSF-N splices contained in Reports F-C4033-1, -2, -3; Wyle reports 58442-1, -2, -3; and Raychem Report EDR5019.

TER Item 26

Lewis Cable\*

Action: Test data being reviewed. Working with other utilities on same problem.

Status: Qualification for LOCA (steam, chemical spray, radiation and aging) exposure has been established by Test Report F-C2781 for which the manufacturer has certified applicability to Indian Point.

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\*See next page.

Certain equipment (cables) was assigned to NRC category II.A in the Franklin Research Center TER and cited with a "Submergence" deficiency. The cables installed at Indian Point 3 have been qualified in accordance with DOR Guidelines, NUREG-0588 and the recommendations of IEEE-323-74. However these documents do not contain any guidance on conditions for qualification of equipment which may become submerged. Contacts with manufacturers established that cables installed at Indian Point 3 have been subjected to accelerated water absorption tests (194°F demineralized water), submergence test in Hudson river water, and some cable (cross linked polyethylene) has been subjected to testing for 8 weeks at 200°F in a solution containing 1800 ppm boric acid, 50 ppm hydrazine buffered to a pH of 7 to 7.5 with trisodium phosphate. We have a high level of confidence that the cables installed will perform satisfactorily under post-LOCA submergence conditions.

TER Item 32

Terminal Block, Westinghouse 542247

Action: Inspect, clean, modify, test if needed.

Status: Qualification has been established and is documented in Analysis Report 180E. Procedures for inspections and cleaning are complete and will be performed during plant outage periods.

TER Item 35

I&C panel, Westinghouse (H<sub>2</sub> Recombiner Controls)

Action: Install shielding to make mild area.

Status: Work started.

TER Item 39

Flow Switch, Barksdale (H<sub>2</sub> Recombiner Air Flow)

Action: Qualify or replace.

Status: No qualified flow switches are available. Purchase Order 81-IP-4121 (Item 15) procured Foxboro N-E13DM transmitter with a bistable located in a mild environment to replace flow switch.

TER Item 40

Temperature Switch, United Electric Controls 6CS Type F1110A.

Action: To be replaced, qualified or modified.

Status: The temperature switch consists of a sealed oil filled-304 stainless steel tube, a metal bellows, two on-off

snap switches, and a terminal block in an explosion-proof housing. The units are designed for, and have extensive operating experience in ambient temperatures ranging between -40°F and 160°F, and 100% salt, dust and humidity environments.

The units would be qualified by experience if entry of steam into the internals is prevented. Therefore, the threaded connections and conduit will be sealed using teflon tape for the housing cover and RTV 77 for the conduit and cable entry areas. Use of teflon tape was qualified by LOCA tests on NAMCO EA 180 and EA 740 limit switches, and RTV was qualified by LOCA tests on conduit outlets sealed with RTV in Wyle test for J.A. Farley Plant (Wylie Report #44354-1, page 6, Test Item 4).

TER Item 47 & 49

Limit Switches, NAMCO SL-3, Micro-Switch EXAR-7313

Action: Qualify or replace.

Status: Purchase Orders 80-IP-3386 and 81-IP-0441 procured qualified NAMCO EA-180/EA-740 and Purchase Order 81-IP-1634.

TER Item 48 & 50

Limit Switches, NAMCO D2400X, Micro-Switch EXHAR-3

Action: Qualify or replace.

Status: The only harsh parameter for this equipment is radiation. An analysis is being performed of the installed units, comparing them to units that have been successfully tested. It is expected that this analysis will demonstrate complete qualification.

## EQUIPMENT IN NRC CATEGORY II.A\*

<u>NO.</u>	<u>COMPONENT</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>	<u>LOCATION</u>
6	PRESSURE TRANSMITTER	FOXBORO	E11GM	SAFETY INJECTION PUMP ROOM
7	PRESSURE TRANSMITTER	FOXBORO	E11GM	PIPE PENETRATION AREA
8	PRESSURE TRANSMITTER	FOXBORO	E11GM	AUXILIARY PUMP ROOM
9	PRESSURE TRANSMITTER	FOXBORO	E11GM	AUXILIARY PUMP ROOM
10	FLOW TRANSMITTER	FOXBORO	E13DM	AUXILIARY PUMP ROOM
12	SOLENOID VALVE	ASCO	8300	AUXILIARY PUMP ROOM
13	SOLENOID VALVE	ASCO	8314	PIPE PENETRATION AREA
14	SOLENOID VALVE	ASCO	8316	PIPE PENETRATION AREA
15	SOLENOID VALVE	ASCO	8317	PIPE PENETRATION AREA
16	SOLENOID VALVE	ASCO	8300	PIPE PENETRATION AREA
17	SOLENOID VALVE	ASCO	8316	PIPE PENETRATION AREA
20	SOLENOID VALVE	ASCO	NP8316A75E	STEAM/FEEDLINE PENETRATION AREA
27	ELECTRIC MOTOR	WESTINGHOUSE	FRAME 509UPZ	CONTAINMENT
28	ELECTRIC MOTOR	WESTINGHOUSE	FRAME 509US	PRIMARY AUXILIARY BUILDING
29	ELECTRIC MOTOR	WESTINGHOUSE	FRAME 509US	AUXILIARY PUMP ROOM
30	ELECTRIC MOTOR	WESTINGHOUSE	FRAME 588.5	PRIMARY AUXILIARY BUILDING
31	ELECTRIC MOTOR	WESTINGHOUSE	69F97009	CONTAINMENT
38	ELECTRIC MOTOR	WESTINGHOUSE		CONTAINMENT
43	ACOUSTIC MONITOR	TEC	500	CONTAINMENT
46	POSITION SWITCH	NAMCO	EA170	CONTAINMENT
52	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBOO WITH CLASS H INSULATION	AUXILIARY PUMP ROOM
53	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBO WITH CLASS H INSULATION	CONTAINMENT
54	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMB3 WITH CLASS H INSULATION	CONTAINMENT
55	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBOO WITH CLASS H INSULATION	CONTAINMENT
62	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBOO WITH CLASS B INSULATION	PIPE PENETRATION AREA

\*Equipment Qualification not established.

## EQUIPMENT IN NRC CATEGORY II.A\*

(Continued)

<u>FRC ITEM NO.</u>	<u>COMPONENT</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>	<u>LOCATION</u>
63	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBOO WITH CLASS B INSULATION	SAFETY INJECTION PUMP ROOM
64	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBOO WITH CLASS B INSULATION	SAFETY INJECTION PUMP ROOM
65	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMB1 WITH CLASS B INSULATION	PIPE PENETRATION AREA
66	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBO WITH CLASS B INSULATION	PIPE PENETRATION AREA
67	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMBO WITH CLASS B INSULATION	SAFETY INJECTION PUMP ROOM
68	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMB2 WITH CLASS B INSULATION	CONTAINMENT

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\*Equipment Qualification not established.

INDIAN POINT 3

CORRECTIVE ACTIONS FOR EQUIPMENT

ASSIGNED TO NRC CATEGORY II. A

QUALIFICATION WILL BE DEMONSTRATED FOR ALL ITEMS

LISTED IN THIS CATEGORY BY MARCH 31, 1985

(OR EARLIER IF INDICATED OTHERWISE)

Item 6

Foxboro Transmitter, (Safety Injection Pump Suction and Discharge Pressure) (PT 922, -923, -947)

Action: This equipment is located in the Safety Injection Pump Room where the only harsh parameter is radiation. A materials analysis of the installed units compared to units that have been successfully tested is being performed. It is expected that this analysis will demonstrate qualification.

TER Item 7

Foxboro Transmitter, (Containment pressure PT948A, B, C; PT949A, B, C)

Action: Aging analysis to be performed.

TER Item 8

Foxboro Transmitter (steam, feedwater, steam generator and city water pressure, PT-406A, B; PT-1260, -1261, -1262, -1263, -1264, -1265; PT-1200, -1201, -1201, -1203; PT419A, B, C; PT429A, B, C; PT439A, B, C; PT 449A, B, C)

Action: TER-456 noted that these units would be satisfactory if a reliable temperature switch for isolation of the auxiliary feed pump turbine steam line is installed. The temperature switch (TER Item No. 40) will be qualified by sealing the units to prevent steam entry to the switch. Foxboro Reports T1-1058S, T3-1013, T3-1013S, T4-6061 and WCAP7410L demonstrate that the transmitters are qualified and perform reliably at the maximum accident temperature of 135°F, 100% relative humidity and 0 psig. To ensure continued qualification the seals will be replaced every third refueling (approximately 5 year intervals).

TER Item 9

Foxboro Transmitter (Auxiliary Feed pump pressure PT-1163, -1164, -1165, -1166)

Action: TER-456 noted that these units would be satisfactory if a reliable temperature switch for isolation of the auxiliary feed pump turbine steam line is installed. The temperature switch (TER Item No. 40) will be qualified by sealing the units to prevent steam entry to the switch. Foxboro Reports T1-1058S, T3-1013, T3-1013S, T4-6061 and WCAP7410L demonstrate that the transmitters are

qualified and perform reliably at the maximum accident temperature of 135°F, 100% relative humidity and 0 psig. To ensure continued qualification the seals will be replaced every third refueling (approximately 5 year intervals).

TER Item 10

Foxboro Transmitter (Main Feedwater Flow, FT-418A, B; FT-428A, B; FT-438A, B; FT-448A, B)

Action: TER-456 noted that these units would be satisfactory if a reliable temperature switch for isolation of the auxiliary feed pump turbine steam line is installed. The temperature switch (TER Item No. 40) will be qualified by sealing the units to prevent steam entry to the switch. Foxboro Reports T1-1058S, T3-1013, T3-1013S, T4-6061 and WCAP7410L demonstrate that the transmitters are qualified and perform reliably at the maximum accident temperature of 135°F, 100% relative humidity and 0 psig. To ensure continued qualification the seals will be replaced every third refueling (approximately 5 year intervals).

TER Item 12

ASCO Solenoid Valve (City Water Suction Control, AFW Recirculation Control, AFW Pump Steam Pressure Control; PCV-1121, -1123, -1139, -1187, -1188, -1189)

Action: TER-456 stated the following with regard to equipment installed in the AFW pump room.

"At present, qualification is not established for the redundant temperature switches (see equipment item 40). Once the Licensee has demonstrated a reliable

steam line isolation feature initiated by qualified temperature switches, the safety-related components located in the auxiliary pump room will be excluded from the scope of this review. The Licensee should ensure that the critical components will not be elevated to temperature that will affect their operability."

The Authority agrees with the FRC evaluation. The temperature switch will be sealed to preclude entry of steam and thus the solenoid valves will be qualified.

TER Item 13

ASCO Solenoid Valve (Pressurizer Liquid and Steam Space Sample Line Isolation, Pressurizer Relief Tank Make-up line Isolation 956A, B, C, D; 519, 552)

Action: The only harsh parameter in the pipe penetration area is radiation. ASCO solenoid valves similar to the installed valves have been tested for LOCA parameters including radiation exposures and reported in Test Reports F-C4539 and F-C4909. An evaluation of the materials of the installed valves compared to the materials in the valves tested is being performed to establish qualification.

Completion Date: Prior to December 31, 1983

TER Item 14

ASCO Solenoid Valve (Let-Down Isolation Valve Control, 201, 202, 791, 793, 796, 798)

Action: The only harsh parameter in the pipe penetration area is radiation. ASCO solenoid valves similar to the installed valves have been tested for LOCA parameters including radiation exposures and reported in Test Reports F-C4539 and F-C4909. An evaluation of the materials

of the installed valves compared to the materials in the valves tested is being performed to establish qualification.

Completion Date: Prior to December 31, 1983

TER Item 15

ASCO Solenoid Valve (Condensate Storage Isolation Valve Control LCV1158)

Action: TER-456 indicated that this valve is located in the pipe penetration area. This valve is actually located in the Auxiliary Feed Pump Room. Therefore as noted in the TER, for equipment located in the Auxiliary Feed Pump Room:

"At present, qualification is not established for the redundant temperature switches (see equipment item 40). Once the Licensee has demonstrated a reliable steam line isolation feature initiated by qualified temperature switches, the safety-related components located in the auxiliary pump room will be excluded from the scope of this review. The Licensee should ensure that the critical components will not be elevated to temperature that will affect their operability."

The Authority agrees with the FRC evaluation. The temperature switch will be sealed to preclude entry of steam and thus the solenoid valve will be qualified.

Item 16

ASCO Solenoid Valve (Containment Radiation Monitoring Isolation, Containment Purge Line Isolation, Instrument Air line Isolation, Steam Generator Blowdown Isolation; PCV-1171, -1173, -1214, -1215, -1216, -1217, -1234, -1236, -1237, -1238, -1239, -1240, -1241)

Action: The only harsh parameter in the pipe penetration area is radiation. ASCO solenoid valves similar to the installed valves have been tested for LOCA parameters including radiation exposures and reported in Test Reports F-C4539 and F-C4909. An evaluation of the materials of the installed valves compared to the materials in the valves tested is being performed to establish qualification.

Completion Date: Prior to December 31, 1983

TER Item 17

ASCO Solenoid Valve (Steam Supply Line to AFW Pump Turbine Isolation SV-1310A, B)

Action: The environmental parameters in the Steam and Feedwater line penetrations area caused by a MSLB are 213°F and 0.42 psig for less than 1 hour. ASCO solenoid valves similar to the installed valves have been tested for more severe LOCA parameters and reported in Test Reports F-C4539 and F-C4909. An evaluation of the materials of the installed valves compared to the materials in the valves tested is being performed to establish qualification. If full qualification can not be established the valves will be replaced.

TER Item 20

ASCO NP Solenoid Valve (Containment Purge PCV-1170, -1172, -1190)

Action: These valves are qualified. The performance of the dc solenoid during the tests indicate successful operation under all test conditions. The problems identified in the TER are associated with test parameters, not operation. Since the test conditions are substantially more severe than the IP-3 accident conditions, operation of the valve is assured. As noted previously, the Authority believes it

desireable to preclude entrance of any foreign material into the solenoid enclosure, and intends to seal the solenoid enclosure openings with a suitable seal such as RTV-77 or CONAX Connectors.

TER Item 27

Westinghouse Motor for RHR Pump

Action: The TER-456 stated:

"Reference 604 (WCAP-8754) is a report describing a test performed on a Motor-ette constructed with Thermalastic Epoxy with a Class B temperature rise. The Licensee has not described the insulation system which is used in the motors installed in the plant.

The Licensee should also:

1. Verify that the motor to lead splice is qualified through established qualification documentation.
2. Establish a replacement schedule for the grease and motor bearings."

The Authority has obtained from the manufacturer a listing of the materials and characteristics of the motors including the lead splices installed at Indian Point 3 and is comparing the data with the motors tested in WCAP-8754 and WCAP-7410L.

It is expected that qualification will be established for the radiation environment and normal ambient conditions.

The Authority's preventive maintenance program is being modified to include the manufacturer's recommendations on inspection, lubrication and maintenance of the motor bearings.

Completion Date: Prior to December 31, 1983

TER Item 28

Westinghouse Motor (AFW Pump drive)

Action: As noted in TER-456 for equipment located in the Auxiliary Feed Pump Room:

"At present, qualification is not established for the redundant temperature switches (see equipment item 40). Once the Licensee has demonstrated a reliable steam line isolation feature initiated by qualified temperature switches, the safety-related components located in the auxiliary pump room will be excluded from the scope of this review. The Licensee should ensure that the critical components will not be elevated to temperature that will affect their operability."

The Authority agrees with the FRC evaluation. The temperature switch will be sealed to preclude entry of steam and thus the motors will be qualified.

TER Item 29

Westinghouse Motor for Safety Injection Pumps

Action: This equipment is located in the Safety Injection Pump Room where the only harsh parameter is radiation. A materials analysis of the installed units compared to units that have been successfully tested is being performed. It is expected that this analysis will demonstrate qualification.

TER Items 30, 31  
and 38

Westinghouse Electric Motors (Containment Air Recirculation Fan Motors, Recirculation Spary Pump Motors and Hydrogen Recombiner Motors)

Action: The Authority has obtained from the manufacturer a list of the materials and the characteristics of the motors installed at Indian Point 3 and is attempting to obtain the same information on the motors tested in WCAP-7410L and WCAP 7709. In addition, information supplied by Westinghouse to NRC in letters NS-CE-728 dated July 10, 1975 and NS-CE-1009 dated March 31, 1976 concerning the Indian Point 3 motors is being evaluated in conjunction with the material information supplied by Westinghouse in order to confirm similarity with tested motors.

A separate calculation of beta plate-out is being performed and will be compared with irradiation test data.

Completion Date: Prior to December 31, 1983

TER Item 43

Acoustic Monitor (TEC model 500)

Action: The Acoustic monitor has been replaced with a qualified TEC system consisting of an Endevco E2273A accelerometer, TEC504A charge converter and Brand Rex CS75146 Cable. Report 517-TR-03, Rev. 2 establishes qualification.

Completion Date: This item is complete.

TER Item 46

NAMCO Limit Switch EA-170 (Valve position for AFW Recirculation Valves PCV-1121, -1123)

Action: TER-456 noted that these units would be satisfactory if a reliable temperature switch for isolation of the auxiliary feed pump turbine steam line is installed. The temperature switch (TER Item No. 40) will be qualified by sealing the unit to prevent steam entry to the switch. NAMCO report for EA-170 limit switch dated 3/17/78 demonstrates qualification of the Limit switch for the AFW Pump room environment by a wide margin. To preclude entry of any foreign material into the switch the conduit connection will be sealed by a qualified sealing method.

TER Items 52, 53,  
54, 55, 62, 63,  
64, 65, 66, 67

Limitorque Actuators

Action: The Authority has established traceability of the Limitorque actuators installed at Indian Point 3 through Westinghouse letters INT-80-71 dated December 11, 1980, NS-TMA-2319 dated October 3, 1980, NS-CE-692, dated July 10, 1975, NS-CE-756 dated August 15, 1975, and Limitorque letters dated August 28, 1980, November 29, 1982 and January 28, 1983. Qualification is established by Test Reports WCAP-7410L, Limitorque reports 600198 plus addendum 1, 600376A, B0003 and FC-3271. We have become aware that some of the Limitorque actuators were furnished with motor brakes which may be subject to damage from radiation. The actuators having motor brakes are being identified and the radiation doses to which the actuators will be exposed are being confirmed. Any actuators having motor brakes which could be susceptible to radiation damage will be replaced with qualified SB conversion kits.

TER Item 68

Limiter torque actuator (Accumulator discharge Isolation Valves, MOV894-A, B, C, D)

Action: TER-456 stated:

"FRC Evaluation:

The accumulator discharge valves (MOV-894A, B, C, D) are normally-open motor-operated gate valves. These valves are checked-open by the safety injection signal at the start of the accident. Accumulators are installed to reflood the core following a design basis accident during the initial blowdown while the safety injection pumps are being started and attaining rated capacity. Accumulator injection begins within seconds of the start of the accident, and the dead-band for starting the active safety injection equipment is generally approximately 30 seconds. Once the accumulators have discharged, the discharge valves are shut as a backup to the check valves, which prevent back-flooding of the accumulators. Since there are two check valves in each accumulator discharge line, the proper operation of these valves following the injection phase of an accident is of little consequence even if the valves are not promptly shut."

Since these MVAs have Class B insulation and their function is performed early in the accident, there is substantial assurance that the actuators will operate as demonstrated by testing described in WCAP-7410L.

Completion Date: This item is complete.

EQUIPMENT IN NRC CATEGORY II.C\*

<u>FRC TER ITEM</u>	<u>COMPONENT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>LOCATION</u>	<u>REMARKS</u>
1	MOTORIZED VALVE ACTUATOR	LIMITORQUE	SMB WITH CLASS H INSULATION	CONTAINMENT	(a)
56&58	LIMIT SWITCH	NAMCO	EA180 AND EA740	CONTAINMENT	(a)
57	LIMIT SWITCH	NAMCO	EA180	PIPE PENETRATION AREA	(a)
60	ELECTRIC/PNEUMATIC PRESSURE TRANSDUCER	FISHER	546	STEAM AND FEEDLINE PENETRATION AREA	(a)
61	ELECTRIC/PNEUMATIC TRANSDUCER	FISHER	546	AUXILIARY FEED PUMP ROOM	(a)

- (a) In previous correspondence, the Authority has indicated that studies of age-related degradation effects are being performed for all safety-related equipment in harsh environments. As results become available, we will start a modification plan for the plant maintenance and testing programs to include new requirements and schedules for maintenance, parts and equipment replacement. In conjunction with these aging studies, any materials-property or equipment-performance parameters that are indicative of aging degradation are being identified. If these parameters are nondestructively measureable, they will be included in the plant surveillance testing program. Aging analyses have been completed and qualified lifetimes have been established.

\*Equipment satisfies all requirements except qualified life or replacement schedule justified (also included in Section 1).

SECTION 3

INDIAN POINT 3

OTHER EQUIPMENT REQUIRING QUALIFICATION

SECTION 3

OTHER EQUIPMENT REQUIRING QUALIFICATION

QUALIFICATION WILL BE DEMONSTRATED  
FOR ALL ITEMS IN THIS SECTION BY MARCH 31, 1985

<u>Equipment ID</u>	<u>Description</u>	<u>Location</u>	<u>Qualification Status</u>	<u>Remarks</u>
MOV-1869A,B	Limiterque SMB RHR HX outlet to S1 Pump Suction	C	P(1)	☞
MOV-535,536	PORV Block Valves Limiterque SMB	C	P(2)	
SOV's for AOV 951,953, 955A,B	Containment Isolation for normal sampling lines	C	QNE	
SOV-1534-41	Containment Building Air Sample Isolation	PP	P(3)	
FT638,640	RHR Header Flow	C	QNE	
Limit Switch for AOV 951, 953,955A-C	Containment Isolation for Normal (Non Accident) sampling lines	C	QNE	
Limit Switch for 1534-41	Containment Building Air Sample	PP	P(3)	
Limit Switch for AOV 1813	Containment Spray Test Line	PP	P(3)	

SECTION 3

OTHER EQUIPMENT REQUIRING QUALIFICATION

(Continued)

<u>Equipment ID</u>	<u>Description</u>	<u>Location</u>	<u>Qualification Status</u>	<u>Remarks</u>
Limit Switch for PCV 1187, 1188,1189	AFW Pump Suction Valve Position	AFP	P(1)	
Pt419A,B, 429A,B, 439A,B, 449A,B,	Main Steam Flow	C	QNE	
TC1117 1126,1135, 1144,1153	Fan Cooler High Temperature	C	QNE	
TE1203-1, -2,-3,-4,-5	Fan Cooler Outlet Temperature	C	QNE	
M-1 to M-10	Solenoid Valve ASCO 8262	PP	QNE	(TMI)
	Pump Motor Thomas 727CH33	PAB	QNE	(TMI)
	Pump Motor Millipore CN0949	PAB	QNE	(TMI)
	Pump Motor Thomas 707CN50	PAB	QNE	(TMI)
	Pump Motor Dayton 2Z830	PAB	QNE	(TMI)
	Capacitor Dayton 4X426A	PAB	QNE	(TMI)