



June 6, 1983  
JPN-83-52

J. Phillip Bayne  
Executive Vice President  
Nuclear Generation

Director of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Attention: Mr. Domenic B. Vassallo, Chief  
Operating Reactors Branch #2  
Division of Licensing

Subject: James A. FitzPatrick Nuclear Power Plant  
Docket No. 50-333  
Safety Evaluation-Environmental Qualification  
of Safety-Related Electrical Equipment

Reference: 1. NRC letter, D.B. Vassallo to J.P. Bayne,  
dated April 19, 1983.  
2. PASNY letter, J.P. Bayne to D.B. Vassallo,  
dated May 20, 1983 (JPN-83-45).

Dear Mr. Vassallo:

The purpose of this letter is to reaffirm the Authority's justifications for continued operation (JCO's) for equipment identified by Reference (1) as NRC categories Ib, IIa, and IV for which qualification programs are still in progress, and to submit information for equipment items for which JCO's were not previously submitted.

The Authority has reviewed the Technical Evaluation Report (TER) which was transmitted with your Safety Evaluation (Reference 1) and has concluded that the qualification information which was reviewed by the NRC and its contractor is not an accurate representation of the present level of qualification of safety-related electrical equipment installed in the FitzPatrick plant. Since the original submittal by the Authority, an ambitious ongoing program of qualification verification and equipment replacement has resulted in a much higher level of qualification than was reviewed by the NRC. This is further detailed in the Authority's response to 10 CFR 50.49 (Reference 2).

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*11*

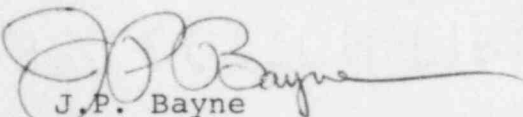
The Authority reaffirms previously submitted justifications for continued operation based on Enclosure 1 which summarizes the qualification status, to the best knowledge of the Authority, of the safety-related electrical equipment encompassed by NRC categories 1b, IIa and IV. A number of the original JCO's no longer exist based on the following:

- a. The equipment item has been the subject of a functional evaluation and on the basis of this evaluation is judged to not require qualification in accordance with 10 CFR 50.49.
- b. The equipment item has been replaced with fully qualified equipment.
- c. A program has been completed which demonstrated environmental qualification for this equipment item.
- d. The equipment item has been relocated to a mild environment.

The Authority, in reviewing its list of equipment, has identified additional equipment items which have been added to the listing, equipment items for which the qualification status has changed, or for which justification for continued operation was not previously submitted. A list of these additional items is provided in Enclosure (2). Justification for continued operation for these items is included in Enclosure (3).

In Section 5.0 of the TER, concerns are expressed that some equipment listed in the NRC SER had been omitted from the Authority's response without explanation. The Authority has examined all the items in Appendix B of Section 5.0 of the TER and confirms that the items do not require qualification in accordance with 10 CFR 50.49 or that these items are now included in the list of equipment requiring qualification. JCO's for these items are also provided in Enclosure (3) if they were not previously submitted and the qualification program is not complete.

Very truly yours,

  
J.P. Bayne  
Executive Vice President  
Nuclear Generation

cc: Mr. J. Linville  
Resident Inspector  
U.S. Nuclear Regulatory Commission  
P.O. Box 136  
Lycoming, N.Y. 13093

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

STATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(II.a)1	3/29, 30	10MOV-25A,B	Not Req.	Note 4
(I.b)2	3/36	10MOV-31B	Not Req.	Note 4
(I.b)5	12/16	23MOV-19	Not Req.	Note 1
(I.b)6	7/14	14MOV-11B	Not Req.	Note 4
(II.a)7	7/11, 13	14MOV-11A, 12A	Not Req.	Note 4
(I.b)8	8/22	20MOV-94	Yes	Note 2
(II.a)10	12/21	23MOV-58	Not Req.	Note 4
(II.a)12	8/24	29MOV-77	Not Req.	Note 4
(II.a)13	3/52	10MOV-67	Not Req.	Note 4
(II.a)15	12/14	23MOV-17	Not Req.	Note 1
(I.b)17	23/12	02MOV-54A, B	Not Req.	Note 4
(I.b)18	8/21	20MOV-82	Yes	Note 2
(II.a)19	23/11	02MOV-53A, B	Not Req.	Note 4
(II.a)20	3/26	10MOV-18	Not Req.	Note 4
(II.a)23	12/20	23MOV-57	Not Req.	Note 4
(I.b)25	9/15	27PNS-101A, B	Not Req.	Note 3
(I.b)27	9/25	27PNS-132A, B	Not Req.	Note 3
(I.b)28	8/29-33	29PNS-86A-D	Not Req.	Note 3
(I.b)29	10/12, 13	66PNS-100A1,A2,B1 32 66PNS-101A1,A2,B1 B2	Not Req.	Note 3
(II.a)30	12/31	23PNS-18	Not Req.	Note 1
(II.a)31	12/30	23PNS-LS4	Not Req.	Note 1
(II.a)32	12/29	23PNS-LS3	Not Req.	Note 1

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

STATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(I.b)33	9/33	27PNS-147	Not Req.	Note 3
(II.a)35	8/4, 5	2-2PNS-40	Not Req.	Note 1
(II.a)36	8/4, 5	2-2PNS-39	Not Req.	Note 1
(I.b)37	9/16	27PNS-103A, B	Not Req.	Note 3
(I.b)38	10/14	71 ACA3	Not Req.	Note 1
(I.b)39	10/16	71PT-71 ACA3	Not Req.	Note 1
(I.b)42	9/14A, B	27P-11A	Yes	Note 2
(I.b)43	9/1	27DWA-PA	Yes	Note 2
(I.b)44	9/8A, 8B	27HAZ-101A, B	Yes	Note 2
(I.b)45	9/62	270 <sub>2</sub> AZ-101A	Yes	Note 2
(I.b)46	10/1, 2	17RE-430A, B	Not Req.	Note 1
(II.a)47	15/7-11	X-100B, X-103A, B X-104D	Not Req.	Note 4
(II.a)47	15/7-11	X-109, 110D	Not Req.	Note 4
(I.b)48	03/65-68	10P-3A-D	Not Req.	Note 4
(I.b)49	7/17	14P-1A, B	Not Req.	Note 4
(IV)53	13/2	66UC-22A-K	Yes	Note 5
(I.b)54	3/91, 93, 95, 97	10PS-120B, D, F, H	Not Req.	Note 4
(I.b)55	3/90, 92, 94, 96	10PS-120A, C, E, G	Not Req.	Note 4
(I.b)56	4/7	02-3PT-178C, D	Not Req.	Note 4
(II.a)58	23/1, 3	06PT-53A, C	Not Req.	Note 1
(II.a)59	23/2	06PT-53B	Not Req.	Note 1
(I.b)60	03/120	02-3PS-52A	Not Req.	Note 4
(I.b)61	3/118	02PS-128A	Not Req.	Note 4



JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

STATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(I.b)62	3/120	02-3PS-52B	Not Req.	Note 4
(I.b)63	3/120	02-3PS-52D	Not Req.	Note 4
(I.b)64	3/118	02PS-128B	Not Req.	Note 4
(I.b)65	7/21	14PT-38A, B	Yes	Note 2
(I.b)68	9/37	27PT-114	Yes	Note 2
(I.b)71	8/6, 7	02-2SOV-39	Not Req.	Note 3
(I.b)72	8/34, 35, 36, 37	29SOV-80A, B, C, D	Yes	Note 2
(I.b)73	10/8, 9	66SOV-100A, B	Not Req.	Note 3
(I.b)75	8/6	02-2SOV-40	Not Req.	Note 3
(I.b)76	9/43	27SOV-101A, B	Not Req.	Note 3
(I.b)77	9/44, 45, 48, 49	27SOV-111, 112, 115, 116	Not Req.	Note 3
(I.b)78	9/50, 51	27SOV-117, 118	Not Req.	Note 3
(I.b)79	9/59, 60	27SOV-131A, B 27SOV-132A, B	Not Req.	Note 3
(I.b)80	9/58, 61	27SOV-125A, B 27SOV-135A, B	Not Req.	Note 4
(I.b)81	8/38, 39, 40, 41	29SOV-86A-D	Yes	Note 2
(I.b)82	9/56	27SOV-120A, B 27SOV-121A, B 27SOV-122A, B  27SOV-123A, B	Not Req.	Note 4
(I.b)83	3/82, 84, 88, 86, 83, 79, 77	10PS-101B, D, C 10PS-119C, A 10PS-100C, A	Not Req.	Note 4
(I.b)84	3/78, 80, 87, 89	10PS-119B, D 10PS-100B, D	Not Req.	Note 4

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
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STATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(I.b)85	3/81	10PS-101A	Not Req.	Note 4
(I.b)86	5/5	02-3LIS-72B, D	Not Req.	Note 4
(I.b)87	5/5	02-3LIS-72A, C	Not Req.	Note 4
(I.b)88	5/6	02-3LIS-83B	Not Req.	Note 4
(I.b)89	5/6	02-3LIS-83A	Not Req.	Note 4
(I.b)90	3/119	02-3LITS-73	Not Req.	Note 4
(I.b)91	8/11	02-3LIS-101C, D	Not Req.	Note 4
(I.b)92	8/10	02-3LIS-101A, B	Not Req.	Note 4
(I.b)93	12/6, 7	23LS-91A, B	Not Req.	Note 1
(I.b)94	12/9	23LT-201B	Not Req.	Note 1
(I.b)95	4/2	03LS-231A, B, C, D	Yes	Note 2
(I.b)96	12/5	23FT-82	Not Req.	Note 1
(I.b)97	7/5	14FT-40B	Yes	Note 2
(I.b)98	3/9	10FT-109A	Yes	Note 2
(I.b)99	9/6	27FT-103A, B	Yes	Note 2
(I.b)100	7/5	14FT-40A	Yes	Note 2
(I.b)101	3/10	10FT-109B	Yes	Note 2
(I.b)102	3/7	10FT-97B	Yes	Note 2
(I.b)103	3/6	10FT-97A	Yes	Note 2
(II.a)104	17/2	MCC (BMCC2)	Yes	Note 2
(II.a)105	17/20	MCC-165	Yes	Note 2
(II.a)106	17/14, 15, 18	MCC-153, 155, 163	Yes	Note 2
(II.a)107	17/19	MCC-164	Yes	Note 2
(II.a)108	21/04	L-16	Yes	Note 2

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STATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(II.a)109	21/03	L-15	Yes	Note 2
(I.b)111	20/2, 3, 4, 7	EB-5	Yes	Note 2
(I.b)112	8/3	02TS-121, 124	Not Req.	Note 4
(I.b)113	12/4	23FS-78	Not Req.	Note 1
(I.b)114	7/4	14FIS-45B	Not Req.	Note 4
(I.b)115	7/3	14FIS-45A	Not Req.	Note 4
(I.b)116	23/4, 5, 6, 7	68TE-102, 103, 105, 106	Yes	Note 2
(I.b)117	9/42	27RTD-112	Yes	Note 2
(I.b)118	9/41	27RTD-101A-D	Not Req.	Note 2
(I.b)120	14/46	13TE-38A	Not Req.	Note 4
(I.b)121	14/50, 53, 55	13TE-100B, 106A, C	Not Req.	Note 4
(I.b)122	8/19	13TE-117A, C, E	Not Req.	Note 4
(I.b)123	14/49, 52, 54	13TE-100A, D, 106C	Not Req.	Note 4
(I.b)124	14/56	13TE-106D	Not Req.	Note 4
(I.b)125	14/51	13TE-100C	Not Req.	Note 4
(I.b)126	12/65, 66, 68, 69	23TE-92A, B 23TE-114A, B	Not Req.	Note 4
(I.b)128	7/19	14PS-44B	Not Req.	Note 4
(I.b)129	7/18, 19	14PS-41A, B, 44A	Not Req.	Note 4
(I.b)132	14/1, 2	13DPIS-83, 84	Not Req.	Note 4
(I.b)133	8/1	02DPIS-116A - D 02DPIS-117A - D 02DPIS-118A - D 02DPIS-119A - D	Not Req.	Note 4
(I.b)134	8/14, 15	05PS-12A, B, C, D	Not Req.	Note 4

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STATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(I.b)135	12/46, 47, 48, 49	23PS-86A - D	Not Req.	Note 2
(I.b)137	12/39, 40, 41, 42	23PS-68A - D	Not Req.	Note 4
(I.b)138	9/34	27PS-110A, B	Not Req.	Note 4
(II.a)140	14/57	13TS-1	Not Req.	Note 1
(II.a)142	16/10	RSS-6-104	Not Req.	Note 4
(II.a)143	16/12	Eaton (RB)	Not Req.	Note 4
(II.a)144	16/13	Eaton (Drywell)	Not Req.	Note 4
(II.a)145	16/14	Anaconda FR-EP	Not Req.	Note 4
(II.a)147	16/18	BIW	Not Req.	Note 4
(II.a)148	16/19	Vulkene	Not Req.	Note 1
(I.b)150	21/6	Circuit Breaker THQB 1120	Not Req.	Note 6
(I.b)151	27/1	23LT-203A1, B1 27PT-115A1, B1, A2, B2 06PT-61A, B 23LT-203A2, B2	Not Req.	Note 4
(I.b)152	27/2	23LT-202A, B	Not Req.	Note 4
(I.b)153	28/1	27RE-104A, B	Not Req.	Note 4
(I.b)155	30/2	23HAZ-102A, B	Yes	Note 2
(II.a)156	14/7	13MOV-15	Not Req.	Note 4
(IV)157	36/4	02VME-071A-L	Yes	Note 5
(II.a)161	35/2	Tefzel	Not Req.	Note 4
(IV)164	36/2	02VME-71A-L	Yes	Note 5
(I.b)165	9/1	27DWA-PB	Yes	Note 2
(I.b)166	9/8	27HAZ-101B	Yes	Note 2

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ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

STATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(I.b)167	9/62	270 <sub>2</sub> AZ-101B	Yes	Note 2
(I.b)168	9/32, 33	27PNS-147, 146	Not Req.	Note 3
(I.b)169	9/31	27PNS-145	Not Req.	Note 3
(I.b)170	9/31	27PNS-145	Not Req.	Note 3
(I.b)171	9/30	27PNS-144	Not Req.	Note 3
(I.b)172	9/30	27PNS-144	Not Req.	Note 3
(I.b)173	9/29	27PNS-143	Not Req.	Note 3
(I.b)174	9/29	27PNS-143	Not Req.	Note 3
(I.b)175	9/28	27PNS-142	Not Req.	Note 3
(I.b)176	9/28	27PNS-142	Not Req.	Note 3
(I.b)177	9/27	27PNS-141	Not Req.	Note 3
(I.b)178	9/27	27PNS-141	Not Req.	Note 3
(I.b)179	3/35	10MOV-031A	Not Req.	Note 4
(I.b)180	9/17, 18, 21, 22	27PNS-111, 112, 115, 116	Not Req.	Note 3
(I.b)181	9/23, 24	27PNS-117, 118	Not Req.	Note 3
(I.b)182	9/19, 20	27PNS-113, 114	Not Req.	Note 3
(I.b)183	3/120C	02-3PS-52C	Not Req.	Note 4
(I.b)188	12/3	23DPIS-77	Not Req.	Note 4
(I.b)189	12/2	23DPIS-76	Not Req.	Note 4
(II.a)190	17/1, 3	BMCC-3, 1	Yes	Note 2
(I.b)191	8/8	02-3LIS-57A, B	Not Req.	Note 4
(I.b)192	8/9	02-3LIS-58A, B	Not Req.	Note 4
(I.b)193	9/52, 57	27SOV-124A, B 27SOV-119A, B	Not Req.	Note 4



JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTSTATUS OF COMPONENT JCO'S

F.R.C. (CAT.) ITEM	JAF EQ FILE SEC/PAGE	COMPONENT ID	JCO PROVIDED	COMMENTS
(I.b)194	9/46, 47	27SOV-113, 114	Not Req.	Note 3
(I.b)195	10/10, 11	66SOV-101A, B	Not Req.	Note 3
(I.b)197	10/17	71PT-71AC B3	Not Req.	Note 1
(I.b)198	10/15	71AC B3	Not Req.	Note 1
(I.b)199	9/14	27P-11B	Yes	Note 2
(IV)200	36/3	Endevco	Yes	Note 5

## ENCLOSURE (1)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTNOTES:

1. This equipment item has been the subject of a functional evaluation, and on the basis of this evaluation been found not to require qualification in accordance with 10 CFR 50.49.
2. Justification for continued operation (JCO) for this equipment item has been provided previously.
3. This equipment item has been replaced with fully qualified equipment.
4. A program has been completed which demonstrated environmental qualification of this equipment item.
5. Justification for continued operation (JCO) for this equipment item is provided in Enclosure (3).
6. This equipment item has been relocated to a mild environment area.

## ENCLOSURE (2)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

## Equipment Requiring JCO's

COMPONENT I.D.	JAF E/Q FILE SEC/PAGE	JCO ENCL. (3) PAGE NO.
01-125FN-1A,B	6/7	1
01-125E-5A,B	6/10	2
02PS-134A-D	8/2	3
02VMY-71A-L	36/2	4
02VME-71A-L	36/3,4	4
02SOV-17	8/4,7	5
02SOV-18	8/4,8	5
02-3AU-278	4/8	6
02-3LITS-73	3/119	7
02-3PS-102A-D	8/45,46	8
02-3PT-178A-D	4/7	9
03SOV-31A,B	23/10	10
03SOV-117	23/8	10
03SOV-118	23/9	10
03SOV-140A,B	4/11	10
10DPIS-125A,B	3/115	11
10MOV-12A,B	3/13,14	12
10MOV-20	3/27	13
10MOV-32	3/37	14
10MOV-89A,B	3/55,56	12
10MOV-148A	3/57	12
10MOV-149A	3/59	12
12MOV-15	8/16	15
13FS-57	14/3	16
13LS-12	14/5	21
13MOV-16	14/8	17
13MOV-39	14/14	20
13MOV-41	14/15	20
13MOV-131	14/17	20
13PNS-L34	-----	22
13PS-67A,B	14/30,31	18
13PS-72A,B	14/32	18
13PS-78A-D	14/33	19

## ENCLOSURE (2)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

## Equipment Requiring JCO's

COMPONENT I.D.	JAF E/Q FILE SEC/PAGE	JCO ENCL.(3) PAGE NO.
15MOV-103	11/3	23
16-1PNS-101A,B	31/3	24
16-1PNS-102A,B	31/4	24
16-1SOV-101A,B	31/5	25
16-1SOV-102A,B	31/6	25
16-1RTD-107	----	26
16-1RTD-108	----	26
17RE-50A,B	----	27
17RE-53A,B	26/1	27
17RT-53A,B	26/2	27
17RE-431,-432	----	27
17RE-434A,B	26/3	27
17RT-434A,B	26/4	27
17RE-458A,B	----	27
17RE-463A,B	26/5	27
17RT-463A,B	26/6	27
23SOV-83	8/42	28
20SOV-95	8/43	28
20PNS-83	8/44	29
20PNS-95	8/44	29
23FS-78	12/4	30
23MOV-14	12/11	31
23LS-99	----	32
23LS-100	----	32
23PNS-LS4	12/30	33
23PS-84A,B	12/43,44	34
23PS-97A,B	12/50,51	34
27E/P-103A,B (27FCV-103A,B)	9/2	35
27PS-110A,B	9/34	36
27DWA-HTA,-HTB	9/61	37
27RTD-102A1,B1	9/64	37
-102A2,B2	9/65	37
27RTD-107A1,B1	9/66	37
-107A2,B2		

## ENCLOSURE (2)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

## Equipment Requiring JCO's

COMPONENT I.D.	JAF E/Q FILE SEC/PAGE	JCO ENCL. (3) PAGE NO.
29MOV-74	8/23	38
29MOV-77	8/24	39
29MOV-200A,B	8/45	41
-201A,B	8/46	40
-202A,B	8/47	40
-203A,B	8/48	40
-204A,B	8/49	40
29PS-201A,B	8/49	41
-202A,B	8/50	41
66HV-3A,B	10/5,6	42
66UC-22A-K	13/2	43
68TE-201 thru -212	----	44
68TE-301 thru -310	----	44
71BAT-3A,B		45
71 INV-3A,B		45
71ACA5		46
71ACB5		46
PT-71ACA5		46
PT-71ACB5		46
CINCH-Jones TB	20/2	47
GE EB-5,-25 Steel JB	20/1,3,4,5,6,7	48
JB-X101E	5/15	49
Misc. JCT Boxes		50



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 6  
PAGE: 7

SYSTEM: STANDBY GAS TREATMENT (01-125)

COMPONENT I.D.: 01-125FN-1A, B FAN MOTOR

The Standby Gas Treatment (SBGTS) fan motor is required to function following a postulated LOCA and HELB. The exposure to the postulated accident environment requires the motor to operate in an elevated radiation environment originating from SBGTS effluent flow following a postulated LOCA only. No significant temperature, pressure or humidity increases are postulated for the fan motor's location remote from the area experiencing a direct harsh environment due to these events. A preliminary assessment, based on the testing of motors with the same class of insulation manufactured in the same time frame, reveals that no detrimental effects to the motor's operability should occur at the postulated accident integrated radiation dose of  $3.8 \times 10^6$  R for 180 days of continuous Standby Gas Treatment System flow.

In accordance with the information supplied above concerning the SBGTS fan motor, continued operation is considered justified.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 6

PAGE: 10

SYSTEM: STANDBY GAS TREATMENT (01-125)

COMPONENT I.D.: 01-125E-5A, B FILTER TRAIN ELECTRIC PREHEATER  
AND CONTROL UNIT

The Standby Gas Treatment (SBGTS) Electric Pre-Heater and Control Unit is required to function following a postulated LOCA and HELB. The exposure to the postulated LOCA environments requires the heater unit to operate in an integrated radiation environment of  $3.8 \times 10^6$  R for 180 days of continuous standby gas treatment system flow. No significant temperature, pressure or humidity increases are postulated for the heater unit's location due to the LOCA event. The specific components involved include an electrical contactor, transformer, terminal boards, and wiring. The performance of similar design components in the postulated radiation exposure has been confirmed in previous type tests for Motor Control Centers. The components listed above are self-contained, independent, and redundant units, each capable of performing the intended function by itself. Currently both components are operational.

In accordance with the information supplied above concerning the SBGTS heater units, continued operation is considered justified.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 8  
PAGE: 2

SYSTEM: 02PS-134 (A-D)

COMPONENT I.D.: MAIN STEAM LINE TURBINE INLET PRESSURE  
SWITCH (PCIS)  
BARKSDALE B2T-M12SS

These pressure switches are designed to provide main steam line isolation in case of a main turbine pressure regulator failure, which could cause turbine control valves or bypass valves to open fully. These pressure switches are located in the Turbine Building and will not experience a postulated harsh environment when performing their intended design function since they instantaneously detect pressure regulator failures. Therefore, continued operation is considered justified.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 36  
PAGE: 2, 3, 4

SYSTEM: NUCLEAR BOILER (02)

COMPONENT I.D.: 02VMY-71A-L SRV ACOUSTICAL MONITORING  
02VME-71A-L SYSTEM

The Safety Relief Valve (SRV) Acoustical Monitoring System was installed in January 1981 in response to NUREG-0578. Direction provided to the Authority required immediate installation of equipment to be followed by a qualification program.

A complete valve monitoring system is currently undergoing an environmental qualification test program under the sponsorship of a group of utilities. When the final test report becomes available, the Authority will plan a modification program, if required, to bring the installed system into the tested configuration.

The part of the system which is located in a harsh environment is fully redundant. Each SRV is equipped with two acoustical sensors and associated preamplifiers. If one sensor channel were to fail, the other sensor channel can be connected to the system cabinet in the Relay Room. In addition, each SRV discharge line is also equipped with temperature sensors which indicate an open SRV. Temperature readouts and alarms are provided in the Control Room.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 8  
PAGE: 47, 48

SYSTEM: NUCLEAR BOILER (02)

COMPONENT I.D.: 02SOV-17, -18 REACTOR HEAD VENT VALVE PILOT  
SOLENOID, ASCO NP-8316

Full qualification depends only on field inspection of the existing installation during the upcoming outage. Identical ASCO NP Series solenoid valves have undergone extensive type testing in LOCA environments and are extensively utilized in Class 1E application in most nuclear power plants. The required post-accident operating time for this valve (24 hours) is much shorter than the length of the type test (30 days). Based on these facts, continued operation is considered justified pending final qualification.



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 4  
PAGE: 8

SYSTEM: NUCLEAR BOILER VESSEL INSTRUMENT (02-3)

COMPONENT I.D.: 02-3AU-278 (A-D) - REACTOR HIGH PRESSURE  
ANALOG TRIP UNIT (RPS)  
ROSEMOUNT 510 DU

Following postulated Reactor Building HELB's, it is unlikely that reactor trip would be required based on high reactor pressure. If required for this postulated accident, this unit would perform its intended function of providing a trip signal to the normally energized (fail-safe) protection logic. Redundant trip units are provided and are located at different instrument racks.

Based on this information, continued operation is considered justified pending relocation of these trip units to a mild environment.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 3  
PAGE: 119

SYSTEM: NUCLEAR BOILER VESSEL INSTRUMENT (02-3)

COMPONENT I.D.: 02-3LITS-73 REACTOR WATER LEVEL INDICATING  
SWITCH  
YARWAY 4418EC

This unit provides a reactor water level permissive signal to the RHR System and provides indication of water level to a Control Room indicator. This unit is qualified to perform its short term function of providing reactor water level permissive signal to the RHR System. However, test data does not support full qualification for providing reactor water level indication over an extended post-accident time frame after a postulated HELB in the Reactor Building.

Type test data of identical equipment at elevated temperatures and humidity in conjunction with a radiation threshold analysis of internal components supports qualification for its Reactor Building location following postulated LOCA's inside containment. Type test data supports short term operation following postulated Reactor Building HELB's. This is considered acceptable based on other water level indications available in the Control Room and the ability to access the Reactor Building for repairs within a short time frame following a postulated Reactor Building HELB.

Based on the above, interim operation is considered justified pending replacement.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 8  
PAGE: 45, 46SYSTEM: NUCLEAR BOILER VESSEL INSTRUMENT (02-3)COMPONENT I.D.: 02-3PS-102 (A-D) REACTOR PRESSURE SWITCH  
(RECIRC)

These pressure switches are required to function short term following postulated LOCA/HELB's to trip the reactor recirculation pump motors when reactor high pressure is sensed. Post-LOCA, the environmental conditions at the switch location will not significantly change during this short time frame, since these switches are located outside the primary containment. For HELB, redundant switches are located at separate instrument racks which experience lesser environments. Most importantly, available type test data for switches by the same manufacturer and of a similar design indicate proper pressure switch operation at equivalent temperatures over an extended time period. A preliminary assessment, based on type testing of these switches, reveals that no detrimental effects to the operability of the switches should occur during the postulated DBE. Based on the short term operability requirement along with the type testing successfully performed on similar switches, continued operation is considered justified.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 4  
PAGE: 7

SYSTEM: NUCLEAR BOILER VESSEL INSTRUMENT (02-3)

COMPONENT I.D.: 02-3PT-178 (A-D) REACTOR HIGH PRESSURE  
TRANSMITTER (RPS)  
ROSEMOUNT 1151GP

This transmitter provides a trip signal on high reactor pressure to the Reactor Protection System. The Rosemount 1151GP transmitter has been fully type tested to IEEE 323-1971 for harsh environment parameters of pressure, radiation, temperature, and humidity at more severe levels than experienced in the specific JAF locations. The only outstanding qualification issue is aging of the transmitter's electronics. This concern can be partially resolved due to the periodic surveillance testing which is performed to verify transmitter operation and calibration.

The function of this component is performed in the initial phases of postulated design basis accidents. It will experience a harsh environment following postulated Reactor Building HELB's. The type testing noted above provides a high degree of confidence that this unit will perform its intended function. In addition to redundant sensors located at different locations, there is also diverse instrumentation which can initiate reactor trip for this postulated event.

Based on this information, continued operation is considered justified pending replacement of this item.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 23, 4  
PAGE: 8, 9, 11

SYSTEM: CONTROL ROD DRIVE (CRD) (03)

COMPONENT I.D.: 03SOV-117; -118; -140A, B; -31A, B  
SCRAM AIR PILOT SOLENOID VALVES

The solenoid valve performs its safety related function immediately upon initiation of the postulated accident. In addition, the solenoid valve is required to de-energize in the performance of its safety related function., i.e., the valve is "fail safe". Based on the completion of the solenoid valve's safety related function prior to significant exposure to the accident environment, failure of this device would not cause degradation of any safety function. An ongoing qualification program has identified type test data for identical solenoid valves for high temperature and humidity conditions. Following postulated LOCA's inside primary containment, these valves will not experience any change in its environment in the short period required to perform its design function. Until finalization of the qualification program for these valves, continued operation is considered justified.



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 3  
PAGE: 115

SYSTEM: RESIDUAL HEAT REMOVAL (RHR)

COMPONENT I.D.: 10DPIS-125A, B RHR LOW FLOW  
DIFFERENTIAL PRESSURE SWITCH  
BARTON 289

The ongoing qualification program for this component has identified type test data directly applicable for this component. Temperature, humidity, and radiation test data surpasses the postulated post-HELB environmental parameters which this component will experience in its limited operating time (6 hours). Post-HELB this component is only required to maintain electrical integrity and does not have to function.

Post-LOCA the only harsh environment parameter is radiation. A radiation threshold analysis and test data indicates that no materials will experience radiation damage at the  $5 \times 10^5$  rads integrated dose. The expected life at 104°F for the limiting material relative to thermal aging is greater than the life of the plant.

Based on this data, continued operation is considered justified pending final qualification.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 3  
PAGE: 13, 14,  
55, 56,  
57, 59SYSTEM: RESIDUAL HEAT REMOVAL (10)

COMPONENT I.D.:	10MOV-12A, B RHR HEAT EXCH. OUTLET ISOL.
	VALVE OPERATOR
	10MOV-89A, B HEAT EXCH. SERV. W. DISCH.
	ISOL. VALVE OPERATOR
	10MOV-148A SERV. W. CROSSTIE ISOL.
	VALVE OPERATOR
	10MOV-149A SERV. W. CROSSTIE ISOL.
	VALVE OPERATOR

These valves are required to operate for the residual heat removal (RHR) system. The valve operators are fully environmentally qualified for this environment for all parameters except for a post-HELB ten (10) minute temperature transient above 250°F in which the environment exceeds type test conditions by 30°F for 10 minutes. The probability that the valves will have to operate during this limited time period is very small and the valve stroke time is short.

Based on these considerations, the continued operation of the plant is considered justified pending replacement of the operator motors.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 03  
PAGE: 27

SYSTEM: RESIDUAL HEAT REMOVAL

COMPONENT I.D.: 10MOV-20 RHR CROSSTIE VALVE OPERATOR  
LIMITORQUE SMB-1-40

This valve motor actuator is electrically disconnected with the exception of its internal position switches. The position switches are identical to those in other fully qualified Limitorque valve operators. Completion of the qualification for this item requires an administrative change to an existing qualification program to include this valve operator.

Continued operation is, therefore, considered justified pending completion of this program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 3  
PAGE: 37

SYSTEM: RESIDUAL HEAT REMOVAL (10)

COMPONENT I.D.: 10MOV-32, CONTAINMENT ISOLATION VALVE

The actuator performs its function during the initial seconds of a postulated accident to provide containment isolation, simultaneously with any increase in containment temperature, pressure, or radiation level. Qualification data for similar Limitorque actuators indicate a thermal lag before ambient temperatures affect internal temperatures and acceptable performance in these environments.

The isolation function for this valve is also performed by a redundant qualified motor operated valve located outside the containment and which does not experience the accident environment during the isolation period.

For these reasons, continued operation with this valve is considered justified pending motor replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 8

PAGE: 16

SYSTEM: REACTOR WATER CLEANUP (RWCU)

COMPONENT I.D.: 12MOV-15 - RWCU INBOARD  
CONTAINMENT ISOLATION VALVE OPERATOR  
LIMITORQUE

The actuator performs its function during the initial seconds of a postulated accident to provide containment isolation, simultaneous with any increase in containment temperature, pressure, or radiation level. Qualification data for similar Limitorque actuators indicate a thermal lag before ambient temperatures affect internal temperatures and acceptable performance in these environments.

The isolation function for this valve is also performed by a redundant qualified motor operated valve located outside the containment and which does not experience the accident environment during the isolation period.

Post-HELB, this operator is required to isolate postulated RWCU line breaks but is located remote from the accident environment.

For these reasons, continued operation with this valve is considered justified pending motor replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 14  
PAGE: 3

SYSTEM: REACTOR CORE ISOLATION COOLING (13)

COMPONENT I.D.: 13FS-57 PUMP DISCHARGE LOW FLOW SWITCH

The ongoing qualification program for this component has identified type test data directly applicable for this component. Temperature, humidity, and radiation test data surpasses the postulated post-HELB environmental parameters which this component will experience in its limited operating time (6 hours). Post-HELB this component is only required to maintain electrical integrity and does not have to function.

Post-LOCA the only harsh environment parameter is radiation. A radiation threshold analysis and test data indicates that no materials will experience radiation damage at the  $5 \times 10^5$  rads integrated dose. The expected life at 104°F for the limiting material relative to thermal aging is greater than the life of the plant.

Based on this data, continued operation is considered justified pending final qualification.



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 14  
PAGE: 8

SYSTEM: REACTOR CORE ISOLATION COOLING (RCIC)

COMPONENT I.D.: 13MOV-16 RCIC OUTBOARD STEAM ISOLATION VALVE  
LIMITORQUE SMB-00-10

The valve actuator is identical to other Limitorque actuators qualified for postulated accident temperature transients up to 250°F. For a postulated line break of the HPCI or RCIC steam lines, a temperature transient exceeding 250°F can be postulated for up to 35 seconds. For this break, closure of this valve will isolate the source of the steam. Isolation can also be performed by a redundant fully qualified valve operator located inside primary containment (remote from the accident environment). Qualification is complete for all other environmental parameters.

Following postulated small break LOCA's inside primary containment this valve would open to admit steam to the RCIC turbine and later isolate following RCIC operations. For this accident, the valve operator is fully qualified and located remote from the direct accident environment.

Based on the above, continued operation is considered justified pending valve actuator replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 14  
PAGE: 30, 31, 32

SYSTEM: REACTOR CORE ISOLATION COOLING (13)

COMPONENT I.D.: 13PS-67A, B RCIC PUMP LOW SUCTION PRESS. SW.  
13PS-72A, B TURB. EXHAUST HIGH PRESS. SW.

When these pressure switches are required to perform their safety function, their environment is mild. When their environment is harsh the only requirement on the switches is that they must not ground as they are powered from circuits that also power other safety-related equipment.

The switches have successfully passed a type test environmental qualification test program. The Authority still has to evaluate the switch specific environmental conditions to complete switch qualification for this plant.

Based on the above information, continued operation with these switches is considered justified pending completion of the environmental qualification program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 14  
PAGE: 33

SYSTEM: REACTOR CORE ISOLATION COOLING (13)

COMPONENT I.D.: 13PS-78A-D TURB. EXHAUST DIAPHRAGM HIGH  
PRESSURE SWITCH

When these position switches are required to perform their safety function, their environment is mild. When their environment is harsh the only requirement on the switches is that they must not ground as they are powered from circuits that also power other safety-related equipment.

The switches have successfully passed a type test qualification test program. The Authority still has to evaluate the switch specific environmental conditions to complete qualification for this plant.

Based on the above information, continued operation with these switches is considered justified pending completion of the environmental qualification program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 14  
PAGE: 14, 15,  
16

SYSTEM: RCIC (13)

COMPONENT I.D.: 13MOV-39, 41, -131 - VARIOUS RCIC MOTOR  
OPERATED VALVES (DC)  
LIMITORQUE SMB-000-5 and SMB-00-10

These valve actuators perform their intended safety function in mild environments. However, they must maintain electrical insulation integrity during harsh environments following postulated breaks of the RCIC steam line until the break is isolated by the RCIC isolation circuitry. These actuators are identical to other fully qualified Limitorque actuators with the exception of the DC drive motor. Since energization of this motor is not required to mitigate a postulated RCIC steam line break, motor failures will not impact the isolation of the line break. This forms the basis for the ongoing qualification program.

Based on the above, continued operation is considered justified pending completion of the qualification program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 14  
PAGE: 5

SYSTEM: REACTOR CORE ISOLATION COOLING

COMPONENT I.D.: 13LS-12 BAROMETRIC CONDENSER  
TANK LEVEL SWITCH

This switch performs its safety related design function in a mild environment. However, the existing system logic design incorporates common electrical fusing for this item and other harsh environment electrical equipment requiring qualification. The main concern for this switch is that it does not lose its insulation resistance to ground when exposed to harsh environment, de-energizing other safety related equipment.

In a postulated HELB, isolation of affected lines is detected and the isolation signal provided within a matter of seconds. The probability that this switch could develop a significant ground within this short time is extremely small.

For these reasons, continued operation with this switch in the plant is considered justified pending replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION:----

PAGE:-----

SYSTEM: REACTOR CORE ISOLATION COOLING (13)

COMPONENT I.D.: 13PNS-LS4 TURB. TRIP THROTTLE  
VALVE POSITION SWITCH

When this position switch is required to perform its safety function, its environment is mild. When its environment is harsh the only requirement on the switch is that it must not ground as it is powered from circuits that also power other safety-related equipment.

The switch has successfully passed a type test environmental qualification test program. The Authority still has to evaluate the switch specific environmental conditions to complete qualification for this plant.

Based on the above information, continued operation with this switch is considered justified pending completion of the environmental qualification program.



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 11  
PAGE: 3

SYSTEM: REACTOR BUILDING CLOSED LOOP COOLING (15)

COMPONENT I.D.: 15MOV-103 - DRYWELL COOLER ASSEMBLY  
"8" SUPPLY VALVE OPERATOR  
LIMITORQUE SMB-000-2

This valve actuator may be required to operate in order to provide an alternate cooling water source to the drywell fan coolers following a postulated HELB. Since no credit is taken for the drywell coolers in LOCA analyses, these valves would not be required to operate for this postulated accident.

This valve actuator is fully qualified for the postulated HELB environment up to 250°F. However, the specific environment for this motor exceeds this qualified temperature by 23° for a total of 15 minutes. If this actuator was required, due to its relatively short operating time (<1 minute), operation can be assured with high probability.

Based on the above, continued operation is considered justified pending motor replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 31  
PAGE: 3, 4

SYSTEM: CONTAINMENT SYSTEM (16)

COMPONENT I.D.: 16-1PNS-101A, B DIFFERENTIAL PRESSURE TRANSMITTER  
16-1PNS-102A, B ISOL. VALVE POSITION SWITCH

These position switches are required to function during the initial seconds of a postulated accident, to provide position information on primary containment isolation valves.

The valves isolate small instrument lines and "fail shut" in the event of a power failure. The position switches and their valves are located outside the containment and thus are not exposed to any significant change in their environment due to the postulated LOCA.

For this reason, continued operation is considered justified pending replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 31  
PAGE: 5, 6

SYSTEM: CONTAINMENT SYSTEM (16)

COMPONENT I.D.: 16-1SOV-101A, B DIFFERENTIAL PRESSURE TRANSMITTER  
16-1SOV-102A, B ISOL. VALVE PILOT SOLENOID

These pilot solenoid valves are required to function during the initial seconds of a postulated accident, to actuate air operated valves to isolate small instrument lines. The valves are located outside the primary containment and thus are not exposed to any significant change due to the postulated LOCA.

For this reason, continued operation is considered justified pending replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: ----  
PAGE: ----

SYSTEM: CONTAINMENT SYSTEM (16)

COMPONENT I.D.: 16-1RTD-107, -108 - DRYWELL AMBIENT  
TEMPERATURE DETECTOR

The materials in the RTD's which may be subject to deterioration due to the harsh environment are the RTD mandrel, the lead wire insulation and the terminal blocks. However, considering the low voltage levels in these circuits (millivolt range), the RTD's can be expected to function even after exposure to the harsh environment from a postulated accident.

In addition, there are a large number of thermocouples also measuring drywell ambient temperature, which provides a large measure of redundancy and diversity.

For these reasons, continued plant operation with these sensors is considered justified pending completion of the qualification program.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 26  
PAGE: 1-6SYSTEM: RADIATION MONITORING (17)

COMPONENT I.D.: a. 17RE-50A, B - STACK EXHAUST EFFLUENT  
MONITOR (LOW RANGE)  
17RE-53A, B - STACK EXHAUST EFFLUENT  
17RE-53A, B MONITOR (HIGH RANGE)

b. 17RE-431, -432 TURBINE BLDG. EXH.  
EFFLUENT MONITOR (LOW  
RANGE)  
17RE-434A, B - TURBINE BLDG. EXH.  
17RT-434A, B EFFLUENT MONITOR (HIGH  
RANGE)

c. 17RE-458A, B - RADWASTE BLDG. EXH.  
EFFLUENT MONITOR (LOW  
RANGE)  
17RE-463A, B - RADWASTE BLDG. EXH.  
17RT-463A, B EFFLUENT MONITOR (HIGH  
RANGE)

These monitors provide for measurement of post-accident plant effluents for release assessment. This equipment is located remote from the plant areas experiencing direct postulated accident environments. However, sample stream radiation levels can result in higher than normal radiation levels in the area of this instrumentation. Both the high and low range units are specifically designed to measure the required range of radioactivity. The high range units are also shielded to protect its electronic components from the accident stream radiation.

Based on this data, continued operation is considered justified pending completion of re-analysis of the shielding design for these units.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 8  
PAGE: 42, 43

SYSTEM: RADWASTE (20)

COMPONENT I.D.: 20SOV-83, 20SOV-95 DRYWELL FLOOR DRAIN SUMP  
OUTBOARD ISOL. VALVE PILOT SOLENOID

The Radwaste solenoid operated valves are required to function short term for primary containment isolation during a postulated LOCA. The exposure to this accident environment requires the valves to operate in an elevated radiation environment. No significant temperature or pressure increases are postulated for the location of the solenoid valves due to the LOCA event. In addition, the solenoid valve is required to de-energize in the performance of its safety related function, i.e., the valve is "fail safe". Based on the short term operational requirement of the valve, and that failure of this device would not cause degradation of any safety function, continued operation is considered justified pending replacement.



## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 8  
PAGE: 44SYSTEM: RADWASTE (20)COMPONENT I.D.: 20PNS-83, 20PNS-95 DRYWELL FLOOR DRAIN SUMP  
OUTBOARD ISOL. VALVE POSITION SWITCH

The Radwaste position switches are required to function short term for indication of primary containment isolation following a postulated LOCA. The valves on which these switches are installed fail safe on loss of power. Therefore, there can be high confidence in the position of these valves without relying on the functioning of these position switches. The exposure to this accident environment requires the switches to operate in an elevated humidity and radiation environment. No significant temperature or pressure increases are postulated for the location of the position switches due to the LOCA event. A preliminary assessment based on the testing of the similarly constructed position switches reveals that no detrimental effects to the position switch operability should occur at the postulated accident radiation levels. For these reasons, continued operation is considered justified pending replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 12  
PAGE: 4

SYSTEM: HIGH PRESSURE COOLANT INJECTION (23)

COMPONENT I.D.: 23FS-78 HPCI LOW-FLOW PRESSURE  
SWITCH

The ongoing qualification program for this component has identified type test data directly applicable for this component. Temperature, humidity, and radiation test data surpasses the postulated post-HELB environmental parameters which this component will experience in its limited operating time (6 hours). Post-HELB this component is only required to maintain electrical integrity and does not have to function.

Post-LOCA the only harsh environment parameter is radiation. A radiation threshold analysis and test data indicates that no materials will experience radiation damage at the  $5 \times 10^5$  rads integrated dose. The expected life at 104°F for the limiting material relative to thermal aging is greater than the life of the plant.

Based on this data, continued operation is considered justified pending final qualification.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 12

PAGE: 11

SYSTEM: HIGH PRESSURE COOLANT INJECTION

COMPONENT I.D.: 23MOV-14 HPCI TURBINE STEAM INLET  
ISOLATION VALVE OPERATOR

This valve actuator performs its intended safety function in a mild environment. However, it must maintain electrical insulation integrity during harsh environment conditions following postulated breaks of the HPCI steam line until the break is isolated by the HPCI isolation circuitry. This actuator is identical to other fully qualified Limitorque actuators with the exception of the DC drive motor. Since energization of this motor is not required to mitigate a postulated HPCI steam line break, motor failure will not impact the isolation of the line break. This forms the basis for the ongoing qualification program.

Based on the above, continued operation is considered justified pending completion of the qualification program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION:-----  
PAGE:-----

SYSTEM: HIGH PRESSURE COOLANT INJECTION

COMPONENT I.D.: 23LS-99 GLAND SEAL COND. HOTWELL LEVEL SW.  
23LS-100 GLAND SEAL COND. HOTWELL HIGH LEVEL SW.

This switch performs its safety related design function in a mild environment. However, the existing system logic design incorporates common electrical fusing for this item and other harsh environment electrical equipment requiring qualification. The main concern for this switch is that it does not lose its insulation resistance to ground when exposed to harsh environment, de-energizing other safety related equipment.

In a postulated HELB, isolation of affected lines is detected and the isolation signal provided within seconds. The probability that this switch could develop a significant ground within this short time is extremely small.

For these reasons, continued operation is considered justified pending replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 12  
PAGE: 30

SYSTEM: HIGH PRESSURE COOLANT INJECTION (23)

COMPONENT I.D.: 23PNS-LS4 HPCI TURB. STOP VALVE  
POSITION SWITCH

When this position switch is required to perform its safety function, its environment is mild. When its environment is harsh the only requirement on the switch is that it must not ground as it is powered from circuits that also power other safety-related equipment.

The switch has successfully passed a type test environmental qualification test program. The Authority still has to evaluate the switch specific environmental conditions to complete qualification for this plant.

Based on the above information, continued operation is considered justified pending completion of the environmental qualification program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 12  
PAGE: 43, 44  
50, 51

SYSTEM: HIGH PRESSURE COOLANT INJECTION (23)

COMPONENT I.D.: 23PS-84A, B HPCI PUMP LOW SUCTION PRESS. SW.  
23PS-97A, B TURB. EXHAUST HIGH PRESS. SW.

When these position switches are required to perform their safety function, their environment is mild. When their environment is harsh the only requirement on the switches is that they must not ground as they are powered from circuits that also power other safety-related equipment.

The switches have successfully passed a type test environmental qualification test program. The Authority still has to evaluate the switch specific environmental conditions to complete switch qualification for this plant.

Based on the above information, continued operation is considered justified pending completion of the environmental qualification program.



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 9  
PAGE: 2

SYSTEM: PRIMARY CONTAINMENT ATMOSPHERE  
CONTROL/MONITORING

COMPONENT I.D.: 27E/P-103A, B N<sub>2</sub> FLOW TO CONTAINMENT  
ELECTRO-PNEUMATIC CONVERTER FOR  
27FCV-103A, B

These instruments are utilized to control the flow of nitrogen to the containment following a postulated LOCA inside containment. This equipment is not exposed to the direct LOCA environment but to secondary environmental effects in the Reactor Building (radiation, elevated temperature).

Alternate methods are available for establishing nitrogen flow to the containment for venting purposes should this electro-pneumatic converter fail which utilizes fully qualified equipment in the Reactor Building in conjunction with manual control of the nitrogen flow from a mild environment (CAD Building).

For these reasons, continued operation is considered justified, pending completion of the qualification program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 9

PAGE: 34

SYSTEM: PRIMARY CONTAINMENT ATMOSPHERE CONTROL/MONITORING

COMPONENT I.D.: 27PS-110A, 8 DRYWELL VACUUM BREAKER ISOLATION  
SIGNAL PRESSURE SWITCH

When these pressure switches are required to perform their safety function, their environment is mild. When their environment is harsh the only requirement on the switches is that they must not ground as they are powered from circuits that also power other safety-related equipment.

The switches have successfully passed a type test environmental qualification test program. The Authority still has to evaluate the switch specific environmental conditions to complete switch qualification for this plant.

Based on the above information, continued operation is considered justified pending completion of the environmental qualification program.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 9  
PAGE: 67SYSTEM: PRIMARY CONTAINMENT ATMOSPHERE CONTROL/MONITORINGCOMPONENT I.D.: 27DWA-HTA, HTB - CONTAINMENT ATMOSPHERE  
MONITORING HEAT TRACING  
SYSTEM INCLUDING 27RTD-102A1,  
-B1, -A2, -B2 and 27RTD-107A1,  
B1, A2, B2

This system would be required to be functional to minimize the moisture content of containment atmosphere samples required for H<sub>2</sub> and O<sub>2</sub> monitoring following postulated LOCA accidents. This equipment is located remote from the direct accident environment and would experience secondary environmental effects (radiation and slightly elevated temperature).

The H<sub>2</sub> Analyzer System is presently being replaced with a fully qualified H<sub>2</sub> analyzer and fully qualified heat trace system. This new H<sub>2</sub> system will be installed and operational prior to startup following the June, 1983 refueling outage.

The O<sub>2</sub> Analyzer System will not be replaced with a fully qualified unit until the 1985 refueling outage. Operation with the existing O<sub>2</sub> Analyzer System and heat tracing is considered justified because JAF operates with an inerted containment (nitrogen) and following a postulated accident there is no source for oxygen generation. The containment would be completely isolated from all sources of outside air. In addition, all instrument piping uses nitrogen instead of air for normal operations. Therefore, hydrogen concentration would be the only parameter required for assessing the need for containment venting.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 8  
PAGE: 23

SYSTEM: MAIN STEAM AND MAIN STEAM LEAK COLLECTION SYSTEM (29)

COMPONENT I.D.: 29MOV-74 - MAIN STEAM LINE DRAIN INBOARD  
ISOLATION VALVE OPERATOR

The actuator performs its function during the initial seconds of a postulated accident to provide containment isolation, simultaneously with any increase in containment temperature, pressure, or radiation level. Qualification data for similar Limitorque actuators indicate a thermal lag before ambient temperatures affect internal temperatures and acceptable performance in these environments.

The isolation function for this valve is also performed by a redundant motor operated valve located outside the containment and which does not experience the accident environment during the isolation period.

For these reasons, continued operation is considered justified pending motor replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION:----  
PAGE:-----

SYSTEM: MAIN STEAM AND MAIN STEAM LEAK  
COLLECTION SYSTEM (29)

COMPONENT I.D.: 29MOV-77 MAIN STEAM LINE DRAIN OUTBOARD  
ISOLATION VALVE OPERATOR

The valve actuator is identical to other Limitorque actuators qualified for postulated accident temperature transients up to 250°F. The valve actuator is required to operate at the onset of a postulated LOCA. The valve is located outside the containment, thus the valve environment will not significantly change during valve actuator operation.

In addition, the isolation function for this valve is also performed by a redundant motor operated valve inside the containment.

For these reasons, continued operation is considered justified pending completion of the qualification program.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
 ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 8  
 PAGE: 45-49

SYSTEM: MAIN STEAM AND MAIN STEAM LEAK  
COLLECTION SYSTEM

COMPONENT I.D.: 20MOV-200A, B LEAK COLLECTION SYSTEM MASTER  
ISOL. VALVE OPERATOR  
20MOV-201A, B LEAK COLLECTION SYSTEM TO STANDBY  
GAS ISOLATION VALVE OPERATOR  
20MOV-202A, B LEAK COLLECTION SYSTEM TO STANDBY  
GAS BACKUP ISOLATION VALVE OPERATOR  
20MOV-203A, B MSIV STEAM PACKING ISOL. VALVE OP.  
20MOV-204A, B LEAK COLLECTION SYSTEM BACKUP DRAIN  
VALVE OPERATOR

These valve actuators are similar to other Limitorque actuators qualified for postulated HELB accident transients in the Reactor Building. However, these valves are only required to function after a postulated LOCA during which the local harsh environmental conditions consist of slightly elevated temperature, high radiation, and a slow humidity transient. The only outstanding item to final qualification is a verification from the equipment vendor that a previously completed qualification program applies to these actuators (i.e., motors). The design of these actuators and the motor insulation design (Class B) are the same as for fully qualified actuators.

Based on the above, continued operation is considered justified pending completion of the qualification program.



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 8  
PAGE: 49,50

SYSTEM: MAIN STEAM & MAIN STEAM LEAK COLLECTION SYSTEM  
(MSLCS) (29)

COMPONENT I.D.: 29PS-201A, B LEAK COLLECTION SYSTEM  
29PS-202A, B HIGH PRESSURE SWITCH

These MSLCS pressure switches are required to function following a postulated LOCA. The exposure to this accident environment requires the switches to function in an elevated radiation environment. No significant temperature or pressure increases are postulated for the locations of the pressure switches. A preliminary assessment, based on type testing of similar switches, reveals that no detrimental effects to the switches' operability should occur at the postulated radiation levels during and after the postulated DBE.

For these reasons, continued operation is considered justified pending final qualification.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 10  
PAGE: 5, 6SYSTEM: REACTOR BUILDING VENTILATIONCOMPONENT I.D.: 66HV-3A, B CRESCENT AREA UNIT COOLER  
LOCAL CONTROL PANEL

These panels are located in the Reactor Building. The components in the panels that may be subject to deterioration from postulated harsh accident ambient conditions are wire, terminal boards, and heavy duty GE Type SBM manual switches. For a postulated LOCA the panels will be required to maintain circuit continuity only. The panel ambients may have slightly elevated temperatures, and short duration humidity transients. These conditions are not considered to present any problem for panel functioning. The postulated radiation levels (180 days) is  $2.1 \times 10^4$  Rads which is less than the damage threshold for the materials in the panel (SIS wire, wood floor phenolic, terminal blocks, and phenolic switches).

For a postulated HELB the panels will also be required to maintain circuit continuity only. The external panel ambients will experience temperature transients above  $175^\circ\text{F}$  for 5-10 minutes and an integrated radiation dose of  $<10^3\text{R}$ . The panel construction will protect the terminal boards and switches from direct moisture impingement and condensation. These conditions are not considered to present any problems for proper functioning of panel components. In addition, after most postulated HELB accidents the Reactor Building would be accessible for corrective maintenance within a short time after onset of accident.

For these reasons, continued operation is considered justified pending modification of panels.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 13  
PAGE: 2

SYSTEM: REACTOR BUILDING VENTILATION (66)

COMPONENT I.D.: 66UC22A-K FAN MOTORS

The Crescent Area Unit cooler motors are Severe Duty Motors mounted within totally enclosed air-over enclosures (TEAO). The motors are designed to operate in a continuous ambient of 150°F with 100% relative humidity. The maximum temperature in the Crescent Area after a postulated LOCA is 110°F and for a HELB a temperature transient above 150°F for 10 minutes occurs. However, the motors will not experience these temperatures as they are in-duct mounted downstream of the cooling coils. The maximum integrated radiation exposure in Crescent Area is  $6.9 \times 10^6$  R. Testing of similar motors with same class insulation shows no significant degradation of insulation due to these levels of radiation.

Continued operation is considered justified pending completion of the qualification program.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: ---  
PAGE: ---

SYSTEM: DRYWELL COOLING SYSTEM (68)

COMPONENT I.D.: 68TE-201 thru 212 DRYWELL  
68TE-301 thru 310 THERMOCOUPLES

The materials in these thermocouples consist of metal (Cu-Const), ceramic insulators, and a pressed asbestos terminal block with material trade name "Hemit". The ceramic insulators are aging and radiation insensitive and the "Hemit" material which is good up to 400°C is also listed as aging and radiation insensitive.

In addition, there are a total of twenty-six (26) thermocouples sensing drywell air temperature which provides a large measure of redundancy.

For these reasons, continued operation is considered justified pending replacement.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 22

PAGE: 1, 2

SYSTEM: ELECTRICAL SYSTEM (71)

COMPONENT I.D.: 71INV-3A, 3B and 71BAT-3A, 3B  
LPCI INDEPENDENT POWER SUPPLY  
CHARGER/INVERTER

I. Justification for continued operation is provided based on the following:

- a. LOCA (large) - This equipment is located remote from the direct harsh environment of this accident and would perform its intended design function of providing power to the LPCI valve bus prior to the local temperature, radiation, or humidity significantly exceeding normal conditions. The required operating time is less than 3 minutes.
- b. LOCA (small) - This equipment is located remote from the direct accident environment. Although the required operating time is significantly longer for this accident (6 hours maximum), no significant accident radiation exposure is expected due to its elevation in the Reactor Building and minimal fuel damage that is postulated for this accident. The long term temperature does not significantly increase above normal (110°F).

c. HELB

- A method of plant depressurization and cooldown following a postulated HPCI or RCIC steam line break is described in NEDO-24297, Revision 1 ("High Energy Line Break Evaluation for the James A. FitzPatrick Nuclear Power Plant" dated October, 1980), Section 6.2.2. This method of plant cooldown requires manual depressurization of the reactor using the Automatic Depressurization System (ADS) while restoring and maintaining water level using one of the two Core Spray Pumps. Based on this analysis, there would be some core heat-up, however, there would be considerable margin to the 10CFR50, Appendix K limit of 2200°F peak clad temperature (PCT).

Following a RWCU line break, HPCI and RCIC Systems located in the Crescent Area experience an insignificant change in environmental conditions (5°F rise for less than 30 seconds, and a 0.5 psig pressure rise for less than 30 seconds).

Therefore, these systems will remain functional to provide high pressure cooling. Following depressurization using RCIC or HPCI, reactor inventory can be maintained using one of two Core Spray Pumps. Refer to NEDO-24297, Revision 1 (Section 6.2.4).

- II. In addition, post-HELB temperature/pressure analyses are extremely conservative.
- III. Based on the above analysis, continued operation is considered justified pending full qualification or electrical system modifications.



ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 23  
PAGE: 17-20

SYSTEM: ELECTRICAL POWER (71)

COMPONENT I.D.: 71ACA5, B5 - 120 VAC DISTRIBUTION PANEL  
PT-71ACA5, B5 INCLUDING 600/120 VAC TRANSFORMER

These panels power 2 electrical loads which may be required to mitigate postulated design basis accidents.

LOAD

- a. 27NS-CA, CB - Nitrogen Instrument Supply Cabinet
- b. 71INV-3A, 3B - LPCI Independent Power Supply Control Power
- 1. 27NS-CA, CB - These panels provide 120VAC power to various instruments and control components associated with the nitrogen containment Air Dilution (CAD) System. This equipment would only be required to perform its intended design function following a postulated LOCA inside primary containment. These electrical panels would not be exposed to the direct accident environment but would be exposed to secondary environmental effects on elevation 300' of the Reactor Building. This accident environment would consist of a mild increase in temperature (110°F maximum), a mild humidity transient, and radiation ( $3.0 \times 10^5$  Rads).

Distribution breakers of similar design have been shown by type testing to withstand radiation doses of  $4.4 \times 10^5$  rads. In addition, since the electrical circuits are loaded to a maximum of 80% of its trip rating by design (40-104°F), operation at a maximum temperature of 110°F will not trip the breaker.

2. 71INV-3A, 3B - This load is the control power supply for the LPCI independent power supply charger/inverter logic. This power source is only required for startup of the LPCI charger/inverter. Once output voltage is established, failure of the external power source to the control logic will not affect inverter operation.

Based on the above reasons, continued operation is considered justified pending relocation of these loads to a distribution panel in a mild environment.

ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENT

JUSTIFICATION FOR CONTINUED OPERATION

SECTION: 20  
PAGE: 2

SYSTEM: MISCELLANEOUS

COMPONENT I.D.: CINCH JONES (TB) TERMINAL BLOCK IN A  
GASKETED STEEL JUNCTION BOX

1. Refer to the justification for continued operation provided for items 20 (1, 3, 4, 5, 6, 7).
2. Five boxes have been identified which have a Cinch Jones (30A) terminal block instead of a General Electric block. The physical design of these blocks and materials are similar to the qualified General Electric terminal blocks. The Cinch Jones blocks are one piece, molded, 12 point (30A) manufactured of general purpose black phenolic. They are designed for a continuous rating of 250°F and have a threshold for radiation damage greater than  $1.0 \times 10^6$  R.
3. Based on the above, continued operation is considered justified pending terminal block replacement.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 20  
PAGE: 1,3,4  
5,6,7SYSTEM: MISCELLANEOUSCOMPONENT I.D.: GE EB-5, -25 TERMINAL BLOCK IN A  
GASKETED STEEL JUNCTION BOX

Qualification type testing for a full post-LOCA containment environment applies to this device. The only difference between the tested configuration and the installed configuration is the presence of a 1/4" weep hole for condensation drainage. These junction boxes are located in the Reactor Building at JAF which experiences significantly milder postulated post-accident environments. The 1/4" weep hole has been provided in Reactor Building boxes which experience post-accident pressure transients greater than 0.8 psig.

Post-LOCA, the Reactor Building environment consists of a maximum temperature of 110°F, no pressure increase, a slow humidity transient, and postulated high radiation exposure. There should be no degradation of performance for these environmental conditions based on the type test data and a radiation threshold and thermal aging analysis performed on the terminal block materials.

Post-HELB, the Reactor Building temperature transients at some locations are harsh, but not to the extremes and duration of the LOCA type-testing for this junction box configuration. There is insufficient moisture present in the sealed junction boxes such that a significant condensate drainage would be expected.

Based on the above, continued operation is considered justified pending drilling of weep holes in all junction boxes.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATIONSECTION: 15  
PAGE: 5SYSTEM: MISCELLANEOUSCOMPONENT I.D.: JB-X-101-E ELECTRICAL PENETRATION  
GENERAL ELECTRIC - CANNISTER TYPE

This penetration is identical to other fully qualified electrical penetrations installed at the JAF Plant. The only safety-related circuits wired through this penetration are associated with the safety-relief valve acoustical monitoring system (NUREG-0578, -0737) whose qualification status and JCO is provided under System 02 (36/2, 3, 4). Following completion of the qualification testing program, the entire acoustical monitoring system will be upgraded to the fully qualified status for all components of the system located in postulated accident harsh environments.

In the interim, a backup method of SRV position indication is provided by a temperature sensing system (thermocouple) installed on each relief valve discharge pipe. High temperature detected on each discharge line is alarmed and indicated in the Control room. These thermocouples are designed to measure temperatures under harsh environment conditions.

In addition, there are other methods available to the operator to detect a stuck-open relief valve (water level, reactor pressure) which will also automatically initiate protection and ECCS systems.

Based on the above, continued operation is considered justified pending completion of the ongoing qualification program and planned system upgrade to a fully qualified condition.

## ENCLOSURE (3)

JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED EQUIPMENTJUSTIFICATION FOR CONTINUED OPERATION

SECTION:-----

PAGE:-----

SYSTEM: MISCELLANEOUS (JUNCTION BOXES)COMPONENT I.D.: N/A

A concern was expressed in the original NRC SER response of potential implosion of junction boxes due to postulated HELB pressure spikes. Due to the design and installation of the boxes and the connecting conduit raceway system which provides adequate vent paths implosion will not occur. In addition, junction boxes with a 1/4 inch "weep hole" are used at JAF at all locations where the pressure increase will be greater than .8 psi. It has been demonstrated by type test that boxes of similar construction have successfully withstood accident conditions with a pressure spike of up to 40 psig without implosion while the internal terminal block maintained the required electrical continuity and insulation resistance. Therefore, continued operation with these junction boxes is considered justified pending final qualification.