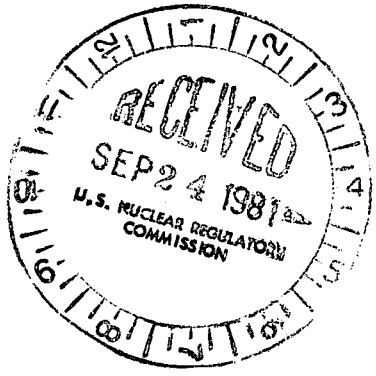
**John D. O'Toole**
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, NY 10003
Telephone (212) 460-2533

Letter No. 81-147
September 4, 1981

Re: Indian Point Unit No. 2
Docket No. 50-247




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

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

Dear Mr. Varga:

This letter is in response to your letter of May 21, 1981 regarding Environmental Qualification of Safety Related Electrical Equipment as modified by your letter of June 25, 1981. Our 90 day response to your Safety Evaluation is enclosed as Attachment 1. Your staff has approved extension of the response to this date.

With regard to my letters of April 13, 1981 and January 14, 1981, a tabulation of the Environmental Qualification data for Cold Shut-down Equipment is enclosed as Attachment 2. Your staff has approved submittal of this data coincident with our 90 day response.

Should you or your staff have any questions, please contact us.

Very truly yours,

William P Bennett/jm
John D. O'Toole

Attachments

A048
S/1
LIMITED DISTRIBUTION

CONSOLIDATED EDISON COMPANY

OF NEW YORK

INDIAN POINT POWER STATION UNIT NO. 2

I. E. BULLETIN 79-01B SER RESPONSE

ATTACHMENT 1

# Environmental Qualification 90 Day Response to NRC Safety Evaluation for Safety-Related Electrical Equipment

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
Facility Operating License No. DPR-26
September, 1981

INDIAN POINT 2

Table of Contents

INDIAN POINT 2

APPENDIX B

| (TAB) | TER ITEM | EQUIPMENT |
|---|---|---|
| (1) | 3 | Limitorque MOV |
| (2) | 15A, 16 | Foxboro Transmitter |
| (3) | 15D | Foxboro Transmitter |
| (4) | 35 | Westinghouse Electric Motor |
| (5) | 36 | Westinghouse Electric Motor |
| (6) | 40A | GE/Raychem Cable/Splice |
| (7) | 40B | Kerite/Raychem Cable/Splice |
| (8) | 40D | Lewis Cable |
| (9) | 41 | Rosemount RTD |
| (10) | 42A | Westinghouse CTL PNL Recombiner |
| (11) | 8 | GEMS Level Switch |
| (12) | 9 | Foxboro Transmitter |
| (13) | 11A | Foxboro Transmitter |
| (14) | 11B | Foxboro Transmitter |
| (15) | 12 | Foxboro Transmitter |
| (16) | 14A | Foxboro Transmitter |
| (17) | 14B | Foxboro Transmitter |
| (18) | 15B, 15C | Foxboro Transmitter |
| (19) | 10, 13 | Foxboro Transmitter |
| (20) | 18, 19, 21, 22A,B, C, 23, 24A,B, 25, 26 | ASCO Solenoid Valves |
| (21) | 20A, B 27 | Laurence Solenoid Valve |
| (22) | 28A, 30, 31A,B,C, 32A,b, 29A,B, 33 | NAMCO Position Switches |
| (23) | 34A | Westinghouse Motor |
| (24) | 37A | Foxboro Transducer |
| (25) | 38 | Westinghouse Terminal Blocks |
| (26) | 39 | Crouse-Hinds Electrical Cable Penetrations |
| (27) | 40C | GE/Raychem Cable/Splice |
| (28) | 42B | Hydrogen Recombiner |
| (29) | -- | Temperature |

SER Section 3.1 Completeness of Safety-Related Equipment

Deficiency:

Several equipment items identified by FRC in the draft interim TER that may be subject to a harsh environment were not addressed by the licensee (RE: Paragraph 4.1.1 of the TER).

Response:

The items identified by the FRC in Section 4.1.1 of the TER are addressed in this SER response.

SER Section 3.2 Service Conditions

Deficiency:

Section 3.2 of the SER requires that the licensee verify that the containment spray system is not subjected to a disabling single component failure.

Response:

The licensee has verified that the containment spray system is not subjected to a disabling single component failure and therefore satisfies the DOR Guideline requirements of Section 4.2.1.

SER Section 3.3 Temperature, Pressure and Humidity Conditions

Deficiency:

In this section of the SER, the Staff indicated that the licensee's service condition of 258°F does not satisfy the requirements for the minimum temperature profile. Furthermore, the Staff indicated that the licensee's specified pressure is low compared to plants of similar design.

Response:

The correct peak pressure is 40.6 psig. The peak temperature reported is the saturation temperature at the steam partial pressure of 36.9 psi. According to the SER, the peak temperature reported should be the saturation temperature corresponding to the total containment pressure to account for margin. The saturation temperature at 55.3 psia is 287°F.

NUREG-0588 Appendix A states that topical report WCAP-8312A is an acceptable method for calculating the mass and energy releases to the containment assuming a LOCA. This WCAP was followed in the Indian Point 2 analysis that resulted in the peak pressure and temperature reported above. The model for heat transfer to the containment heat sinks used in the analysis is in agreement with Appendix B.1 of NUREG-0588.

The references and assumptions can be found in WCAP-8312A (non-proprietary) or WCAP 8264 (Proprietary) for the mass and energy release analysis and in WCAP-7155 for the containment pressure transient analysis.

The equipment summary tables have been updated to reflect this change in specified qualification temperature. Individual equipment reviews have been conducted to ensure that equipment meets the new staff requirement for containment temperature. Justifications have been provided where necessary.

## Section 3.4 Temperature, Pressure and Humidity Conditions Outside Containment

Deficiency:

The licensee has used ambient temperature conditions in some areas outside containment. The Staff considers saturation temperature at the peak pressure resulting from a HELB as the minimum level for acceptance. The licensee should update his summary tables to reflect this change.

Response:

The HELB environments outside containment were addressed in Appendix B of the May 1980 submittal. The following additional information addressing saturation temperatures for peak pressures is provided as requested.

Aux. Feed Pump Room Accident Conditions

| | |
|---|---|
| Maximum Pressure: | 0.9 psig |
| Saturation Temperature: | 215°F |
| Humidity: | 100% |
| Radiation: | Negligible |
| Chemical Spray: | None |
| Submergence: | None |

Main Feed and Steam Area

| | |
|---|---|
| Maximum Pressure: | 0.42 psig |
| Saturation Temperature: | 213°F |
| Humidity: | 100% |
| Radiation: | Negligible |
| Chemical Spray: | None |
| Submergence: | None |

Reference: Analysis of High Energy Lines in letter from Trotsen to Giambusso dated May 14, 1973.

The equipment summary work sheets have been updated to reflect these changes. Justifications for interim operation are provided where necessary for the individual components in these areas.

## Section 3.5 Submergence

### Deficiency:

The maximum submergence levels have not been established and addressed by the licensee.

### Response:

The licensee has established the maximum flood level to be at elevation 50 feet 1 inch inside containment. Containment floor elevation is 46 feet. The flood level is therefore 4 feet 1 inch above the containment floor.

Indian Point 2 has addressed the question of submergence outside containment as discussed in letters from Indian Point 2 to the NRC in December of 1972 and December of 1980.

Indian Point 2 has verified that no safety related electrical equipment is subject to submergence inside or outside containment.

SER Section 3.7 Aging

The Indian Point 2 facility is in the process of gathering bills of materials from the manufacturers of the necessary components. Once these material lists are accumulated, a detailed comparison of the existing equipment to the materials identified in Appendix C of the DOR Guidelines and other sources will be conducted. Furthermore, in cases where the materials cannot be identified, operating experience and a literature search will be utilized to determine age related degradation. An ongoing program to review surveillance and maintenance records will be established to identify potential age related degradations. Component maintenance and replacement schedules which include consideration of aging characteristics of the installed components will be developed in conjunction with the material evaluations. Appropriate margins will be incorporated in the replacement schedules.

The specific results of these studies and the details of the evaluation/replacement programs will be provided to the Staff as required.

SER Section 3.8 Radiation Inside Containment

The integrated beta and gamma radiation doses calculated at the center of the Indian Point 2 containment building for periods of 30 days and 1 year following a design basis LOCA are summarized as follows:

| | Gamma Dose (Rad) | Beta Dose (Rad) |
|---|---|---|
| 30 days | $1.4 \times 10^7$ | $1.4 \times 10^8$ |
| 1 year | $2 \times 10^7$ | $2 \times 10^8$ |

This data is based on the dose information documented in NUREG-0588 Appendix D and the DOR Guidelines Appendix B. A conservative thirty day dose was derived by use of the nomograms given in the DOR Guidelines. This method was utilized by assuming a containment volume of $2.6 \times 10^6$ $ft^3$ and a reactor power level of 2758 MW for Indian Point 2. The thirty day beta dose was obtained from the information given in Appendix D of NUREG-0588.

The one year beta and gamma doses were predicted by extrapolating the 30 day doses to one year. In order to perform this extrapolation, the information tabulated in Table D-5 and Table D-6 of NUREG-0588 was plotted in order to establish the shape of the curves representing beta and gamma doses with respect to time. These curves were then conservatively extrapolated to one year. The shape of the individual curves were then used to extrapolate the plant specific 30 day doses for beta and gamma radiation to one year. Beta dose to cables will be reduced by 50% as suggested by NUREG-0588.

The post accident operability times assumed for cables are 30 days for instruments and one year for power cables. Total integrated doses for cables are shown below.

Instrument cables - 30 days

$0.7 \times 10^8$ β
$0.14 \times 10^8$ γ
$0.84 \times 10^8$ total

Power cables - one year

$1 \times 10^8$ β
$0.2 \times 10^8$ γ
$1.2 \times 10^8$ total

Instruments and motors are either sufficiently shielded or have such a short post accident requirement that beta radiation exposure is negligible. A factor of 2.7 reduction in total gamma dose may be utilized for equipment outside the crane wall.

With regard to the integrated dose applicable to a contained accident, transport calculations were performed by Westinghouse for a reactor coolant pipe geometry which yield the following post LOCA dose.

| | Gamma Dose (Rad) |
|---|---|
| 1 Year | $1.7 \times 10^8$ |

In this case, beta doses are considered to be insignificant due to shielding afforded by pressure boundary structures.

# APPENDIX A

## Equipment Requiring Immediate Corrective Action

TER Items number 10 and 13 were incorrectly listed in the SER under Appendix A. These items should have appeared in Appendix B. Corrective action has been completed for both of these items as discussed in Appendix B.

# APPENDIX B

## Equipment Requiring Additional Information and/or Corrective Action

Component:

TER Item #: 3
Device: Limitorque MOV
Model: SMB-00 with Class B Motor Insulation
Function: Actuates RHR Loop Flow Control Valves (HVC-638, 640) and RH Exchanger CW Supply Valves (MOV 822 A&B)
Location: Inside Containment

Deficiency:

OM, A, OT

Interim Justification:

The referenced test reports indicate proper valve operation for a period of 8 hours during accident conditions. This valve is not normally used during an accident. However if adjustment for flow is required it will be accomplished immediately following switchover to recirculation. No subsequent failures can cause the valve to change position. Indian Point 2 will verify that the installed valve and motor are similar to the one tested.

Final Resolution:

Due to the limited qualification time for this MOV, it will be replaced at the next outage of sufficient duration.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RH Exchanger CW Supply<br>I.D. NO.: MOV-822B<br>COMPONENT: Valve Actuator<br>MANUFACTURER: Limitorque<br>MODEL NO.: SMB-00 B-Insulation<br>FUNCTION: Positioning Valve<br>ACCURACY:<br>(% OF SPAN) SPEC: N/A<br>DEMON:<br>SERVICE: RH Exchanger CW Supply Valve Control<br>LOCATION: Inside Containment | OPERATING TIME | 8 Hrs. | 8 Hrs. | -- | 3, 4 | Type Test Simultaneous | Note 2 |
| | TEMPERATURE (°F) note 2 | 287 | 287 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) note 2 | 40 | 60 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $1.54 \times 10^8$ | $2 \times 10^8$ | 2 | 3, 4 | Type Test Separate | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph

2 Equipment committed for replacement.

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 70-01B, Attachment 4, Section 4.1.2
3. Limitorque test report B0003.
4. WCAP-7410L

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RH Exchanger CW Supply<br>I.D. NO.: MOV-822A<br>COMPONENT: Valve Actuator<br>MANUFACTURER: Limitorque<br>MODEL NO.: SMB-00<br>FUNCTION: B Insulation Positioning Valve<br>ACCURACY:<br>(% OF SPAN) SPEC: N/A<br>DEMON:<br>SERVICE: RH Exchanger CW Supply Valve Control<br>LOCATION: Inside Containment | OPERATING TIME | 8 Hrs. | 8 Hrs. | -- | 3, 4 | Type Test Simultaneous | Note 2 |
| | TEMPERATURE (°F) note 2 | 287 | 287 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) note 2 | 40 | 60 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $1.5 \times 10^8$ | $2 \times 10^8$ | 2 | 3, 4 | Type Test Separate | N/A |
| | AGING (yrs) | 40 | -- | -- | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph

2. Equipment committed for replacement.

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, Section 4.3.1.2
3. Limitorque test report B0003.
4. WCAP-7410L

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RH Loop Flow Control<br>I.D. NO.: MOV-640<br>COMPONENT: Valve Actuator<br>MANUFACTURER: Limitorque<br>MODEL NO.: SMB-00<br>B Insulation<br>FUNCTION: Positioning Valve<br>ACCURACY:<br>(% OF SPAN) SPEC: N/A<br>DEMON:<br>SERVICE: RH Loop Flow Valve Control<br>LOCATION: Inside Containment | OPERATING TIME | 8 hrs. | 8 Hrs. | -- | 3,4 | Type Test Simultaneous | Note 2 |
| | TEMPERATURE (°F) | 287 | 287 | 1 | 3,4 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) | 40 | 60 | 1 | 3,4 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3,4 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3,4 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $1.54 \times 10^8$ | $2 \times 10^8$ | 2 | 3,4 | Type Test Separate | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Equipment committed for replacement.

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Limitorque test report B0003.
4. WCAP-7410L.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RH Loop Flow Control<br>I.D. NO.:<br>COMPONENT: MOV-638 Valve Actuator<br>MANUFACTURER: Limitorque<br>MODEL NO.: SMB-00<br>FUNCTION: Positioning Valve<br>ACCURACY:<br>(% OF SPAN) SPEC: N/A<br>DEMON:<br>SERVICE: RH Loop Flow Valve Control<br>LOCATION: Inside Containment | OPERATING TIME | 8 Hrs. | 8 HRs. | -- | 3 , 4 | Type Test Simultaneous | Note 2 |
| | TEMPERATURE (°F) | 287 | 287 | 1 | 3 , 4 | Type Test Simultaneous | —<br>N/A |
| | PRESSURE (PSIG) | 40 | 60 | 1 | 3 , 4 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 , 4 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 , 4 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $1.5 \times 10^8$ | $2 \times 10^8$ | 2 | 3 , 4 | Type Test Separate | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph

2. Equipment committed for replacement.

REFERENCES:

1. FSAR Section 14.3
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2
3. Limitorque test report B0003
4. WCAP-7410L.

Component:

TER Item #: 15A and 16
Device: Foxboro Transmitter
Model: 611GM
Function: Main Steam Pressure (PT-419A,B,C; PT-439A,B,C)
Location: Auxiliary Pump Room

Model: 613GM
Function: Main Feedwater Flow (FT-418A,B; 428A,B; 438A,B; 448A,B)
Location: Auxiliary Pump Room

Deficiency:

QM, A, QI

Interim Justification:

Indian Point 2 has established that these transmitters are 50 feet away from any potential pipe break and redundant transmitters would not be subjected to direct impingement during the short period of time required to isolate the break. Therefore, the units are not considered to be in a harsh environment and will perform as normal.

The Auxiliary Pump Room is protected by a temperature switch which actuates at 135°F to isolate the steam to the auxiliary feed pump. Once this switch actuates, the conditions in the room should quickly return to normal in case of an accident. The calculations performed showing 0.9 psig and a saturation temperature of 215°F assume that the temperature switch fails to operate and that the leak remains unisolated.

Even though this temperature switch is presently unqualified, it is felt that in the interim, its operation can be relied upon due to the low actuation temperature setpoint of 135°F. Assuming that this switch does operate in the event of a steam leak, the room conditions should not greatly exceed the 135°F setpoint.

Final Resolution:

The temperature switch relied upon in this accident will be qualified, replaced or modified to ensure its operation prior to June 30, 1982.

The licensee is also evaluating the effect on 1E equipment of the temperature excursion expected in this area as a result of a steam line break. Additional action will be taken by the licensee based on the results of this study. It is anticipated that the results will confirm the belief that the rupture will be isolated by the temperature switch before the critical components of the 1E devices become elevated to temperatures that will affect their operability.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.: PT-419A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 11GM<br>FUNCTION: Main Steam Pressure<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | — | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in Letter Trosten to Giambusso of 5/14/73

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.: PT-419C<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 11-GM<br>FUNCTION: Main Steam Pressure<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in Letter Trosten to Giambusso of 5/14/73

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.: PT-419B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 611 -GM<br>FUNCTION: Main Steam Pressure<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in Letter Trosten to Giambusso of 5/14/73

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.: PT-439A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: C11-GM<br>FUNCTION: Main Steam Prsssure<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitte<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.: PT-439B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 711-GM<br>FUNCTION: Main Steam Pressure<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

15A

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.: PT-439C<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 611-GM<br>FUNCTION: Main Steam Pressure<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitte<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-418A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 613-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitte<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-418B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 513-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: YES NO N/A | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-428A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 13-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY: (% OF SPAN) SPEC:+10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-428B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: G13-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-438A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 613-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-438B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: G13-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-448A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 13-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: ±15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: YES NO N/A | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Main Feedwater<br>I.D. NO.: FT-448B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 613-GM<br>FUNCTION: Main Feedwater Flow<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

Component:

TER Item #: 15D
Device: Foxboro Transmitter
Model: 611GM
Function: AFP Discharge Pressure (PT-406A&B)
Location: Auxiliary Pump Room

Deficiency:

QM, A, QI

Interim Justification:

Indian Point 2 has established that these transmitters are 8-10 feet away from any potential pipe break and redundant transmitters would not be subjected to direct impingement during the short period of time required to isolate the break. Therefore, the units are not considered to be in a harsh environment and will perform as normal.

The Auxiliary Pump Room is protected by a temperature switch which actuates at 135°F to isolate the steam to the auxiliary feed pump. Once this switch actuates the conditions in the room should quickly return to normal in case of an accident. The calculations performed showing 0.9 psig and a saturation temperature of 215°F assume that the temperature switch fails to operate and that the leak remains unisolated.

Even though this temperature switch is presently unqualified, it is felt that in the interim, its operation can be relied upon due to the low actuation temperature setpoint of 135°F. Assuming that this switch does operate in the event of a steam leak, the room conditions should not greatly exceed the 135°F setpoint.

Final Resolution:

The temperature switch relied upon in this accident will be qualified, replaced or modified to ensure its operation prior to June 30, 1982.

The licensee is also evaluating the effect on 1E equipment of the temperature excursion expected in this area as a result of a steam line break. Additional action will be taken by the licensee based on the results of this study. It is anticipated that the results will confirm the belief that the rupture will be isolated by the temperature switch before the critical components of the 1E devices become elevated to temperatures that will affect their operability.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PT-406B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 11-GM<br>FUNCTION: Auxiliary Feedwater Pump Discharge Pressure<br>ACCURACY: (% OF SPAN) SPEC: +10%<br>DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | -- | N/A | N/A<br>N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PT-406A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 611-GM<br>FUNCTION: Auxiliary Feedwater Pump Discharge Pressure<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 5 Min. | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.

Component:

TER Item #: 35
Device: Large Electric Motors
SI Recirculating Pump Drive
Model: Westinghouse 588-5 Frame
Location: Inside Containment

Deficiency:

QI, QM, A

Interim Justification:

A preliminary review has established that the motor tested in the referenced test reports (WCAP's-7829, 7343L) is similar to the installed motors. The motor tested was designed to represent the worst case design of these motors.

Final Resolution:

Additional studies to document a comparison of the insulation system, lubricants, and bearings to the tested motor is underway and will be forwarded when complete. The bearings and lubricants are maintained as recommended by the manufacturer.

These motors will be included in the Indian Point 2 maintenance surveillance program to ensure that significant aging degradation is noted and corrected if it occurs.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Safety Injection<br>I.D. NO.:<br>COMPONENT: Motor<br>MANUFACTURER: Westinghouse<br>MODEL NO.: 588.5PH Frame<br>FUNCTION: Safety Injection Recirculation<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation Pump Motor<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | 30 days | —— | 3 | Type Test Simultaneous | N/A |
| | TEMPERATURE (°F) | 287 | 324 | 1 | 3 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) | 40 .6 | 80 | 1 | 3 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $0.52 \times 10^7$ Note 3 | $1.4 \times 10^8$ | 2 | 3 | Type Test Simultaneous | N/A |
| | AGING (yrs) | 40 | 40 Note 4 | N/A | N/A | N/A | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. 1.43 wt % Boric acid with NaOH to ph of 9.5.
3. Radiation dose base on motor located outside cranewall.
4. 40 Yr. Life obtained through maintenance surveillance program.

REFERENCES:

1. FSAR Section 14.3
2. IE Bulletin 79-01B Attachment 4, Section 4.1.2.
3. Westinghouse Report WCAP 7829.

Component:

TER Item #: 36
Device: Large Electric Motors
Fan Cooler Motor
Manufacturer: Westinghouse 69F97009
Location: Inside Containment

Deficiency:

QI, QM, A

Interim Justification:

A preliminary review has established that the motor tested in the referenced test reports (WCAP's-7829, 7343L) is similar to the installed motors. The motor tested was designed to represent the worst case design of these motors.

Final Resolution:

Additional studies to document a comparison of the insulation system, lubricants, and bearings to the tested motor is underway and will be forwarded when complete. The bearings and lubricants are maintained as recommended by the manufacturer.

These motors will be included in the Indian Point 2 maintenance surveillance program to ensure that significant aging degradation is noted and corrected if it occurs.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Fan Coolers<br>I.D. NO.:<br>COMPONENT: Motor<br>MANUFACTURER: Westinghouse<br>MODEL NO.: 69F97009<br>FUNCTION: Containment Cooling<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Fan Cooler Motor<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | 30 days | —— | 3 | Type Test Simultaneous | N/A |
| | TEMPERATURE (°F) | 287 | 324 | 1 | 3 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) | 40 .6 | 80 | 1 | 3 | Type-Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $0.52 \times 10^7$ Note 3 | $1.4 \times 10^8$ | 2 | 3 | Type Test Simultaneous | N/A |
| | AGING (yrs) | 40 | Note 4 | N/A | N/A | N/A | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N /A | N/A | N/A | N/A | N/A |

NOTES:
1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. 1.43wt% boric acid with NaOH to ph of 9.5.
3. Radiation dose base on motor located outside cranewall
4. 40 Yr. life obtained through maintenance surveillance program.

REFERENCES:
1. FSAR Section 14.3
2. IE Bulletin 79-01B Attachment 4, Section 4.1.2.
3. Westinghouse Report WCAP-7829.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Fan Coolers<br>I.D. NO.:<br>COMPONENT: Motor<br>MANUFACTURER: Westinghouse<br>MODEL NO.: 69F97009<br>FUNCTION: Containment Cooling<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Fan Cooler Motor<br>LOCATION: Inside Containment | OPERATING TIME | 30 Days | 30 days | —— | 3 | Type Test Simultaneous | N/A |
| | TEMPERATURE (°F) | 287 | 324 | 1 | 3 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) | 40.6 | 80 | 1 | 3 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $0.52 \times 10^7$ Note 3 | $1.4 \times 10^8$ | 2 | 3 | Type Test Simultaneous | N/A |
| | AGING (yrs) | 40 | Note 4 | N/A | N/A | N/A | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. 1.43wt% boric acid with NaOH to ph of 9.5.
3. Radiation dose base on motor located outside cranewall.
4. 40Yr. life obtained through maintenance surveillance program.

REFERENCES:
1. FSAR Section 14.3
2. IE Bulletin 79-01B Attachment 4, Section 4.1.2.
3. Westinghouse Report WCAP-7829

Component:

TER Item #: 40A
Device: Cable/Splice
Manufacturer: GE/Ray Chem
Model: NA
Location: In Containment

Deficiency:

QI, A, R

Interim Justification:

Samples of cable were removed from Indian Point 2 and were tested under different programs run by both Westinghouse and the different cable manufacturers. This justification summarizes these tests as well as establishes traceability for manufacturers versus test.

During all of the tests only one failure was reported. This was described in the Westinghouse test report in WCAP-7410L Volume 2 of 2. This failure resulted from apparent steam impingement on the cable splice. Since steam impingement is not a factor on field mounted cables, this failure was not considered relevant.

The test conditions are as follows:

Note: all tests are summarized

1. HELB (WCAP-7410L)

Steam and Chemical Environment
Pressure = 80 psig
Temperature = 300°F
Time = 200 hours, 68 hours at a steam pressure higher than containment design pressure
1.5 weight percent boric acid with NaOH added to yield a pH of 9.25.

2. Radiation and Steam (WCAP-7410L)

Gamma - $2.8 \times 10^7$ Rads followed by exposure to a steam environment of 85 psig for 2(two) - 30 minute cycles.

3. Aging, Steam and Radiation (WCAP-7410L)

40 year equivalent followed by 4 hours of steam at 287°F and 50 psig followed by irradiation exposure to ? x $10^8$ Rads.

4. Radiation and steam (Franklin Institute Report #F-C2442-02)

Gamma - $2.5 \times 10^7$ Rads
328°F, 85 psig

5. Submergence (Phelps-Dodge R&D Repsort #10519)

Submerged in simulated river water for 2 weeks.
IR tests - $4 \times 10^6$ meg ohms.
DC withstand test - 18 KVdc for 15 minutes and 6 KVdc for 5 minutes

6. Radiation and HELB (Franklin Institute Report #F-C2781)

100 MRAD gamma radiation followed by steam and chemical environment

Pressure = 50 psig
Temperature = 298°F
Time = 7 days (12 hours at steam pressure and temperature)

7. Steam and Chemical Spray (Raychem Thermofit Report 71100 Rev. 1)

(250°F, 21 psig, 0.2% Boric Acid Spray for 24 hours).

NOTE: Tests 1 through 4 apply to Kerite cables
Tests 1 through 5 apply to GE cables.
Test 6 applies to Lewis cables
Tests 1 through 7 apply to Raychem splices

The above test data provides sufficient justification for interim operation since no absolute failures occurred as a result of anticipated environmental conditions.

Final Resolution:

The tests reported in WCAP-7410L demonstrate the capability of this cable/splice combination to survive accident conditions in an aged condition. Radiation tests exceeding the requirement were also performed before and after high energy line break test simulations. The successful submergence test was performed on an 8 - 10 year old cable removed from the site for this purpose.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Electrical<br>I.D. NO.:<br>COMPONENT: Cable/Splice<br>MANUFACTURER: GE /Raychem<br>MODEL NO.: Note 4<br>FUNCTION:<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE:<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | 70 days Note 2 | — | 3 | Separate Test | N/A |
| | TEMPERATURE (°F) | 287 | 300 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 80 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 3 | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $1.2 \times 10^8$ | $2 \times 10^8$ | 2 | 3 | Separate Test | NA |
| | AGING (yrs) | 40 Yr. | 40 yrs. | N/A | 3 | Separate Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | assumed | Ref. 4 | N/A | 4 | none | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Based on test reported in WCAP-7410L of 486 hrs. at 214°F (steam) and using 0.5 ev and a ambient of 160°F in the Arrhenius equation.
3. 1.5 percent of boric acid (by weight) in water and adding sodium hydroxide to buffer the ph to a value of 9.25.
4. 600 V Power Cable, Single conductor, silicone rubber insulation, asbestos braid jacket (12, 10, 8) raychem splices.

REFERENCES:


1. FSAR Section 14.3
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.
3. WCAP-7410L
4. Phelps-Dodge R&D report #10519.

Component:

TER Item #: 40B
Device: Cable/Splice
Manufacturer: Kerite/Ray Chem
Model: NA
Location: In Containment

Deficiency:

QI, A, R

Interim Justification:

Samples of cable were removed from Indian Point and were tested under different programs run by both Westinghouse and the different cable manufacturers. This justification summarizes these tests as well as establishes traceability for manufacturers versus test.

During all of the tests only one failure was reported. This was described in the Westinghouse test report in WCAP-7410L Volume 2 of 2. This failure resulted from apparent steam impingement on the cable splice. Since steam impingement is not a factor on field mounted cables, this failure was not considered relevant.

The test conditions are as follows:

Note: all tests are summarized

1. HELB (WCAP-7410L)

Steam and Chemical Environment
Pressure = 80 psig
Temperature = 300°F
Time = 200 hours, 68 hours at a steam pressure higher than containment design pressure
1.5 weight percent boric acid with NaOH added to yield a pH of 9.25.

2. Radiation and Steam (WCAP-7410L)

Gamma - $2.8 \times 10^7$ Rads followed by exposure to a steam environment of 85 psig for 2(two) - 30 minute cycles.

3. Aging, Steam and Radiation (WCAP-7410L)

40 year equivalent followed by 4 hours of steam at 287°F and 60 psig followed by irradiation exposure to $2 \times 10^8$ Rads.

4. Radiation and steam (Franklin Institute Report #F-C2442-02)

Gamma - $2.5 \times 10^7$ Rads
328°F, 85 psig

5. Submergence (Phelps-Dodge R&D Repsort #10519)

Submerged in simulated river water for 2 weeks.
IR tests - $4 \times 10^6$ meg ohms.
DC withstand test - 18 KVdc for 15 minutes and 6 KVdc for 5 minutes

6. Radiation and HELB (Franklin institute Repsort #F-C2781)

100 MRAD gamma radiation followed by steam and chemical environment

Pressure = 50 psig
Temperature = 298°F
Time = 7 days (12 hours at steam pressure and temperature)

7. Steam and Chemical Spray (Raychem Thermofit Report 71100 Rev. 1)

(250°F, 21 psig, 0.2% Boric Acid Spray for 24 hours).

NOTE: Tests 1 through 4 apply to Kerite cables
Tests 1 through 5 apply to GE cables
Test 6 applies to Lewis cables
Tests 1 through 7 apply to Raychem splices

The above test data provides sufficient justification for interim operation since no absolute failures occurred as a result of anticipated environmental conditions.

Final Resolution:

The tests reported in WCAP-7410L demonstrate the capability of this cable/splice combination to survive accident conditions in an aged condition. Radiation tests exceeding the requirement were also performed before and after high energy line break test simulations. The successful submergence test was performed on an 8 - 10 year old cable removed from the site for this purpose. This along with the Kerite evaluation demonstrate submergence capability for this cable/solice combination.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Electrical<br>I.D. NO.:<br>COMPONENT: Cable/Splice<br>MANUFACTURER: Kerite/Raychem<br>MODEL NO.: Note 5<br>FUNCTION:<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE:<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | Note 2<br>70 Days | — | 3 | Separate Test | N/A |
| | TEMPERATURE (°F) | 287 | 328 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 85 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 3 | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $1.2 \times 10^8$ | $2 \times 10^8$ | 2 | 3 | Separate Test | N/A |
| | AGING (yrs) | 40 Yr. | 40 yr. | N/A | 3 | Separate Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | assumed | Ref. 4 & 5 | N/A | 4 | Separate Test & Analysis | Note 4 |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Based on test reported in WCAP-7410L of 486 hrs. at 214°F (steam ) and used 0.5 ev and an ambient of 160°F in the Arrhenius equation.
3. 1.5 percent of boric acid (by weight) in water and adding sodium hydroxide to buffer the ph to a value of 9.25.
4. Submergence test performed as GE cables and Raychem splices.
5. 600V Power & Control multi-conductor #12 Kerite Insulation w/pair zinc, tape, kerite jacket overall raychem splices.

REFERENCES:


1. FSAR Section 14.3
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.
3. WCAP - 7410L
4. Phelps-Dodge R&D Report #10519.
5. Kerite Letter from C. Lundy of Kerite to G. Blinker of Con-ed dated November 6, 1980.

Component:

TER Item #: 40D
Device: Cable
Manufacturer: Lewis
Model: NA
Location: In Containment

Deficiency:

OI, A, R

Interim Justification:

Samples of cable were removed from Indian Point 2 and were tested under different programs run by both Westinghouse and the different cable manufacturers . This justification summarizes these test as well as establishes traceability for manufacturer verus test.

During all of the tests only one failure was noticed. This was described in the Westinghouse test report in WCAP-7410Z Vol. 2 of 2. This failure resulted from apparent steam impingement on the cable splice. Since steam impingement is not a factor on field mounted cables this failure was not considered relevent.

The test conditions are as follows:

(Note all tests are summarized)

1. HELB (WCAP-7410L)

Steam and Chemical Environment
Pressure = 80 psig
Temperature = 300°F
Time = 200 hours; 68 hours at a steam pressure higher than containment design pressure
1.5 weight percent boric acid with NaOH added to yield a pH of 9.25.

2. Radiation and Steam (WCAP-7410L)

Gamma - $2.8 \times 10^7$ Rads followed by exposure to a steam environment of 85 psig for 2 (two) - 30 minute cycles.

3. Aging, Steam and Radiation (WCAP-7410L)

40 year equivalent followed by 4 hours of steam at 287°F and 60 psig followed by irradiation exposure to $2 \times 10^8$ Rads.

4. Radiation and steam (Franklin Institute Report #F-C2442-02)

Gamma - $2.5 \times 10^7$ Rads
328°F, 85 psig

5. Submergence (Phelps-Dodge R&D Report #10519)

Submerged in simulated river water for 2 weeks.
IR tests - $4 \times 10^6$ megohms.
DC withstand test - 18 KVDC for 15 minutes and 6 KVDC for 5 minutes.

6. Radiation and HELB (Franklin Institute Report #F-C2781)

100 M Rads gamma radiation followed by Steam and Chemical Environment
Pressure = 50 psig
Temperature = 298°F
Time = 7 days (12 hours at a steam pressure and temperature)

7. Steam and Chemical Spray (Raychem Thermofit Report 71100 Rev. 1)

(250°F, 21 psig, 0.2% Boric Acid Spray for 24 hours).

Note: Tests 1 through 4 apply to Kerite cables.
Tests 1 through 5 apply to GE cables
Test 6 applies to Lewis cables.
Tests 1 through 7 apply to Raychem splices

The above test data provides sufficient justification for interim operation since no absolute failures occurred as a result of anticipated environmental conditions.

Final Resolution

The resolution of the deficiencies associated with these cables is ongoing. Appropriate action will be taken once these deficiences are resolved.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Electrical<br>I.D. NO.:<br>COMPONENT: Cable<br>MANUFACTURER: Lewis<br>MODEL NO.: Note C<br>FUNCTION:<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE:<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | 7 days | ---- | 4 | Simulation Test | Note 2 |
| | TEMPERATURE (°F) | 287 | 298 | 1 | 3 | Simulation Test | N/A |
| | PRESSURE (PSIG) | 40 | 50 | 1 | 3 | Simulation Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simulation Test | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 3 | 1 | 3 | Simulation Test | N/A |
| | RADIATION (rads) | $0.84 \times 10^8$ | $1 \times 10^8$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | --- | N/A | --- | --- | Note 4 |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | assumed | --- | N/A | --- | --- | Note 5 |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Test performed at 160°F for 7 days. IR improved as test progressed.
3. 1.23 parts boric acid per 100 parts $H_2O$ buffered to a pH of of 9.0 with NaOH.
4. Aging not part of test sequence.
5. Submergence not part of test sequence.
6. Electrical instrument cable, silicone-rubber glass-braid-insulation/silicone rubber jacket

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Franklin Insitute Report #F-C2781
4. WCAP - 7410L

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Electrical<br>I.D. NO.:<br>COMPONENT: Cable<br>MANUFACTURER: Lewis<br>MODEL NO.: Note G<br>FUNCTION:<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE:<br>LOCATION: Inside Containment | OPERATING TIME | 30 days. | 7 days | — | 4 | Simulation Test | Note 2 |
| | TEMPERATURE (°F) | 287 | 298 | 1 | 3 | Simulation Test | N/A |
| | PRESSURE (PSIG) | 40 | 50 | 1 | 3 | Simulation Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simulation Test | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 3 | 1 | 3 | Simulation Test | N/A |
| | RADIATION (rads) | $0.84 \times 10^8$ | $1 \times 10^8$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | --- | N/A | --- | --- | Note 4 |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | assumed | --- | N/A | --- | --- | Note 5 |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Test performed at 160°F for 7 days. IR improved as test progressed.
3. 1.23 parts boric acid per 100 parts $H_2O$ buffered to a pH of of 9.0 with NaOH.
4. Aging not part of test sequence.
5. Submergence not part of test sequence.
6. Electrical instrument cable, silicone-rubber glass-braid-insulation/silicone rubber jacket

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Franklin Insitute Report #F-C2781
4. WCAP - 7410L

Component:

TER Item #: 41
Device: RTD (Wide Range)
Manufacturer: Rosemount
Model: 176 JA
Location: Inside Containment

Deficiency:

A, T, R

Interim Justification:

The wide range RTDs are utilized for providing information to the operator on RCS hot leg and cold leg temperature. The wide range RTDs are used for indicating temperatures from 0 to approximately 700°F. If the wide range RTDs are lost due to an adverse environment resulting from a high energy line rupture inside containment, the operator can use steam generator pressure as an alternate indication of RCS temperature.

Steam generator pressure can be used to infer RCS cold leg temperature. To use this variable, any uncontrolled releases of energy on the secondary side must be isolated from the non-faulted loops. Also an adequate supply of water must be supplied to the non-faulted steam generators to ensure primary to secondary heat transfer (flow through steam generator U-tubes). During quasi-steady state conditions in the RCS (secondary heat removal greater than the core decay heat plus reactor coolant pump heat), the saturation temperature corresponding to the steam generator pressure is approximately equal to the RCS cold leg temperature.

Final Resolution:

Indian Point 2 is presently evaluating replacement RTD suppliers and replacement will be completed as soon as possible after receipt of qualified units during an outage of sufficient duration.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Reactor Coolant System<br>I.D. NO.:<br>COMPONENT: Resistance Temperature Detector (Wide Range)<br>MANUFACTURER: Rosemount<br>MODEL NO.: 176JA<br>FUNCTION:<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE:<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | Note 2 | — | -- | N/A | Note 2 |
| | TEMPERATURE (°F) | 287 | Note 2 | 1 | -- | N/A | Note 2 |
| | PRESSURE (PSIG) | 40 | Note 2 | 1 | -- | N/A | Note 2 |
| | RELATIVE HUMIDITY (%) | 100 | Note 2 | 1 | -- | N/A | Note 2 |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | -- | N/A | Note 2 |
| | RADIATION (rads) | $1.54 \times 10^8$ | Note 2 | 2 | -- | N/A | Note 2 |
| | AGING (yrs) | 40 | Note 2 | N/A | -- | N/A | Note 2 |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Interim justification provided. RTD's to be replaced.

REFERENCES:
1. FSAR Section 14.3
2. Bulletin 79-01B, Attachment 4, Section 4.1.2.

Component:

TER Item #: 42A
Device: Hydrogen Recombiner Panel
Model: Westinghouse
Function: Control Panel for Recombiner
Location: Pipe Penetration Area

Deficiency:

RPN

Interim Justification:

It has been determined that the design basis event environment deviates only slightly from ambient conditions.

Final Resolution:

Indian Point 2 has determined that the area where the $H_2$ Recombiner Panel is located is a mild environmental zone. The radiation levels are $2 \times 10^2$ rads/year due to the shielding effects of 1 foot 9 inches of concrete separating the pipe penetration area from this panel. This device should therefore not be listed as subject to harsh environments.

FACILITY: Indian Point 2

DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.:<br>COMPONENT: Hydrogen Recombiner Panel<br>MANUFACTURER: Westinghouse<br>MODEL NO.: N/A<br>FUNCTION: Operation of Hydrogen Recombiner<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Hydrogen Recombiner<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 days | -- | _ | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | -- | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | -- | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | -- | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | -- | 1 | -- | N/A | N/A |
| | RADIATION (rads) | $2.0 \times 10^2$<br>Note 2 | -- | 1 | -- | /A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Normal operating conditions.
2. Additional shielding reduces dose to $2 \times 10^2$ rads.

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4.3.

Component:

TER Item #: 8
Device: Level Switch
Manufacturer: GEMS
Model: LS 800
Location: In Containment

Deficiency:

QI

Interim Justification:

These units at Indian Point 2 have been replaced with Barton Lot 4 transmitters.

With the large range of experience and the amount of testing on this type of transmitter, it is known that the material and components used do not have an identified thermal aging mechanism (as compared to Appendix C of IE Bulletin 79-01B) that could affect the performance of these transmitters during reactor operation.

Until Lot 4 Barton testing has been completed, the radiation aging has been addressed adequately by the Lot 2 testing program. Barton Lot 2 WCAP-9885 is sufficient for qualification data of Lot 4 Barton's. This is possible due to the similarity of the transmitters. In addition, upon completion of the Lot 4 tests, which include aging, Westinghouse will provide the WCAP qualifying these transmitters.

The documentation review for aging is on going. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to

identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life after plant.

Final Resolution

These units have been replaced with Barton Lot 4 Model 764 transmitters. The replacement date was May 1981.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Sump Level<br>I.D. NO.: LT-3300<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Containment Sump Level<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Containment Sump<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | Trip 5 min. Post DBE 4 mos. | - | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt boric acid + 0.17 wt. of NaOh | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $1.4 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Simultaneous Test | N/A |
| | AGING (yrs) | 40 | --- | N/A | 3 | Simultaneous Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOh to result in 10.0 ph.
2. Gamma only. See section 3.8

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (lot 2)

NOTES:

3. Accuracy requirements: ± 10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5min. +5%, -17%,
   5 min. to 4 mos. ±19%
   -17% Error discussed in ref. 3

FACILITY: INDIAN POINT 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment<br>I.D. NO.: LT-3301<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Containment Sump Level<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation Sump<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | Trip 5 min. Post DEB 4 mos. | - | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 ° | 1 | 3 | Simultaneous Test ° | N/A |
| | PRESSURE (PSIG) note | 40 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt boric acid + 0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $1.4 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Simultaneous Test | N/A |
| | AGING (yrs) | 40 | --- | N/A | 3 | Simultaneous Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | Simultane<br>N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOh to result in 10.0 ph.
2. Gamma only. See section 3.8
3. Accuracy requirements: ± 10% for 0 to 5 min
   ± 5 min to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. ± 19%
   -17% Error discussed in ref 3

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (lot 2).

Component:

TER Item #: 9
Device: Transmitter Foxboro
Model: 613DM
Function: Steam Generator Narrow Range Level
(LT417A through C, LT427A through C,
LT437A through C, and LT447A through C.)
Location: In Containment

Deficiency:

QI, QM, A, CS, R

Interim Justification:

These narrow range units at Indian Point 2 have been replaced with Barton Lot 4 transmitters. The wide range level transmitters were incorrectly identified as a potential deficiency.

With the large range of experience and the amount of testing on this type of transmitter, it is known that the material and components used do not have an identified thermal aging mechanism (as compared to Appendix C of IE Bulletin 79-01B) that could affect the performance of these transmitters during reactor operation.

Until Lot 4 Barton testing has been completed, the radiation aging has been addressed adequately by the Lot 2 testing program. Barton Lot 2 WCAP-9885 is sufficient for qualification data of Lot 4 Barton's. This is possible due to the similarity of the transmitters. In addition, upon completion of the Lot 4 tests, which include aging, Westinghouse will provide the WCAP qualifying these transmitters.

The documentation review for aging is on going. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is

more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life after plant.

Final Resolution

These units have been replaced with Barton Lot 4 Model 764 transmitters. The replacement date was May 1981.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-417A<br>COMPONENT: Level Transmitter<br><br>MANUFACTURER: Barton<br><br>MODEL NO.: 764 (Lot 4)<br><br>FUNCTION: Steam Generator Level<br><br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON: Note 4<br><br>SERVICE: Steam Generator Level<br><br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-417B<br>COMPONENT: Level Transmitter<br><br>MANUFACTURER: Barton<br><br>MODEL NO.: 764 (Lot 4)<br><br>FUNCTION: Steam Generator Level<br><br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON: Note 4<br><br>SERVICE: Steam Generator Level<br><br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min.<br>Post DBE<br>4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$<br>Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40<br>Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-417C<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-427A<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. ±25%
   Accuracy demonstrated: max. error 0-5 min. +.5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-427<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-427C<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ——— | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. ±25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-437A<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ /Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. ±25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-437B<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: +10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Steam Generator Level<br>E.D. NO.: LT-437C<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | --- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±10%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-447A<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. ±25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-447B<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Steam Generator Level<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Steam Generator Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min.<br>Post DBE 4 mos. | --- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Steam Generator Level<br>I.D. NO.: LT-447C<br>COMPONENT: Level Transmitter<br><br>MANUFACTURER: Barton<br><br>MODEL NO.: 764 (Lot 4)<br><br>FUNCTION: Steam Generator Level<br><br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON: Note 4<br><br>SERVICE: Steam Generator Level<br><br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

Component:

TER Item #: 11A
Device: Transmitter Foxboro
Model: 513DM HSI
Function: Recirculation Spray Flow
Location: In Containment

Deficiency:

QI, QM, A, CS, R

Interim Justification:

These units at Indian Point 2 have been replaced with Barton Lot 4 transmitters.

With the large range of experience and the amount of testing on this type of transmitter, it is known that the material and components used do not have an identified thermal aging mechanism (as compared to Appendix C of IE Bulletin 79-01B) that could affect the performance of these transmitters during reactor operation.

Until Lot 4 Barton testing has been completed, the radiation aging has been addressed adequately by the Lot 2 testing program. Barton Lot 2 WCAP-9885 is sufficient for qualification data of Lot 4 Barton's. This is possible due to the similarity of the transmitters. In addition, upon completion of the Lot 4 test, which includes aging, Westinghouse will provide the WCAP qualifying these transmitters.

The documentation review for aging is on going. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to

identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life after plant.

Final Resolution

These units have been replaced with Barton Lot 4 Model 764 transmitters. The replacement date was May 1981.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Recirculation Spray Flow<br>I.D. NO.: FT-945A<br>COMPONENT: Flow Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Recirculation Spray Flow<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Recirculation Spray Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min.° Post DBE 4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: +10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Recirculation Spray Flow<br>I.D. NO.: FT-945B<br>COMPONENT: Flow Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: Recirculation Spray Flow<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Recirculation Spray Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

Component:

TER Item #: 113
Device: Transmitter Foxboro
Model: 611DM C
Function: High Head Flow
Location: In Containment

Deficiency:

QI, QM, A, CS, R

Interim Justification:

This unit at Indian Point 2 has been replaced with Barton Lot 4 transmitters.

With the large range of experience and the amount of testing on this type of transmitter, it is known that the material and components used do not have an identified thermal aging mechanism (as compared to Appendix C of IE Bulletin 79-01B) that could affect the performance of these transmitters during reactor operation.

Until Lot 4 Barton testing has been completed, the radiation aging has been addressed adequately by the Lot 2 testing program. Barton Lot 2 WCAP-9885 is sufficient for qualification data of Lot 4 Barton's. This is possible due to the similarity of the transmitters. In addition, upon completion of the Lot 4 tests, which include aging, Westinghouse will provide the WCAP qualifying these transmitters.

The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to

identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life after plant.

Final Resolution

These units have been replaced with Barton Lot 4 Model 764 transmitters. The replacement date was May 1981.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION WORK SHEET

ENCLOSURE 79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: High Head Flow<br>I.D. NO.: FT-924<br>COMPONENT: Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: High Head Flow<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: High Head Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: High Head Flow<br>I.D. NO.: FT-925<br>COMPONENT: Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Note 4)<br>FUNCTION: High Head Flow<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: High Head Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | --- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: High Head Flow<br>I.D. NO.: FT-926<br>COMPONENT: Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764 (Lot 4)<br>FUNCTION: High Head Flow<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: High Head Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 plr.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: +10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (lot 2)

Component:

TER Item #: 12
Device: Transmitter Foxboro
Model: 611GH K
Function: RCS Pressure
Location: In Containment

Deficiency:

QI, QM, A, CS, R

Interim Justification:

These units at Indian Point 2 have been replaced with Barton Lot 4 transmitters.

With the large range of experience and the amount of testing on this type of transmitter, it is known that the material and components used do not have an identified thermal aging mechanism (as compared to Appendix C of IE Bulletin 79-01B) that could affect the performance of these transmitters during reactor operation.

Until Lot 4 Barton testing has been completed, the radiation aging has been addressed adequately by the Lot 2 testing program. Barton Lot 2 WCAP-9885 is sufficient for qualification data of Lot 4 Barton's. This is possible due to the similarity of the transmitters. In addition, upon completion of the Lot 4 test, which includes aging, Westinghouse will provide the WCAP qualifying these transmitters.

The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to

identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life after plant.

Final Resolution

These units have been replaced with Barton Lot 4 Model 763 transmitters. The replacement date was May 1981.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RCS Pressure<br>I.D. NO.: PT-402<br>COMPONENT: Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 763 (Lot 4)<br>FUNCTION: RCS Pressure<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON: Note 4<br>SERVICE: RCS Pressure<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min.<br>Post DBE<br>4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$<br>Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yes) | 40 | 40<br>Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RCS Pressure<br>I.D. NO.: PT-403<br>COMPONENT: Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 763 (Lot 4)<br>FUNCTION: RCS Pressure<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: RCS Pressure<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ---- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

Component:

TER Item #: 14A
Device: Transmitter Foxboro
Model: 611GM
Function: Pressurizer Pressure

Deficiency:

QI, OM, A, CS, R

Interim Justification:

These units at Indian Point 2 have been replaced with Barton Lot 4 transmitters.

With the large range of experience and the amount of testing on this type of transmitter, it is known that the material and components used do not have an identified thermal aging mechanism (as compared to Appendix C of IE Bulletin 79-01B) that could affect the performance of these transmitters during reactor operation.

Until Lot 4 Barton testing has been completed, the radiation aging has been addressed adequately by the Lot 2 testing program. Barton Lot 2 WCAP-9885 is sufficient for qualification data of Lot 4 Barton's. This is possible due to the similarity of the transmitters. In addition, upon completion of the Lot 4 tests, which include aging, Westinghouse will provide the WCAP qualifying these transmitters.

The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related. A maintenance program

will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life after plant.

Final Resolution

These units have been replaced with Barton Lot 4 Model 763 transmitters. The replacement date was May 1981.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Pressurizer Transmitter<br>I.D. NO.: PT-455<br>COMPONENT: Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 763 (Lot 4)<br>FUNCTION: Pressurizer Transmitter<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Pressurizer Transmitter<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | --- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: +10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Pressurizer Transmitter<br>I.D. NO.: PT-456<br>COMPONENT: Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 763 (Lot 4)<br>FUNCTION: Pressurizer Transmitter<br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br>SERVICE: Pressurizer Transmitter<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | --- | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Pressurizer Transmitter<br>I.D. NO.: PT-457<br>COMPONENT: Transmitter<br><br>MANUFACTURER: Barton<br><br>MODEL NO.: 763 (Lot 4)<br><br>FUNCTION: Pressurizer Transmitter<br><br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br><br>SERVICE: Pressurizer Transmitter<br><br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | ——— | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. +19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Pressurizer Transmitter<br>I.D. NO.: PT-474<br>COMPONENT: Transmitter<br><br>MANUFACTURER: Barton<br><br>MODEL NO.: 763 (Lot 4)<br><br>FUNCTION: Pressurizer Transmitter<br><br>ACCURACY: (% OF SPAN) SPEC: DEMON: Note 4<br><br>SERVICE: Pressurizer Transmitter<br><br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 min. Post DBE 4 mos. | — | Note 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) | 287 | 380 | 1 | Note 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 89.7 | 1 | Note 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | Note 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 wt. boric acid + 0.17 wt. of NaOH | 1 | Note 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | Note 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | Note 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is base on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ±10% for 0 to 5 min.
   5 min. to 4 mos. +25%
   Accuracy demonstrated: max. error 0-5 min. + 5%, -17%
   5 min. to 4 mos. ±19%

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, section 4.1.2
3. WCAP-9885 (Lot 2)

Component:

TER Item #: 14B
Device: Foxboro Transmitter
Model: 611GM-ASI
Function: Containment Pressure (PT-948A,B,C and 949A,B,C)
Location: Pipe Penetration Area

Deficiency:

QM, A, R, QI, CS

Interim Justification:

Radiation is the only environment that changes during a DBE for these transmitter locations. The transmitters have been satisfactorily tested per WCAP-7410L to a level which exceeds the service condition requirement of $3.6 \times 10^6$ rads. Indian Point 2 has established that the same model amplifiers tested are installed in the plant.

The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life of the plant. This replacement schedule will be developed and provided to the staff as it becomes availble.

Final Resolution:

The additional information concerning the aging evaluation program will be forwarded to the staff as it becomes available.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Pressure<br>I.D. NO.: PT-948A<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: G11GM-ASI<br>FUNCTION: Containment Pressure Pipe Penetration Area<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 days | N/A | ——— | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 * | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | --- | N/A | --- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. Foxboro Report T2-1075

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Pressure<br>I.D. NO.: PT-94 8B<br>COMPONENT: Transmitter<br><br>MANUFACTURER: Foxboro<br><br>MODEL NO.: 11GM-ASI<br><br>FUNCTION: Containment Pressure Pipe Penetration Area<br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br><br>SERVICE: Pressure Transmitter<br><br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 days | N/A | —— | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. Foxboro Report T2-1075

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Pressure<br>I.D. NO.: PT-948C<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 511GM-ASI<br>FUNCTION: Containment Pressure Pipe Penetration Area<br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 days | N/A | ——— | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. Foxboro Report T2-1075

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Pressure<br>I.D. NO.: PT-949A<br>COMPONENT: Transmitter<br><br>MANUFACTURER: Foxboro<br><br>MODEL NO.: 611GM-ASI<br><br>FUNCTION: Containment Pressure Pipe Penetration Area<br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br><br>SERVICE: Pressure Transmitter<br><br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 days | N/A | — | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. Foxboro Report T2-1075

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Pressure<br>I.D. NO.: PT-949B<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 611GM-ASI<br>FUNCTION: Containment Pressure Pipe Penetration Area<br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 days | N/A | —— | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. Foxboro Report T2-1075

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Pressure<br>I.D. NO.: PT-94 9C<br>COMPONENT: Transmitter<br><br>MANUFACTURER: Foxboro<br><br>MODEL NO.: 611GM-ASI<br><br>FUNCTION: Containment Pressure Pipe Penetration Area<br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br><br>SERVICE: Pressure Transmitter<br><br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 days | N/A | —— | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | -- | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. Foxboro Report T2-1075

Component:

TER Item #: 15B and 15C
Device: Foxboro Transmitter
Model: 611GM & 611 GM-OSI
Function: SI Pump Suction and Discharge Pressure (PT-922, 923 and 947)
Location: Safety Injection Room

Deficiency:

QM, A, R, OI

Interim Justification:

Radiation is the only environment that changes during a DBE for these transmitter locations. The transmitters have been satisfactorily tested per WCAP-7410L to a level which exceeds the service condition requirement of $3.6 \times 10^6$ rads. Indian Point 2 has established that the same model amplifiers tested are installed in the plant.

The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life of the plant. This replacement schedule will be developed and provided to the staff as required.

Final Resolution:

The additional information concerning the aging evaluation program will be forwarded to the Staff as it becomes available.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Safety Injection Pump Suction<br>I.D. NO.: PT-947<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 611GM<br>FUNCTION: SI Pump Suction<br>ACCURACY: (% OF SPAN) SPEC: +10% DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Safety Injection Pump Room | OPERATING TIME | 30 Days | N/A | — | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | -- | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:
1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Foxboro Report T2-1075

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Safety Injection Discharge Pressure<br>I.D. NO.: PT-922<br>COMPONENT: Transmitter<br>MANUFACTURER: Foxboro<br>MODEL NO.: 611GM DSI<br>FUNCTION: Safety Injection Discharge Pressure<br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br>SERVICE: Pressure Transmitter<br>LOCATION: Safety Injection Pump Room | OPERATING TIME | 30 Days | N/A | ——— | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | 2 | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Foxboro Report T2-1075

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Safety Injection Discharge Pressure<br>I.D. NO.: PT-923<br>COMPONENT: Transmitter<br><br>MANUFACTURER: Foxboro<br><br>MODEL NO.: 611GM DSI<br><br>FUNCTION: Safety Injection Discharge Pressure<br><br>ACCURACY:<br>(% OF SPAN) SPEC: +10%<br>DEMON: -15%<br><br>SERVICE: Pressure Transmitter<br>LOCATION: Safety Injection Pump Room | OPERATING TIME | 30 Days | N/A | —— | -- | N/A | N/A |
| | TEMPERATURE (°F) note | 104 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) note | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1.0 \times 10^7$ | 1 | -- | Separate Test | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Foxboro Report T2-1075

Component:

TER Item #: 10 & 13
Device: Foxboro Transmitter
Model: 613HM-H & 613HM
Function: Pressurizer Level (LT-459, 460, 461)
RHR Flow (FT-946A-D, FT-640)
Location: Inside Containment

Deficiency:

QI, QM, A, CS, R

Interim Justification:

N/A

Final Resolution:

These units at Indian Point 2 have been replaced with Barton Lot 4 transmitters.

With the large range of experience and the amount of testing on this type of transmitter, it is known that the material and components used do not have an identified thermal aging mechanism (as compared to Appendix C of IE Bulletin 79-01B) that could affect the performance of these transmitters during reactor operation.

Until Lot 4 Barton testing has been completed, the radiation aging has been addressed adequately by the Lot 2 testing program. Barton Lot 2 WCAP-9885 is sufficient for qualification data of Lot 4 Barton's. This is possible due to the similarity of the transmitters. In addition, upon completion of the Lot 4 tests, which include aging, Westinghouse will provide the WCAP qualifying these transmitters.

The documentation review for aging is on going. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life after plant.

These units were replaced with Barton Lot 4 Model 764 transmitters. The replacement date was May 1981.

These devices were misclassified as Appendix A items. They should have been listed under Appendix B of the SER.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Pressurizer Level<br>I.D. NO.: LT-459<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764(Lot 4)<br>FUNCTION: Pressurizer Level<br>ACCURACY:<br>(% OF SPAN) SPEC: Note 4<br>DEMON:<br>SERVICE: Pressurizer Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 Min.<br>Post DBE - 4 mos. | -- | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) note | 40.6 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 Wt. Boric Acid +0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is based on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ± 10% for 0 to 5 min.
   5 min. to 4 mos. ± 25%
   Accuracy Demonstrated: Max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. ± 19%

REFERENCES:

1. FSAR Section 14.3
2. I.E. Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (9885 (Lot 2).

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: PRESSURIZER LEVEL<br>I.D. NO.: LT-460<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764(Lot 4)<br>FUNCTION: Pressurizer Level<br>ACCURACY: (% OF SPAN) SPEC: Note 4<br>DEMON:<br>SERVICE: Pressurizer Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 Min.<br>Post DBE - 4 mos. | -- | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) note | 40.6 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 Wt. Boric Acid +0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$<br>Note 2 | $5 \times 10^7$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40<br>Note 3 | N/A | 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is based on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: $\pm$ 10% for 0 to 5 min.
   5 min. to 4 mos. $\pm$ 25%
   Accuracy Demonstrated: Max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. + 19%

REFERENCES:

1. FSAR Section 14.3
2. I.E. Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (9885 (Lot 2).

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL | | |
| SYSTEM: Pressurizer Level<br>I.D. NO.: LT-461<br>COMPONENT: Level Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764(Lot 4)<br>FUNCTION: Pressurizer Level<br>ACCURACY: (% OF SPAN) SPEC: Note 4 DEMON:<br>SERVICE: Pressurizer Level<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 Min. Post DBE - 4 mos. | -- | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) note | 40.6 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 Wt. Boric Acid +0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is based on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: $\pm$ 10% for 0 to 5 min.
   5 min. to 4 mos. $\pm$ 25%
   Accuracy Demonstrated: Max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. + 19%

REFERENCES:

1. FSAR Section 14.3
2. I.E. Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (9885 (Lot 2).

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RHR FLOW<br>I.D. NO.: FT-946A<br>COMPONENT: Flow Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764(Lot 4)<br>FUNCTION: RHR Flow<br>ACCURACY: (% OF SPAN) SPEC: Note 4 DEMON:<br>SERVICE: RHR Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 Min. Post DBE - 4 mos. | -- | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) note | 40.6 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 Wt. Boric Acid +0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is based on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ± 10% for 0 to 5 min.
   5 min. to 4 mos. ± 25%
   Accuracy Demonstrated: Max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. + 19%

REFERENCES:

1. FSAR Section 14.3
2. I.E. Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (9885 (Lot 2).

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RHR FLOW<br>I.D. NO.: FT-946B<br>COMPONENT: Flow Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764(Lot 4)<br>FUNCTION: RHR Flow<br>ACCURACY: (% OF SPAN) SPEC: Note 4 DEMON:<br>SERVICE: RHR Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 Min. Post DBE - 4 mos. | -- | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) note | 40.6 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 Wt. Boric Acid +0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is based on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: $\pm$ 10% for 0 to 5 min.
   5 min. to 4 mos. $\pm$ 25%
   Accuracy Demonstrated: Max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. + 19%

REFERENCES:

1. FSAR Section 14.3
2. I.E. Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (9885 (Lot 2).

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RHR FLOW<br>I.D. NO.: FT-946 C<br>COMPONENT: Flow Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764(Lot 4)<br>FUNCTION: RHR Flow<br>ACCURACY: (% OF SPAN) SPEC: Note 4<br>DEMON:<br>SERVICE: RHR Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 Min. Post DBE - 4 mos. | -- | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) note | 40.6 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 Wt. Boric Acid +0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is based on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: ± 10% for 0 to 5 min.
   5 min. to 4 mos. ± 25%
   Accuracy Demonstrated: Max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. + 19%

REFERENCES:

1. FSAR Section 14.3
2. I.E. Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (9885 (Lot 2).

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: RHR FLOW<br>I.D. NO.: FT-946D<br>COMPONENT: Flow Transmitter<br>MANUFACTURER: Barton<br>MODEL NO.: 764(Lot 4)<br>FUNCTION: RHR Flow<br>ACCURACY: (% OF SPAN) SPEC: Note 4 DEMON:<br>SERVICE: RHR Flow<br>LOCATION: Inside Containment | OPERATING TIME | 5 min. | Trip 5 Min. Post DBE - 4 mos. | -- | 3 | Simultaneous Test | N/A |
| | TEMPERATURE (°F) note | 287 | 380 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) note | 40.6 | 89.7 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | 1.4 Wt. Boric Acid +0.17 wt. of NaOH | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $.52 \times 10^7$ Note 2 | $5 \times 10^7$ | 2 | 3 | Sequential Test | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | 3 | Sequential Test | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Radiation dose is based on the transmitter located outside the crane wall.
3. Equipment committed for maintenance.
4. Accuracy requirements: $\pm$ 10% for 0 to 5 min.
   5 min. to 4 mos. $\pm$ 25%
   Accuracy Demonstrated: Max. error 0-5 min. +5%, -17%
   5 min. to 4 mos. + 19%

REFERENCES:

1. FSAR Section 14.3
2. I.E. Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. WCAP-9885 (9885 (Lot 2).

Component:

TER Item #: 18 - Model 8320
19 - Model 8300
21 - Model 8314
22A,B,C - Model 8316
23 - Model 8300
24A,B - Model 8210
25 - Model 8300
26 - Model 8320

Device: ASCO Solenoid Valves

Function: Actuates 49 separate valves

Location: Pipe Penetrations Area (21, 22B, 22C, 25)
Auxiliary Pump Room (19, 23, 24A, 24B)
Ventilation Purge Valve (22A) Inside Containment
Containment Pressure Relief Valve (18) Inside Containment
Condensate Storage Tank Valve (26)

Deficiency:

QI

Interim Justification:

The information provided in the NS-CE-755 (Potential Mode of Failure Identified for Solenoid Valves) concerning these valves provides assurance through analysis that the ASCO solenoids will perform their safety function without occurrence of a common failure mode.

The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved or the units replaced. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the

surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life of the plant.

Final Resolution:

Indian Point 2 is in the process of procuring replacement solenoids qualified to the latest criteria. Replacement units will be ordered prior to the end of 1981. Replacement will be completed as soon as possible after receipt of qualified units during an outage of sufficient duration.

In Item #18 has been replaced with a qualified NP type Asco solenoid.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Ventilation<br>I.D. NO.: PCV-1190<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: NP-8320A175E<br>FUNCTION: Containment Pressure Relief Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Pressure Relief<br>LOCATION: Inside Containment | OPERATING TIME | 30 Days | 30 Days | -- | 3 | Type Test Simultaneous | N/A |
| | TEMPERATURE (°F) | 287 | 340 | 1 | 3 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) | 40.6 | 70 | 1 | 3 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 | Type Test Simultaneous | N/A |
| | RADIATION (rads) | $1.54 \times 10^8$ | $2 \times 10^8$ | 2 | 3 | Type Test Sequential | N/A |
| | AGING (yrs) | 40 | Note 3 | N/A | 3 | Type Test Sequential | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0ph.
2. 3000 ppm boric acid buffered with NaOH to ph of 10.0
3. 4.5 years designed life at 140°F.

REFERENCES:
1. FSAR Section 14.3
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2
3. Asco Test Report AQS-21678/TR.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.:<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8300<br>FUNCTION: City Water Suction Control Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Auxiliary Feedwater Suction Control<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 30 Days | 5 Hrs. | -- | 2 | Analysis | Note 1 |
| | TEMPERATURE (°F) | 135 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Unrestricted time analysis based on $1x10^6$.

REFERENCES:

1. Analysis of high energy lines in letter to Trosten to Giambusso of 5/14/73.
2. NS-CE-755.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Sump<br>I.D. NO.:<br>COMPONENT: SOV Operator<br>MANUFACTURER: ASCO<br>MODEL NO.: 8314<br>FUNCTION: Containment Sump Pump Discharge Valves<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valves<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 Days | 10 Days | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1 \times 10^6$ | 1 | -- | -- | -- |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Normal operating conditions

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. NS-CE-755 or 8/15/75

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Ventilation<br>I.D. NO.:<br>COMPONENT: FCV-1170 Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8316<br>FUNCTION: Purge Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Containment Ventilation Purge Valve<br>LOCATION: Inside Containment | OPERATING TIME | 30 Days | 1 HR. | —— | -- | Analysis | N/A |
| | TEMPERATURE (°F) | 287 | 350 | 1 | 3 | Analysis | N/A |
| | PRESSURE (PSIG) | 40 .6 | -- | 1 | -- | -- -- | -- |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Analysis | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 | Analysis | N/A |
| | RADIATION (rads) | $1.54 \times 10^8$ | $1.0 \times 10^6$ | 2 | 3 | Analysis | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph
2. 1.2% Boric Acid.

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2
3. NS-CE-755.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Ventilation<br>I.D. NO.: FCV-1172<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8316<br>FUNCTION: Purge Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Containment Ventilation Purge Valve<br>LOCATION: Inside Containment | OPERATING TIME | 30 Days | 1 HR. | —— | -- | Analysis -- | N/A |
| | TEMPERATURE (°F) | 287 | 350 | 1 | 3 | Analysis | N/A |
| | PRESSURE (PSIG) | 40.6 | -- | 1 | -- | -- | -- |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Analysis | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 | Analysis | N/A |
| | RADIATION (rads) | $1.54 \times 10^8$ | $1.0 \times 10^6$ | 2 | 3 | Analysis | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | -- | N/A | -- | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph
2. 1.2% Boric Acid

REFERENCES:

1. FSAR section 14.3
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2
3. NS-CE-755

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Sump<br>I.D. NO.:<br>COMPONENT: SOV Operator<br>MANUFACTURER: ASCO<br>MODEL NO.: 8316<br>FUNCTION: Containment Sump Pump Discharge Valves<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valves<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 Days | 10 Days | ——— | -- | N/A | NA |
| | TEMPERATURE (°F) | 104<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1 \times 10^6$ | 1 | -- | -- | -- |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Normal operating conditions

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4
2. NS-CE-755 or 8/15/75

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PCV-1310B<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8316<br>FUNCTION: Steam supply to turbine drive auxiliary feed pump<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Steam/Feedline Penetration Area | OPERATING TIME | 30 Min. | N/A | —— | -- | N/A | Note 2 |
| | TEMPERATURE (°F) | 213 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | -- | 1 | -- | -- | -- |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Normal operating conditions.
2. Unrestricted time analysis based on $1x10^6$.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.

22C

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PCV-1310A<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8316<br>FUNCTION: Steam supply to turbine drive auxiliary feed pump<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Steam/Feedline Penetration Area | OPERATING TIME | 30 Min. | N/A | —— | -- | N/A | Note 2 |
| | TEMPERATURE (°F) | 213 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | -- | 1 | -- | -- | -- |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Normal operating conditions.
2. Unrestricted time analysis based on $1 \times 10^6$.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.:<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8300<br>FUNCTION: Steam supply to turbine driven auxiliary feed pump<br>ACCURACY: N/A (% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | -- | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73
2. NS-CE-755

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PVC-447L<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates low flow FW regulator valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | —— | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.
2. NS-CE-755.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PCV-1189<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates city water suction control valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area<br>ABOVE FLOOD LEVEL: N/A<br>YES NO | OPERATING TIME | 30 Min. | 5 Hrs. | -- | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | |
| | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73

2. NS-CE-755.

24A

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PVC-1188<br>COMPONENT: SOLENOID VALVE<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates city water suction control valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | —— | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.
2. NS-CE-755 of 8/15/75.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PVC-1187<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates city water suction control valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | — | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.
2. NS-CE-755 of 8/15/75

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: FCV-1123<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates AFP recirculation flow trip valves<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | —— | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.

REFERENCES:
1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.
2. NS-CE-755

2-1A

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: FCV-1121<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates AFP recirculation flow trip valves<br>ACCURACY: N/A (% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | -- | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.
2. NS-CE-755

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PVC-427L<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates low flow FW regulator valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | -- | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | --- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73

2. NS-CE-755

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PVC-437L<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates low flow FW regulator valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | -- | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.
2. NS-CE-755.

2-1A

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PVC-417L<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates low flow FW regulator valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Steam & Feedline Penetration Area | OPERATING TIME | 30 Min. | 5 Hrs. | —— | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 213 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | .42 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5/14/73.
2. NS-CE-755

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: PCV-1139<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8210<br>FUNCTION: Actuates AFW pump steam pressure control valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Steam pressure control<br>LOCATION: Auxiliary pump room | OPERATING TIME | 30 Days | 5 Hrs. | -- | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 135 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5/14/73.
2. NS-CE-755.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment sump<br>I.D. NO.:<br>COMPONENT: SOV Operator<br>MANUFACTURER: ASCO<br>MODEL NO.: 8300<br>FUNCTION: Containment sump pump discharge valves<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation valves<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 Days | 10 Days | ——— | -- | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | N/A | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $1 \times 10^6$ | 1 | -- | -- | -- |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Normal operating conditions

REFERENCES:

1. IE Bulletin 79-01B, Attachment 4, Section 4.3.1.2

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.: LCV-1158<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: ASCO<br>MODEL NO.: 8320<br>FUNCTION: Actuates condensate storage tank valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Recirculation flow trip valves<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 30 Min. | 5 Hrs. | -- | 2 | Analysis | N/A |
| | TEMPERATURE (°F) | 135 | 350 | 1 | 2 | Analysis | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 2 | Analysis | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

REFERENCES:

1. Analysis of high energy lines in letter to Giambusso of 5/14/73.
2. NS-CE-755.

Component:

TER Item #: 20A and B
Device: Laurence Solenoid Valve
Model: 500 and 1200
Function: Actuates Main Steam Isolation Valves
Location: Steam and Feedline Penetrations Area

Deficiency:

QI

Interim Justification:

Failure of the MSIVs to close following a high energy steam line rupture would result in multiple steam generator blowdown. Generic analysis has shown that multiple steamline blowdown results in a higher return to power following the rupture. However, the peaking factors are less severe than those resulting from only one steamline rupture. The effects on the core were similar to those presented in the SAR.

If the MSIVs fail in the closed position or operate normally following a high energy steam line rupture outside containment, the blowdown would be limited to only one steam generator blowdown. Multiple steam generator blowdown is precluded by the steamline check valves for a rupture upstream of the MSIVs. For a rupture downstream of the MSIVs , closure of MSIVs due to failure or automatic isolation would terminate the rupture blowdown.

Final Resolution:

Indian Point 2 is in the process of evaluating qualified solenoid valves and a replacement schedule will be established upon completion of this evaluation.

20A

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.:<br>COMPONENT: Solenoid<br>MANUFACTURER: Lawrence<br>MODEL NO.: 500<br>FUNCTION: Actuates Main Steam Isolation Valves<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valves<br>LOCATION: Steam/Feedline Penetration Area<br>ABOVE FLOOD LEVEL: N/A<br>YES NO | OPERATING TIME | 5 min. | Note 1 | —— | -- | -- | -- |
| | TEMPERATURE (°F) | 213 | Note 1 | 1 | -- | -- | -- |
| | PRESSURE (PSIG) | .42 | Note 1 | 1 | -- | -- | -- |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | -- | -- |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | Note 1 | N/A | -- | -- | -- |
| | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Equipment Qualification to latest standards has not been performed.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5-14.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Main Steam<br>I.D. NO.:<br>COMPONENT: Solenoid<br>MANUFACTURER: Lawrence<br>MODEL NO.: 1200<br>FUNCTION: Actuates Main Steam Isolation Valves<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valves<br>LOCATION: Steam/Feedline Penetration Area | OPERATING TIME | 5 min. | Note 1 | — | -- | -- | -- |
| | TEMPERATURE (°F) | 213 | Note 1 | 1 | -- | -- | -- |
| | PRESSURE (PSIG) | .42 | Note 1 | 1 | -- | -- | -- |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | -- | -- |
| | CHEMICAL SPRAY | N/A | N/A | 1 | N/A | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | N/A | N/A | N/A |
| | AGING (yrs) | 40 | Note 1 | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Equipment Qualification to latest standards has not been performed.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso 5-14.

Component:

TER Item #: 27
Device: Laurence Solenoid Valve
Model: 629BC85PS
Function: Actuates $H_2$ Recombiner Isolation Valves
Location: Pipe Penetration Area

Deficiency:

QI, A, T

Interim Justification:

N/A

Final Resolution:

These valves have been replaced with qualified Valcor valves.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.: IV-2A<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: Valcor<br>MODEL NO.: V5-6200<br>FUNCTION: Hydrogen Recombiner Isolation Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 Days | 30 Days | -- | 2 | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | 346 | 1 | 2 | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | 113 | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | 100 | 1 | 2 | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $2 \times 10^8$ | 1 | 2 | N/A | N/A |
| | AGING (yrs) | 40 | 40 | N/A | 2 | -- | |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | -- | N/A | N/A | N/A | N/A |

NOTES:
1. Normal operating conditions.

REFERENCES:
1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Valcor report QR-52600-5940-2

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.: IV-3A<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: Valcor<br>MODEL NO.: V5-6200<br>FUNCTION: Hydrogen Recombiner Isolation Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 Days | 30 Days | -- | 2 | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | 346 | 1 | 2 | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | 113 | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | 100 | 1 | 2 | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $2 \times 10^8$ | 1 | 2 | N/A | N/A |
| | AGING (yrs) | 40 | 40 | N/A | 2 | --- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. Normal operating conditions.

REFERENCES:
1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Valcor report QR-52600-5940-2.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.: IV-5A<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: Valcor<br>MODEL NO.: V5-6200<br>FUNCTION: Hydrogen Recombiner Isolation Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Pipe Penetration Area<br>ABOVE FLOOD LEVEL: N/A<br>YES NO | OPERATING TIME | 30 Days | 30 Days | -- | 2 | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | 346 | 1 | 2 | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | 113 | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | 100 | 1 | 2 | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $2 \times 10^8$ | 1 | 2 | N/A | N/A |
| | AGING (yrs) | 40 | 40 | N/A | 2 | -- | -- |
| | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. Normal operating conditions.

REFERENCES:
1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Valcor report QR-52600-5940-2.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner | OPERATING TIME | 30 Days | 30 Days | -- | 2 | N/A | N/A |
| I.D. NO.: IV-2B<br>COMPONENT: Solenoid Valve | TEMPERATURE (°F) | 104<br>Note 1 | 346 | 1 | 2 | N/A | N/A |
| MANUFACTURER: Valcor | PRESSURE (PSIG) | 0<br>Note 1 | 113 | 1 | 2 | N/A | N/A |
| MODEL NO.: V5-6200 | RELATIVE HUMIDITY (%) | 60<br>Note 1 | 100 | 1 | 2 | N/A | N/A |
| FUNCTION: Hydrogen Recombiner Isolation Valve | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON: | RADIATION (rads) | $3.6 \times 10^6$ | $2 \times 10^8$ | 1 | 2 | N/A | N/A |
| SERVICE: Isolation Valve | AGING (yrs) | 40 | 40 | N/A | 2 | -- | -- |
| LOCATION: Pipe Penetration Area | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | | | | | | | |

NOTES:
1. Normal operating conditions.

REFERENCES:
1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Valcor report QR-52600-5940-2.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.: IV-3B<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: Valcor<br>MODEL NO.: V5-6200<br>FUNCTION: Hydrogen Recombiner Isolation Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 Days | | -- | 2 | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | 346 | 1 | 2 | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | 113 | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | 100 | 1 | 2 | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $2 \times 10^8$ | 1 | 2 | N/A | N/A |
| | AGING (yrs) | 40 | 40 | N/A | 2 | --- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. Normal operating conditions.

REFERENCES:
1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Valcor report QR-52600-5940-2.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.: IV-5B<br>COMPONENT: Solenoid Valve<br>MANUFACTURER: Valcor<br>MODEL NO.: V5-6200<br>FUNCTION: Hydrogen Recombiner Isolation Valve<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Isolation Valve<br>LOCATION: Pipe Penetration Area | OPERATING TIME | 30 Days | | -- | 2 | N/A | N/A |
| | TEMPERATURE (°F) | 104<br>Note 1 | 346 | 1 | 2 | N/A | N/A |
| | PRESSURE (PSIG) | 0<br>Note 1 | 113 | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 60<br>Note 1 | 100 | 1 | 2 | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | $3.6 \times 10^6$ | $2 \times 10^8$ | 1 | 2 | N/A | N/A |
| | AGING (yrs) | 40 | 40 | N/A | 2 | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. Normal operating conditions.

REFERENCES:
1. IE Bulletin 79-01B, Attachment 4, Section 4.3.
2. Valcor report QR-52600-5940-2

Component:

| | |
|---|---|
| TER Item #: | 28A; 30; 31A,B&C; 32A&B; 29A,B; 33 |
| Device: | Position Switches |
| 28A | NAMCO EA-180 |
| 30 | NAMCO SL3 |
| 31A,B,C | NAMCO D2400X |
| 32A | Micro Switch EXD-AR |
| 32B | Micro Switch Exhar-3 |
| 29A,B | Micro Switch BZE62RN |
| 33 | Micro Swtich OPD-AR 6923 |
| Location: | Various |

Deficiency:

QI, A, T, P, S

Interim Justification:

N/A

Final Resolution:

Indian Point 2 has verified that these switches provide position indication only and that the operator does not require this information to perform a safety function.

Component:

TER Item #: 34A
Device: Auxiliary Feedwater Pump Drive
Manufacturer: Westinghouse Motor 509 US Frame
Location: Auxiliary Pump Room

Deficiency:

QI

Interim Justification:

Indian Point 2 has established that these motors are several feet away from any potential pipe break and would not be subjected to direct impingement during the short period of time required to isolate the break.

The Auxiliary Pump Room is protected by a temperature switch which actuates at 135°F to isolate the steam to the auxiliary feed pump. Once this switch actuates the conditions in the room should quickly return to normal in case of an accident. The calculations performed showing 0.9 psig and a saturation temperature of 215°F assume that the temperature switch fails to operate and that the leak remains unisolated.

Even though this temperature switch is presently unqualified, it is felt that in the interim, its operation can be relied upon due to the low actuation temperature setpoint of 135°F. Assuming that this switch does operate in the event of a steam leak, the room conditions should not greatly exceed the 135°F setpoint.

Final Resolution:

The temperature switch relied upon in this accident will be qualified, replaced or modified to ensure its operation prior to June 30, 1982.

The licensee is also evaluating the effect on 1E equipment of the temperature excursion expected in this area as a result of a steam line break. Additional action will be taken by the licensee based on the results of this study. It is anticipated that the results will confirm the belief that the rupture will be isolated by the temperature switches before the critical components of the 1E devices become elevated to temperatures that will affect their operabilitv.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary<br>I.D. NO.:<br>COMPONENT: Motor<br>MANUFACTURER: Westinghouse<br>MODEL NO.: 509 US Frame<br>FUNCTION: Auxiliary Feed Pump Drive<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Feed Pump Motor[1]<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | ---- | -- | — | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | Note 1 | 1 | N/A | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | 2 | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | N/A | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | 2 | N/A | N/A |
| | RADIATION (rads) | N/A | $2x10^8$ | 1 | 2 | Type Test & Analysis | N/A |
| | AGING (yrs) | 40 | 40 Yrs. | N/A | 2 | Type Test & Analysis | N/A |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. A short excursion above ambient will not degrade the insulation as qualified in WCAP 8754.

REFERENCES:


1. Analysis of high energy lines in letter Trosten to Giambusso of 4-14-73.
2. Westinghouse Report WCAP-8754

Component:

TER Item #: 37A
Device: Transducer
Manufacturer: Foxboro
Model: 69TA1
Location: Auxiliary Pump Room

Deficiency:

QI

Interim Justification:

Indian Point 2 has established that this transducer is several feet away from any potential pipe break and would not be subjected to direct impingement during the short period of time required to isolate the break.

The Auxiliary Pump Room is protected by a temperature switch which actuates at 135°F to isolate the steam to the auxiliary feed pump. Once this switch actuates the conditions in the room should quickly return to normal in case of an accident. The calculations performed showing 0.9 psig and a saturation temperature of 215°F assume that the temperature switch fails to operate and that the leak remains unisolated.

Even though this temperature switch is presently unqualified, it is felt that in the interim, its operation can be relied upon due to the low actuation temperature setpoint of 135°F. Assuming that this switch does operate in the event of a steam leak, the room conditions should not greatly exceed the 135°F setpoint.

Final Resolution:

The temperature switch relied upon in this accident will be qualified, replaced or modified to ensure its operation prior to June 30, 1982.

The licensee is also evaluating the effect on 1E equipment of the temperature excursion expected in this area as a result of a steam line break. Additional action will be taken by the licensee based on the results of this study. It is anticipated that the results will confirm the belief that the rupture will be isolated by the temperature switches before the critical components of the 1E devices become elevated to temperatures that will affect their operability.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM:<br>I.D. NO.:<br>COMPONENT: Transducer<br>MANUFACTURER: Foxboro<br>MODEL NO.: 69TA1<br>FUNCTION:<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE:<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 30 days | N/A | -- | -- | N/A | N/A |
| | TEMPERATURE (°F) | 135 | N/A | 1 | -- | N/A | N/A |
| | PRESSURE (PSIG) | 0 | N/A | 1 | -- | N/A | N/A |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | N/A | N/A |
| | CHEMICAL SPRAY | N/A | N/A | 1 | -- | N/A | N/A |
| | RADIATION (rads) | N/A | N/A | 1 | -- | N/A | N/A |
| | AGING (yrs) | 40 | -- | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. A short excursion above ambient is considered to have a negligible effect.

REFERENCES:

1. Analysis of high energy lines in letter Trosten to Giambusso of 5-14-73.

Component:

TER Item #: 38
Device: Terminal Blocks
Manufacturer: Westinghouse
Model: 542247
Location: Inside Containment

Deficiency:

QM, A

Interim Justification:

Existing data or the wood-flour-reinforced phonolic material used for these terminal blocks does not indicate any degradation in electrical properties due to thermal aging or a radiation dose less than 20 M rads gamma. To reduce the probability of conductance between terminals during a HELB the terminal blocks will be periodically cleaned. At this time the blocks will be inspected for possible aging degradation. The steam test (FIRL# F-C4911-1) indicates that satisfactory performance may be expected for protected terminal blocks. Resilient washers will be installed under the blocks to preclude any cracking of the block while mounting or connecting to the block. The above information provides sufficient justification for continued usage of these terminal blocks.

Final Resolution

The resolution of the deficiencies associated with these terminal blocks is ongoing. Appropriate action will be taken once these deficiencies are resolved. The resilient washers will be installed, and an inspection and evaluation of the necessity for cleaning will be made at the same time.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Various<br>I.D. NO.:<br>COMPONENT: Terminal Blocks<br>MANUFACTURER: Westinghouse<br>MODEL NO.: 542247(805432)<br>FUNCTION: Electrical Connections<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Electrical Connections<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | 24 HR. Note 3 | —— | 3 | Type Test Sequential | N/A |
| | TEMPERATURE (°F) | 287 | 285 | 1 | 3 | Type Test Sequential | N/A |
| | PRESSURE (PSIG) | 40 | 40 | 1 | 3 | Type Test Sequential | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Type Test Sequential | N/A |
| | CHEMICAL SPRAY | Note 1 | -- | 1 | -- | -- | Note 2 |
| | RADIATION (rads) | $1.4 \times 10^7$ | -- | 2 | 3 | -- | Note 4 |
| | AGING (yrs) | 40 | -- | N/A | N/A | N/A | Note 4 |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Chemical spray not part of test.
3. Successful test conducted at maximum conditions, equivalent to 16 days using Arrhenius Techniques with 0.5 ev and 160°F ambient.
4. See interim justification

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Franklin Report F-C4911-1

Component:

TER Item #: 39:
Device: Containment Penetrations
Model: Crouse-Hinds/Westinghouse
Function: Electrical Cable Penetrations
Location: Inside Containment

Deficiency:

Interim Justification:

Interim operation is justified based on the fact that qualification testing done in report PEN-TR-81-37 is applicable to the ceramic bushing sealed type penetrations used in Indian Point 2. Testing as specified and performed under Crouse-Hinds Report of 3/30/67 on canister samples indicate satisfactory electrical and leak tight performance during LOCA temperature and pressure conditions. The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related.

Final Resolution:

Original penetration qualification was addressed in previous responses to IE Bulletin 77-06 dated December 2, 1977 and January 30, 1978. Additional penetration information was included in the October 31, 1980 and January 5, 1981 supplements to the Indian Point 2 equipment qualification report.

It is felt by Indian Point 2 that the above referenced information is adequate to demonstrate qualification for these penetrations.

In addition, Franklin Research Center (FRC) has found the Crouse-Hinds Electrical Cable Penetrations in the Ginna Plant to be environmentally qualified. Con Edison makes reference to the Rochester Gas & Electric Company references on penetrations listed in the FRC Technical Evaluation Report for the Ginna Plant, particularly Reference 2-59, "Aging Effects on Crouse-Hinds Penetration Materials" (30 Oct 80). These references are already in the possesion of FRC. Con Edison has reviewed the environmental qualification parameters for the Ginna Plant and found them to envelope Indian Point Unit No. 2 (in containment).

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Containment Penetrations<br>I.D. NO.:<br>COMPONENT: Electrical Penetrations<br>MANUFACTURER: Westinghouse<br>MODEL NO.: WX31864<br>FUNCTION: Containment Seal at Electrical Penetration<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Electrical/Control Cable Penetrations<br>LOCATION: Inside/Outside Containment | OPERATING TIME | 30 days | 21 Days | -- | 3,4 | Type Test Simultaneous | Note 2 |
| | TEMPERATURE (°F) | 287 | 340 | 1 | 3,4 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) | 40 | 56 | 1 | 3,4 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3,4 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | none | 1 | none | N/A | N/A |
| | RADIATION (rads) | $.6 \times 10^8$ | $1.25 \times 10^8$ | 2 | 3,4 | Type Test Simultaneous | N/A |
| | AGING (yrs) | 40 | 40 | N/A | 3,4 | Type Test Simultaneous | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Total qualification time based on test reported in Ref. 3 and using a conservative activation energy of 0.5 ev in the Arrhenius equation to extrapolate from the required envelope of 287°F for one hour and 160°F for the remainder of the period.

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Westinghouse Report PEN-TR-81-37.
4. Westinghouse Report PEN-RLK-3-16-01 and Addendum to PEN-RLK-3-16-01.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION | OUTSTAND. |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | METHOD | ITEMS |
| SYSTEM: Containment Penetration<br>I.D. NO.:<br>COMPONENT: Electrical Penetration<br>MANUFACTURER: Crouse Hinds<br>MODEL NO.:<br>FUNCTION: Containment Seal at Electrical Penetration<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Electrical/Control Cable Penetration<br>LOCATION: Inside/Outside Containment | OPERATING TIME | 30 days | Note 3 | -- | 3, 4 | Type Test Simultaneous | Note 3 |
| | TEMPERATURE (°F) note 2 | 287 | 320 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | PRESSURE (PSIG) note 2 | 40.6 | 90 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3, 4 | Type Test Simultaneous | N/A |
| | CHEMICAL SPRAY | Note 1 | -- | 1 | 3, 4 | Type Test Simultaneous | Note 2 |
| | RADIATION (rads) | $.6 \times 10^8$ | -- | 2 | 3,4 | -- | Note 2 |
| | AGING (yrs) | 40 | -- | N/A | 3, 4 | -- | Note 2 |
| ABOVE FLOOD LEVEL:<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Pressure retaining are inorganic materials.
3. Leakage test for 100 minutes.
4. Chemical spray not part of leakage test.

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Westinghouse Report PEN-TR-81-44.
4. IP2 letter to NRC Cahill to Varga May 9, 1980, Ref. 7.

Component:

TER Item #: 40C
Device: Cable/Splice
Manufacturer: GE/Ray Chem
Model: NA
Location: In Containment

Deficiency:

QI, A, R

Interim Justification:

Samples of cable were removed from Indian Point 2 and were tested under different programs run by both Westinghouse and the different cable manufacturers. This justification summarizes these tests as well as establishes traceability for manufacturers versus test.

During all of the tests only one failure was reported. This was described in the Westinghouse test report in WCAP-7410L Volume 2 of 2. This failure resulted from apparent steam impingement on the cable splice. Since steam impingement is not a facture on field mounted cables, this failure was not considered relevant.

The test conditions are as follows:

Note: all tests are summarized

1. HELB (WCAP-7410L)

Steam and Chemical Environment
Pressure = 80 psig
Temperature = 300°F
Time = 200 hours, 68 hours at a steam pressure higher than containment design pressure
1.5 weight percent boric acid with NaOH added to yield a pH of 9.25.

2. Radiation and Steam (WCAP-7410L)

Gamma - $2.8 \times 10^7$ Rads followed by exposure to a steam environment of 85 psig for 2(two) - 30 minute cycles.

3. Aging, Steam and Radiation (WCAP-7410L)

40 year equivalent followed by 4 hours of steam at 287°F and 60 psig followed by irradiation exposure to $2 \times 10^8$ Rads.

4. Radiation and steam (Franklin Institute Report #F-C2442-02)4.

Gamma $2.5 \times 10^7$ Rads
328°F, 85 psig

5. Submergence (Phelps-Dodge R&D Report #10519)

Submerged in simulated river water for 2 weeks.
IR tests - $4 \times 10^6$ megaohms.
DC withstand test - 18 KVdc for 15 minutes and 6 KVdc for 5 minutes

6. Radiation and HELB (Franklin Institute Report #F-C2781)

100 MRAD gamma radiation followed by steam and chemical environment

Pressure = 50 psig
Temperature = 298°F
Time = 7 days (12 hours at a steam pressure and temperature)

7. Steam and Chemical Spray (Raychem Thermofit Report 71100 Rev. 1)

(250°F, 21 psig, 0.2% Boric Acid Spray for 24 hours).

NOTE: Tests 1 through 4 apply to Kerite cables
Tests 1 through 5 apply to GE cables
Test 6 applies to Lewis cables
Tests 1 through 7 apply to Raychem splices

The above test data provides sufficient justification for interim operation since no absolute failures occurred as a result of anticipated environmental conditions.

Final Resolution:

The tests reported in WCAP-7410L demonstrate the capability of this cable/splice combination to survive accident conditions is an aged condition. Radiation tests exceeding the requirement were also performed before and after high energy line break test simulations. The successful submergence test was performed on an 8 - 10 year old cable removed from the site for this purpose.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Electrical<br>I.D. NO.:<br>COMPONENT: Cable/Splice<br>MANUFACTURER: GE /Raychem<br>MODEL NO.: Note 4<br>FUNCTION:<br>ACCURACY:<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE:<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | 70 days<br>Note 2 | ___ | 3 | Seperate Test | N/A |
| | TEMPERATURE (°F) | 287 | 300 | 1 | 3 | Simultaneous Test | N/A |
| | PRESSURE (PSIG) | 40 | 80 | 1 | 3 | Simultaneous Test | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Simultaneous Test | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 3 | 1 | 3 | Simultaneous Test | N/A |
| | RADIATION (rads) | $1.2 \times 10^8$ | $2 \times 10^8$ | 2 | 3 | Seperate Test | NA |
| | AGING (yrs) | 40 | 40 yrs | N/A | 3 | Seperate Test | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | assumed | Ref 4 | N/A | 4 | none | N/A |

NOTES:

1. 2000 PPM boric acid spray with NaOH to result in 10.0 ph.
2. Based on test reported in WCAP-7410L of 486 hrs. at 214F (steam) and using 0.5 ev and an ambient of 160F in the Arrhenius equation.
3. 1.5 percent of boric acid (by weight) in water and adding sodium hydroxide to buffer the ph to a value of 9.25.
4. Submergence test performed as GE cables and Raychem splices.
5. 600 V Power & Control multi-conductor #12 Kerite Insulation w/pair braid zinc tape kerite jacket

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1
3. WCAP-7410L
4. Phelps-Dodge R&D report #10519.

Component:

TER Item #: 42B
Device: Hydrogen Recombiners
Model: Flame Type
Function: Remove Hydrogen from Containment Enviroment
Location: Inside Containment

Deficiency:

QI, QM, A

Interim Justification:

Continued operation of the $H_2$ Recombiner is justified by the following test:

1) WCAP-7410L Vol. 2

A) Ignitor Excitor

The unit performed satisfactorily after three separate radiation exposures totalling $3.23 \times 10^8$ rads gamma demonstrating a one year post accident capability with margin. Following these tests the unit was exposed to a steam environment (285°F, 55 psig) for two hours followed by 22 hours at 220°F and 20 psig and three weeks at 155°F and slightly above atmospheric pressure with satisfactory performance.

B) Blower Motor

A 2 HP 3 PH 230/460V motor with class H insulation constructed in the same manner as the actual 15 HP motor was subjected to the following tests:

1) Radiation - $2 \times 10^8$ rads gamma

2) Thermal Aging - aged at 240°C for 120 hours which is equivalent to seven years of continuous operation at 150°C assuming a 10°C rise per half life. This test included a 3KV surge and a 220V no-load operation for two hours.

3) Steam tests - the motor was subjected to the same environment as the excitor with satisfactory performance.

2) WCAP-9001

A) Ignitor and thermocouple

These components do not contain any organic materials and will not be affected by the environment.

B) Wiring

Both the ignition lead and the thermocouple are completely housed in a pressure tight system with the connections field brazed.

3) WCAP-7301L

This test demonstrates the proper operation of the recombiner from 55% to 175% of the design basis with a one gallon per minute water mist being introduced into the combustor section.

Final Resolution:

The information contained in the above reports demonstrates that the Hydrogen Recombiner can be expected to be available and perform satisfactorily for one year post accident with the possible exception of the Barksdale Flow Switch. Qualification data will be established for this switch or a qualified replacement will be provided.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.:<br>COMPONENT: Thermocouple<br>MANUFACTURER: Westinghouse<br>MODEL NO.: A-2092<br>FUNCTION: Hydrogen Recombiner Exhause Temp. Indication<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Exhaust Temperature Indication<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | Note 2 | -- | -- | -- | -- |
| | TEMPERATURE (°F) | 287 | Note 2 | 1 | -- | -- | -- |
| | PRESSURE (PSIG) | 40.6 | Note 2 | 1 | -- | -- | -- |
| | RELATIVE HUMIDITY (%) | 100 | Note 2 | 1 | -- | -- | -- |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | -- | -- | -- |
| | RADIATION (rads) | $1.54 \times 10^8$ | Note 2 | 2 | -- | -- | -- |
| | AGING (yrs) | 40 | Note 2 | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | Note 2 | N/A | -- | -- | -- |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. Thermocouple contains no organic materials and will not be effected by the environment per drawing A-2092.

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.:<br>COMPONENT: Fan Blower Motor<br>MANUFACTURER: Westinghouse<br>MODEL NO.:<br>FUNCTION: Air Handling for Hydrogen Recombiner<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Hydrogen Control in Containment Air<br>LOCATION: In Containment | OPERATING TIME | 30 days | 2 hours / 1 year | 1 | 3 | Type Test Sequential | N/A |
| | TEMPERATURE (°F) | 287 | 220 / 155 | 1 | 3 | Type Test Sequential | N/A |
| | PRESSURE (PSIG) | 40 .6 | 55 / 5 | 1 | 3 | Type Test Sequential | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Type Test Sequential | N/A |
| | CHEMICAL SPRAY | Note 1 | Note 2 | 1 | 3 | Type Test Sequential | N/A |
| | RADIATION (rads) | $1.54 \times 10^8$ | $2 \times 10^8$ | 2 | 3 | Type Test Separate | N/A |
| | AGING (yrs) | 40 | 40 Note 3 | N/A | 3 | Type Test Sequential | N/A |
| ABOVE FLOOD LEVEL: YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:
1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.
2. 1.5% Boric acid spray with NaOH to result in 9.25 ph.
3. 40 Yr. life based on occasional use of $H_2$ recombiner and testing which indicates satisfactory operation for a continuous duty of 7 yrs.

REFERENCES:
1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Westinghouse Report WCAP-7410L

4.2.2

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.:<br>COMPONENT: Flow Switch<br>MANUFACTURER: Barksdale<br>MODEL NO.:<br>FUNCTION: Air Handling for Hydrogen Recombiner<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Hydrogen Control in Containment<br>LOCATION: Inside Containment | OPERATING TIME | 30 Days | Note 2 | -- | -- | -- | -- |
| | TEMPERATURE (°F) | 287 | Note 2 | 1 | -- | -- | -- |
| | PRESSURE (PSIG) | 40.6 | Note 2 | 1 | -- | -- | -- |
| | RELATIVE HUMIDITY (%) | 100 | Note 2 | 1 | -- | -- | -- |
| | CHEMICAL SPRAY | NOTE 1 | Note 2 | 1 | -- | -- | -- |
| | RADIATION (rads) | $1.54 \times 10^8$ | Note 2 | 2 | -- | -- | -- |
| | AGING (yrs) | 40 | Note 2 | N/A | -- | -- | -- |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NAOH to result in 10.0 ph.
2. Equipment qualification to latest standards has not been performed.

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Hydrogen Recombiner<br>I.D. NO.:<br>COMPONENT: Ignitor Excitor<br>MANUFACTURER: Westinghouse<br>MODEL NO.: GLA43737<br>FUNCTION: Ignition of Burner in Hydrogen Recombiner<br>ACCURACY: N/A<br>(% OF SPAN) SPEC:<br>DEMON:<br>SERVICE: Hydrogen Control in Containment Air<br>LOCATION: Inside Containment | OPERATING TIME | 30 days | 2 hours / 3 wks | — | 3 | Type Test Sequential | N/A |
| | TEMPERATURE (°F) | 287 | 285 | 1 | 3 | Type Test Sequential | N/A |
| | PRESSURE (PSIG) | 40.6 | 55 | 1 | 3 | Type Test Sequential | N/A |
| | RELATIVE HUMIDITY (%) | 100 | 100 | 1 | 3 | Type Test Sequential | N/A |
| | CHEMICAL SPRAY | Note 1 | — — | 1 | — — | — — | — — |
| | RADIATION (rads) | $1.54 \times 10^8$ | $3.23 \times 10^8$ | 2 | 3 | Type Test Separate | N/A |
| | AGING (yrs) | 40 | 40<br>Note 2 | N/A | 3 | Type Test Separate | N/A |
| ABOVE FLOOD LEVEL:<br>YES X NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. 2000 PPM boric acid spray with 40% NaOH to result in 10.0 ph.

2. 40 yr. life obtained through maintenance program.

REFERENCES:

1. FSAR Section 14.3.
2. IE Bulletin 79-01B, Attachment 4, Section 4.1.2.
3. Westinghouse Report WCAP-7410L.

Component:

TER Item #:

Device: Temperature Switch

Manufacturer: United Electric Control

Model: Type D-5 MOD 74

Location: Auxiliary Pump Room

Deficiency:

This unqualified device is relied upon to isolate steam to the Auxiliary Pump Room in case of a steam leak.

Interim Justification:

This device is set to actuate at a low temperature of 135°F and should actuate before extremely harsh conditions develop in this area.

Final Resolution:

This device will be replaced, qualified, or modified to ensure its operation prior to June 30, 1982.

FACILITY: Indian Point 2
DOCKET:

SYSTEM COMPONENT EVALUATION
WORK SHEET

ENCLOSURE
79-01B

| EQUIPMENT DESCRIPTION | ENVIRONMENT | | | DOC. REF. | | QUALIFICATION METHOD | OUTSTAND. ITEMS |
|---|---|---|---|---|---|---|---|
| | PARAMETER | SPECIFICATION | QUALIFICATION | SPEC. | QUAL. | | |
| SYSTEM: Auxiliary Feedwater<br>I.D. NO.:<br>COMPONENT: Temperature Switch<br>MANUFACTURER: United Electric Controls<br>MODEL NO.: Type D-5 MOD 74<br>FUNCTION: Aux Feedpump Turbine Isolation<br>ACCURACY: (% OF SPAN) SPEC: N/A DEMON:<br>SERVICE: Temp. Sensor<br>LOCATION: Auxiliary Pump Room | OPERATING TIME | 30 Days | Note 1 | — | -- | -- | -- |
| | TEMPERATURE (°F) | 135 | Note 1 | 1 | -- | -- | -- |
| | PRESSURE (PSIG) | 0 | Note 1 | 1 | -- | -- | -- |
| | RELATIVE HUMIDITY (%) | 100 | Note 1 | 1 | -- | -- | -- |
| | CHEMICAL SPRAY | N/A | Note 1 | 1 | -- | -- | -- |
| | RADIATION (rads) | N/A | Note 1 | 1 | -- | -- | -- |
| | AGING (yrs) | 40 | Note 1 | | -- | -- | -- |
| ABOVE FLOOD LEVEL: N/A<br>YES NO | SUBMERGENCE | N/A | N/A | N/A | N/A | N/A | N/A |

NOTES:

1. Equipment qualification to latest standards has not been performed.

REFERENCES:

1. Analysis of high energy lines in letter Tosten to Giambusso 5/14/73.

# APPENDIX C

The documentation review for aging is ongoing. Interim operation is justified based on the fact that aging is a long term parameter and should not adversely affect equipment operability until the question is more fully resolved. In addition to the material evaluation being conducted, Indian Point 2 will establish an ongoing program to review the surveillance and maintenance records of the plant in order to identify equipment degradation which may be age related. A maintenance program will be established which, in conjunction with the surveillance program and materials study results, will lead to the establishment of a replacement schedule for equipment that is qualified for less than the life of the plant. This replacement schedule will be developed and provided to the staff as soon as it becomes available.

ATTACHMENT 2

# Environmental Qualification

# Cold Shut-Down Report

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
Facility Operating License No. DPR-26
September, 1981

# WESTINGHOUSE SUPPLIED ELECTRICAL EQUIPMENT TO BE USED FOR COLD SHUTDOWN

| EQUIPMENT | LOCATION | MANUFACTURER TYPE/MODEL | ABNORMAL/ ACCIDENT PARAMETER | EXTREMES QUALIFIED | OPERABILITY REQUIRED | QUALIFIED LIFE | METHOD | QUAL. REF. |
|---|---|---|---|---|---|---|---|---|
| TRANSMITTERS | | | | | | | | |
| Containment Pressure Transmitter | Outside Containment | Barton 752 Lot 3 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | $130^{o}F$<br>Atmos.<br>95%<br>$< 10^{4}R(\gamma)$<br>None | Continuous | 5 yrs | Seq. Test | ESE-2 |
| Sump Level Transmitter | Inside Containment | Barton 764 Lot 4 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | $420^{o}F$<br>57 psig<br>100%<br>$5x10^{7}R(\gamma)+9x10^{8}R(\beta)$<br>2500 ppm $H_3BO_3$ - NaOH to 10.7 pH | Post DBE 4 months | 10 yrs | Seq. Test | ESE-3 |
| Boric Acid Tank Level | Outside Containment | Barton 752 Lot 3 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | $130^{o}F$<br>Atmos.<br>95%<br>$< 10^{4}R(\gamma)$<br>None | Continuous | 5 yrs | Seq. Test | ESE-4 |

WESTINGHOUSE SUPPLIED ELECTRICAL EQUIPMENT TO BE USED FOR COLD SHUTDOWN

| EQUIPMENT | LOCATION | MANUFACTURER TYPE/MODEL | ABNORMAL/ ACCIDENT PARAMETER | EXTREMES QUALIFIED | OPERABILITY REQUIRED | QUALIFIED LIFE | METHOD | QUAL. REF. |
|---|---|---|---|---|---|---|---|---|
| TRANSMITTERS | | | | | | | | |
| Steam Line Pressure Transmitter | Outside Containment | Barton 753 Lot 3 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 130°F<br>57 psig<br>95%<br>$5x10^7$R(γ)<br>None | Continuous | 5 yrs | Seq. Test | ESE-4 |
| Steam Generator Level Transmitter | Containment Bldg/Outside Missile Shield | Barton 764 Lot 4 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 420°F<br>57 psig<br>100%<br>$5x10^7$R(γ) $9x10^8$R(β)<br>2500 ppm $H_3BO_3$ - NaOH to 10.7 pH | Trip < 5 min | 10 yrs | Seq. Test | ESE-3 |
| Pressurizer Level Transmitter | Containment Bldg/Outside Missile Shield | Barton 764 Lot 4 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 420°F<br>57 psig<br>100%<br>$5x10^7$R(γ)+$9x10^8$R(β)<br>2500 ppm $H_3BO_3$ - NaOH to 10.7 pH | Post DBE<br>4 months | 10 yrs | Seq. Test | ESE-3 |
| Pressurizer Pressure Transmitter | Containment Bldg/Outside Missile Shield | Barton 763 Lot 4 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 420°F<br>57 psig<br>100%<br>$5x10^7$R(γ)+$9x10^8$R(β)<br>2500 ppm $H_3BO_3$ - NaOH to 10.7 pH | Trip 5 min | 10 yrs | Seq. Test | ESE-1 |

WESTINGHOUSE SUPPLIED ELECTRICAL EQUIPMENT TO BE USED FOR COLD SHUTDOWN

| EQUIPMENT | LOCATION | MANUFACTURER TYPE/MODEL | ABNORMAL/ ACCIDENT PARAMETER | EXTREMES QUALIFIED | OPERABILITY REQUIRED | QUALIFIED LIFE | METHOD | QUAL. REF. |
|---|---|---|---|---|---|---|---|---|
| VALVES | | | | | | | | |
| Safety Injection Suction Isolation Valves MOV-887A,B | SI. Out. Containment | Limitorque SMB-00 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 50 - 120°F<br>Atmos.<br>95%<br>$2x10^8$R(γ) (Qualified)<br>None | 30 days | | Separate | (1)(5) |
| High Head Recirc. valves MOV-888A&B | PP Out. Containment | Limitorque SMB-00 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 50 - 120°F<br>Atmos.<br>95%<br>$2x10^8$R(γ) (Qualified)<br>None | 30 days | | Separate | (1)(5) |
| Refueling Water Storage Tank Disch. Valve MOV-1810 | SI Out. Containment | Limitorque SMB-00 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 50 - 120°F<br>Atmos.<br>95%<br>$2x10^8$R(γ) (Qualified)<br>None | 30 days | | Separate | (1)(5) |
| Residual Heat Isolation Valve MOV-774 | PP Out. Containment | Limitorque SMB-1 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 50 - 120°F<br>Atmos.<br>95%<br>$2x10^8$R(γ) (Qualified)<br>None | 30 days | | Separate | (1)(5) |

WESTINGHOUSE SUPPLIED ELECTRICAL EQUIPMENT TO BE USED FOR COLD SHUTDOWN

| EQUIPMENT | LOCATION | MANUFACTURER TYPE/MODEL | ABNORMAL/ ACCIDENT PARAMETER | EXTREMES QUALIFIED | OPERABILITY REQUIRED | QUALIFIED LIFE | METHOD | QUAL. REF. |
|---|---|---|---|---|---|---|---|---|
| VALVES | | | | | | | | |
| High Head Injection Valve MOV-856 A to F | Inside Containment | Limitorque SMB-00 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | $300^{o}F$<br>70 psig<br>100%<br>$2x10^{8}R(\gamma)$<br>2500 ppm $H_3BO_3$<br>NaOH to 10.7 pH | 30 days | | Sequential | (1)<br>(2)<br>(3)<br>(4) |
| Charcoal Filter Dousing Valves MOV-880 A to H J to K | Inside Containment | Limitorque SMB-00 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | $300^{o}F$<br>70 psig<br>100%<br>$2x10^{8}R(\gamma)$<br>2500 ppm $H_3BO_3$<br>NaOH to 10.7 pH | 30 days | | Sequential | (1)<br>(2)<br>(3)<br>(4) |
| Recirculation Pump Discharge Valves MOV-1802 A & B | Inside Containment | Limitorque SMB-00 | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | $300^{o}F$<br>70 psig<br>100%<br>$2x10^{8}R(\gamma)$<br>2500 ppm $H_3BO_3$<br>NsOH to 10.7 pH | 30 days | | Sequential | (1)<br>(2)<br>(3)<br>(4) |

WESTINGHOUSE SUPPLIED ELECTRICAL EQUIPMENT TO BE USED FOR COLD SHUTDOWN

| EQUIPMENT | LOCATION | MANUFACTURER TYPE/MODEL | ABNORMAL/ ACCIDENT PARAMETER | EXTREMES QUALIFIED | OPERABILITY REQUIRED | QUALIFIED LIFE | METHOD | QUAL. REF. |
|---|---|---|---|---|---|---|---|---|
| VALVES | | | | | | | | |
| Safety Injection System Mini-Flow Iso. Valves MOV-842 & 843 | SI Outside Containment | Limitorque SMB-00 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 50 - 120°F<br>Atmos.<br>95%<br>$2x10^8$R(γ)<br>None | 30 days<br><br><br>(Qualified) | | Separate | (1)<br>(5) |
| High Head Safety Injection Discharge Valves MOV-851 A & B | SI Outside Containment | Limitorque SMB-00 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 50 - 120°F<br>Atmos.<br>95%<br>$2x10^8$R(γ)<br>None | 30 days<br><br><br>(Qualified) | | Separate | (1)<br>(5) |
| Residual Heat Exchanger Isolation Valves MOV-745 A & B | Inside Containment | Limitorque SMB-00 H-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 300°F<br>70 psig<br>100%<br>$2x10^8$R(γ)<br>Yes | 30 days<br><br><br>(Qualified) | | Sequential | (1)<br>(2)<br>(3)<br>(4) |
| Residual Heat Exchanger Isolation Valves MOV-746 & 747 | Inside Containment | Limitorque SMB-2 H-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 300°F<br>70 psig<br>100%<br>$2x10^8$R(γ)<br>Yes | 30 days<br><br><br>(Qualified) | | Sequential | (1)<br>(2)<br>(3)<br>(4) |

WESTINGHOUSE SUPPLIED ELECTRICAL EQUIPMENT TO BE USED FOR COLD SHUTDOWN

| EQUIPMENT | LOCATION | MANUFACTURER TYPE/MODEL | ABNORMAL/ ACCIDENT PARAMETER | EXTREMES QUALIFIED | OPERABILITY REQUIRED | QUALIFIED LIFE | METHOD | QUAL. REF. |
|---|---|---|---|---|---|---|---|---|
| VALVES | | | | | | | | |
| Residual Heat Exchanger Cooling Water Supply Valves MOV-822 A&B | Inside Containment | Limitorque SMB-00 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 286°F<br>60 psig<br>100%<br>$2 \times 10^8$ R(γ) (Qualified)<br>Yes | < 8 hrs. | | Separate | (1)<br>(5) |
| Reactor Coolant Pump Cooling Water Supply Valves MOV-797,769, 784,786,FCV-625 & 789 | PP Outside Containment | Limitorque SMB-00 B-Insulation | Temperature<br>Pressure<br>Rel. Humidity<br>Radiation<br>Chemistry | 50 - 120°F<br>Atmos.<br>95%<br>$2 \times 10^8$ R(γ) (Qualified)<br>No | 30 days | | Separate | (1)<br>(5) |

REFERENCES


(1) Westinghouse Electric Corp. WCAP 7410-L, Volume I & II, Topical Report: Environmental Testing of Engineered Safety Features Related Equipment, J. Locante, December, 1970.

(2) Limitorque Corporation, Nuclear Power Station Qualification Type Test report. Limitorque valve actuators for PWR service project #600456, W. Sykes, December, 1975.

(3) Westinghouse Electric Corp., letter NS-CE-692 from C. Eicheldinger to D.B. Vassalo, July 10, 1975.

(4) Westinghouse Electric Corp., letter NS-CE-756 from C. Eicheldinger to D.B. Vassalo, August 15, 1975.

(5) Limitorque Corporation, Qualification Type Test Report. Limitorque valve actuators for Class 1E service outside Primary Containment B0003.