

June 8, 1984

Docket No.: 50-293

LICENSEE: Boston Edison Company (BECo)
FACILITY: Pilgrim Nuclear Power Station, Unit 1
SUBJECT: MEETING WITH BOSTON EDISON COMPANY CONCERNING
ENVIRONMENTAL QUALIFICATION OF ELECTRICAL EQUIPMENT

On May 22, 1984, representatives of the Boston Edison Company (BECo) met with NRC staff members in Bethesda, Maryland, to discuss the resolution of items in the staff's Safety Evaluation regarding environmental qualification of safety-related electrical equipment at Pilgrim Nuclear Power Station. Enclosure 1 is a list of the attendees.

Enclosure 2 is a copy of the material provided by BECo at the meeting which summarizes its presentation. Included is a table showing all of the items that were questioned in the staff consultant's Technical Evaluation Report (TER) and BECo's planned resolution of any deficiencies. Similar information for additional items identified by BECo is also provided in the table.

Justifications for continued operation (JCO's) will be submitted by the licensee for some items that will not be corrected prior to restart of the plant about the end of September. BECo will provide some of these JCO's by July 6 and the remainder by August 3, 1984. BECo's overall objective is to make all necessary equipment corrections by March 31, 1985.

Original signed by/

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Enclosures:
As stated

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MAY 22, 1984

MEETING ON EQUIPMENT QUALIFICATION

PILGRIM STATION

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AGENDA FOR

BOSTON EDISON CO.'S MEETING WITH NRC STAFF TO RESOLVE ENVIRONMENTAL
QUALIFICATION SER DEFICIENCIES - MAY 22, 1984

1. INTRODUCTION RA&P
2. COMPLIANCE WITH 10 CFR 50.49 - NED
 b(1)
 b(2)
 b(3)
3. TER DEFICIENCIES RESOLUTION - NED
4. JUSTIFICATION FOR CONTINUED OPERATION (JCO) - NED
5. MAINTENANCE, SURVEILLANCE PROGRAM - RA&P/NOD
6. INFO NOTICES - RA&P/NED
7. CONCLUDING REMARKS - NRC
 RA&P

INTRODUCTION

The main objective of today's meeting, between the staff and BECo, is to discuss Boston Edison's proposed method of resolution of Franklin Technical Evaluation Reports for applicable safety-related electrical equipment at Pilgrim Nuclear Power Station. In addition, other issues as listed in the agenda will be discussed in today's meeting.

Boston Edison received, on April 18, 1983, the Safety Evaluation Reports (SER's) regarding the environmental qualification of Safety-Related Electrical Equipment at Pilgrim Nuclear Power Station. The SER's each contained a Technical Evaluation Report (TER), written by Franklin Research Center under contract to the NRC, which noted a number of environmental qualification deficiencies for safety-related electrical equipment. As requested by the SER, Boston Edison provided the staff with the justification for continued operation for all equipment identified as categories I.b, II.b, and IV in the TER.

As a prelude to today's meeting, Boston Edison likes to provide a brief background of its effort since the issuance of IE Circular 78-08 on May 31, 1978 and IE Bulletin 79-01 dated January 17, 1980. Boston Edison, under the direction given by the NRC in its Circular and Bulletin, initiated and provided to the NRC, qualification documentation searches for all safety-related electrical equipment. In response to IE Bulletin 79-01B, Boston Edison provided two responses; a 45 day and a 90 day, with information as requested by Enclosure 1 of the Bulletin. The safety-related electrical equipment covered under the scope of environmental qualification was governed by the guidelines provided by the staff in the Bulletin, DOR Guidelines & NUREG 0588. Subsequently, the staff issued supplements 2 and 3 to 79-01B modifying/clarifying the information provided in IE Bulletin 79-01B.

Boston Edison has invested significant time and money to confirm the qualification of safety-related equipment at PNPS. A qualification data base was created and formed the basis for BECo's 45 day and 90 day responses and other submittals that followed. BECo received a safety evaluation report from the NRC in June 1981. In response to the SER, BECo provided its submittal in September 1981, and final response in February 1982. Detailed justification for continued operation for all equipment which was identified as yet not fully qualified was provided to the staff. In addition, numerous equipment items at PNPS-1 have been replaced with "qualified" equipment. Even though the qualification deadline of June 1982 was suspended by the staff by issuing an interim rule on June 30, 1982, Boston Edison has continued its effort in qualifying all applicable equipment.

The staff issued the Final Rule 10 CFR 50.49 which became effective on February 22, 1983. As requested by the rule, Boston Edison provided its response dated May 17, 1983 and contained its methodologies in addressing Section b(1), b(2), & b(3). Boston Edison also provided, through Attachment 1, its qualification plan for all equipment that has been identified as requiring qualification.

As stated in our May response, BECo had been performing ongoing reviews of its Equipment Qualification Program and has added equipment to the scope included in the May submittal. BECo has since included the additional equipment in its continuing qualification effort. We will be including the corrective action plan for this equipment in our followup submittal to this meeting. There is also certain equipment that was removed from the Master List as a result of our continuing evaluation, and has been indicated as being out of 50.49 Scope.

Boston Edison likes to point out at this time two issues that are currently being addressed; such as SECY 82-111 (Reg. Guide 1.97) and updating plant configuration documents. These efforts will increase the scope of equipment on the current master list. This equipment will be added to the qualification list procedurally as it is available and will be included in our Qualification Program. The Reg. Guide 1.97 list is currently being finalized. Even though Cat. I and Cat. II equipment are to be environmentally qualified, Boston Edison cannot rule out the possibility of future exceptions as we progress with our review.

Boston Edison has also expended resources in performing a series of other tasks since the TER's were issued and include, but not limited to, the following:

1. Boston Edison has been performing systematic evaluation of all equipment in the Master List in its effort to resolve all outstanding issues that are identified by BECo.
2. Prepared and issued a number of Work Instructions to control EQ related activities. Engineering Procedures have been revised to incorporate EQ requirements.
3. Issued controlled drawings for environmental profiles and affected areas.
4. A number of BECo personnel, engineering as well as plant maintenance, attended EPRI sponsored EQ Seminars.
5. BECo is currently in the process of procuring a number of equipment, for which it hasn't been able to justify adequate qualification.
6. We have performed extensive site verification of a majority of equipment. Wyle Labs has been contracted to support BECo Qualification effort.
7. We have established an EQ Program to implement the overall qualification process.

Boston Edison, with the help of Wyle Labs has addressed the various TER deficiencies in the following manner:

The Boston Edison files, Wyle's Equipment Qualification Data Bank, EPRI's Data Bank and I.E Bulletin/Notices were searched to locate test information on identical or similar equipment. Each report was reviewed for applicability to Boston Edison's qualification requirements. In order to assure applicability, the following were reviewed: Manufacturer, Part Number, Materials of Construction, Mounting Installation, Orientation, Interfacing and Qualification Parameters. Typical qualification parameters are Operating Time, Temperature, Pressure, Humidity, Radiation, Aging, Submergence, Accuracy and Safety-Related Functions. Applicability was assured by comparison with Boston Edison design records, maintenance records and field verification. All deficiencies are noted, resolution proposed, and resolved. Supplemental analyses are performed for interpolation or extrapolation of test data. When qualification documentation is lacking with respect to meeting 10 CFR 50.49, corrective actions such as modification, replacement and protection are proposed.

BECO is diligently attempting to qualify by March, 1985, all applicable equipment contained in our May submittal. However, should the unlikely event that we find it not feasible to do so for any equipment for reasons such as those listed in 50.49, we will inform the NRC within the guidelines of 50.49.

Compliance With 10CFR50.49

The PNPS Master Equipment List for Environmental Qualification was developed to the criteria established in 10CFR50.49 b(1), b(2) and b(3). All design basis events which could potentially result in a harsh environment were addressed in identifying safety related electrical equipment to be environmentally qualified. This assessment included all postulated events documented in Chapters 14, Appendix G, and Appendix O of the PNPS FSAR.

Section b (1) Safety-Related Electrical Equipment

Development of the Master List was performed in three phases. In the first phase, a list of systems providing a specified safety action was developed. The specified safety actions include: maintaining (1) the integrity of reactor coolant pressure boundary, (2) the capability to shutdown the reactor and maintain it in a safe shutdown condition and (3) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the 10CFR part 100 guidelines.

This phase included review of PNPS FSAR Appendices C, G and H, Safety Sequence Diagrams, and PNPS Operating Procedures. This review included all postulated design-basis accidents documented in the FSAR including a Loss of Coolant Accident (LOCA) inside containment and High Energy Line Breaks (HELB) outside containment. Flooding, Pipe Whip and Jet Impingement from HELB's were also analyzed.

The second Phase was to determine the specific equipment required for system operation. The documentation reviewed to determine the specific equipment required for system operation included: 1) Q-List; 2) P&ID's; 3) FSAR; 4) Technical Specifications; 5) Emergency Operating Procedures; and 6) the PNPS Cable/Raceway Computer Program. The equipment that was excluded at this

point, was equipment that: 1) that does not provide a specified safety action, 2) whose failure under postulated environmental conditions does not affect safety related equipment from performing a specified safety action, or 3) that does not serve as post-accident monitoring equipment.

The third and final phase of the Master List development was to determine specific equipment locations and whether it was located in a harsh environment. This was determined by reviewing: 1) the EQ Project Walkdown results; 2) equipment layout drawings; 3) the PNPS Cable/Raceway Computer Program; and 4) the plant area drawings. This review was conducted so as to determine which equipment could be deleted from the Master List because that specific equipment was not located in an area of harsh environment. For equipment that was not in an area of potentially harsh environment, the cable routing was identified to assure that the cable did not pass through an area of harsh environment.

Section b(2) Non-Safety Equipment Failures

Paragraph (b)(2) of 10CFR50.49 requires that licensees identify "Non-safety related electric equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions . . ." Studies have been performed which address the requirements of (b)(2).

The first of these studies was in response to I&E Information Notice 79-22, dated September 14, 1979. The purpose of this study was to review non-nuclear control systems and determine if their failure due to a high energy line break could cause a safety related system to fail and thus increase the consequences of an accident. The study also evaluated whether such a failure could affect the assumptions used in the station safety analysis (FSAR Section 14).

A list of non-nuclear systems (or portions) located in an area of harsh environment, created by high energy line break was developed. A list of non-safety control systems whose failure could have an affect on a safety system or a safety analysis assumption was generated. The non-safety related equipment was considered to be of concern if its failure mode could defeat the single failure criteria or have a more severe effect on existing safety analysis assumptions. The results of this study concluded that the reactor head vent valves could open due to a PBIC causing an increase in Peak Cladding Temperature $\pm 10^{\circ}\text{F}$.

The second review was performed in response to IE Bulletin 79-27 to assure that safe shutdown can be achieved in spite of single failures in safety or non-safety electric systems. In particular, the review assured that alarms or procedures exist such that failures of safety or non-safety equipment will not prevent the capability to achieve shutdown, nor will such failures lead to operator confusion in carrying out the procedures.

Third, a review of associated circuits (defined as non-safety circuits either electrically connected to safety-related circuits, located in the same raceway as safety-related circuits, or located in the same enclosure as safety related circuits) was conducted under the auspices of Appendix R. Failure and effects criteria to analyze the cables were developed. Fire-induced failures were analyzed to show that cable failure would not prevent operation or cause maloperation of systems needed for safe shutdown. Cables which could affect the safe shutdown capability of the plant will be either rerouted or protected.

Boston Edison believes that a detailed review of these analyses will show that failure of non-safety related cable or non-safety related equipment will have no affect on safety related functions. An effort is currently underway at Boston Edison to complete and verify this assessment.

Section b(3) Certain Post-accident Monitoring Equipment

Boston Edison is currently assessing Pilgrim for conformance to Generic Ltr. 82-33. As part of this effort, Regulatory Guide 1.97 is being reviewed and a complete list of instrumentation is being prepared. In response to Generic Ltr. 82-33, Boston Edison projects a date of November 1984 to accomplish an item-by-item comparison between all the requirements of Regulatory Guide 1.97 and the applicable systems and components at Pilgrim. Any deviations found will be systematically evaluated and documented to determine if the deviation is justifiable due to plant-specific design, original design bases, or supportive operational requirements. Any deviations not found to be justifiable will be evaluated to determine what modifications, if any, are needed to conform to Regulatory Guide 1.97. Regulatory Guide 1.97 equipment that also requires environmental qualification shall be identified and qualified in accordance with the schedular requirements of NUREG 0737.

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
1, 2, 3, 4b, 4c, 9, 14, 16, 17, 18, 19, 22a, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 37, 38, 39, 40, 41	Motor Operator Limatorque/SMB	Aging degradation, qualified life	Inspection and replace compo- nent parts with qualified parts
4a, 5, 6, 10, 11, 12, 13, 15, 20, 21, 22b, 34	Motor Operator Limatorque/SMB	Aging degradation Qualified life Similarity Radiation	Replace with qualified motor operator
7, 8, 95, 97, 256, 257, 258, 259, 260, 261, 262	Standby Gas Treatment System Equipment located in area 1.23	Inadequate documentation	Currently being evaluated radiation only - analysis in progress
45a, 45f, 46a, 47a, 50, 53, 55, 56, 58, 59, 60, 61, 62a, 62b, 62c, 62d, 64, 65, 66, 67, 70, 73, 74, 75, 77, 78a, 78b, 78c, 78d, 79, 82	Solenoid Valves ASCO/NP8320A184E	Qualified life	Qualified: Test Report AQS21678/TR Qualified life analysis in progress
85, 86	Solenoid Operator AVCO/C5159	Similarity Qualified life Functional testing	Currently being evaluated. Negotiating to join testing program already in progress
48, 49	Solenoid Valves ASCO/WP-LB-831636 HVA-90-405-2A	Inadequate documentation Aging degradation Qualified life	Replace with qualified solenoid valves

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
87, 91, 93, 94	Motors GE 5K6339XC87A 5K254AK299W1A 5K6337XC93A 5K184AL217	Inadequate documentation	Test Report: G-HK-O-16 Qualified life and similarity analysis in progress
54, 57a, 57b, 57c, 57d, 72	Solenoid Valves Valcor/V526529231	Qualified life	Qualified: Test Reports QR52600-5940-2 QR52600-515 Qualified life established in analysis report 47066-SOV-8
81	Solenoid Operator Target Rock/1/2SMSA01	Inadequate documentation	Test Report 2199A Currently being evaluated for opera- bility time
233, 234, 235, 236, 237, 238, 239, 240, 241, 242	Cable Kerite/FR/FR, HT/FR, HT/NS	None	Qualified: Test Reports 17446-2 & 47066-CAB-3
107, 108, 253, 268, 269, 109	Indicating Light GE/ET-16 Switch GE/CR-2940 Relays: Johnson/SER KZ4000B Agastat/2412AN	Exempt	No safety-related function FMEA in progress to document out of scope status
114, 117	Cable Rockbestos/Firewall III	Inadequate documentation	Currently being evaluated: Test Rpts: 2806, QR-1806, 110-11516, F-C-3798, F-C-5022-2. Cable which can- not be qualified will be tested/replaced.

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
243, 244, 245, 246, 247, 248	Cable Okonite/Okolon & Okoprene	None	Qualified: Test Report NQRN-1
100, 110, 111, 112, 118, 119, 120, 121, 122, 123, 124, 252	Terminations less than 4KV & Instrument Cable	Inadequate documentation	Currently being evaluated Similarity analysis under evaluation--some documentation complete. At the end of the analysis all undocu- mented equipment will be tested/replaced.
113, 265, 267	Terminal Block GE/EB-25	None	Qualified: Test Report QSR-010-A-01 & B0119
88, 89, 90	Motor Control Centers Cutler Hammer/6AF685046 Nelson Electric/1035E	Inadequate documentation Aging degradation Qualified life Similarity Radiation Test sequence	Currently being evaluated Options being considered: upgrade components, testing Enclosure
92	Motor Louis Allis/COG4B	Inadequate documentation	Replace with qualified motors
99	4KV Terminations Kerite	Inadequate documentation	Qualified: Test Reports F-C-4020-1 & F-C-4020-2. Qualified life evaluation in progress

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
101, 102	Splices Raychem/WCSF-N	Aging degradation Qualified life	Qualified: Test Report 58442-1, Qualified life Analysis in progress
103, 104f, 104g, 104h, 104i	Terminal Blocks Buchanan/525	Inadequate documentation, similarity	Design modification to delete terminal blocks
210, 211, 212, 213, 214, 224, 225, 226, 227	Level Switch Yarway/4418C & 4418EC	Inadequate documentation	Replace component parts with qualified component parts
98, 263	Accelerometer TEC/ND	Inadequate documentation Qualified life	Currently being evaluated Test Report 517-TR-03. Additional analysis in progress.
220, 221	Transmitter GE/555	Inadequate documentation	Replace with qualified transmitter
232	Level Switch Robertshaw/SL702A1	Inadequate documentation	Currently being evaluated. Radiation only - analysis in progress
127, 128g, 128j, 129a, 129b, 129c, 129d	Electrical Penetrations GE/238X60NLG	Inadequate documentation, similarity	Qualified: GE prototype Test Report - Qualified life analysis in progress
132, 137	Radiation Detector GE/237X731G009	Inadequate documentation	Qualified: Test Report 943-81-003 and analysis report 47066-RAD-2

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
136, 223	Transmitter Rosemount/1152	Aging degradation Qualified life	Qualified: Test Report 117415 Rev. B, Analysis Report 47066-PT-1 establishes qualified life
139, 140, 144, 143, 145, 147, 159, 160, 161, 162, 163, 164, 166	Temperature Switch Fenwall/17023 & 17002	Aging degradation Pressure Steam exposure Profile Functional testing	Qualified by existing Test Report BECo is negotiating to obtain the rights for its use
171, 173, 174, 175, 176, 177, 178, 179, 180, 206, 222	Pressure & Differential Pressure Switch Barton/288, 288a, 289a	Aging degradation Qualified life Similarity Temperature Pressure Radiation	Currently being evaluated. Test Reports: 145C3008, 145C3009, R3-288a-1. Analysis in progress to address operability time and qualified life.
189, 190, 191, 192, 193, 197, 198, 202, 203, 204, 205	Pressure Switch Static-O-Ring/12N	Inadequate documentation Aging degradation Pressure Radiation	Currently being evaluated, Test Report: 30203-2. Analysis to establish similarity in progress
181, 182, 208, 209	Pressure Switch Static-O-Ring/5N	Inadequate documentation Aging degradation Temperature Pressure	Replace with qualified equipment
183, 186, 187, 188, 194, 196 199, 200, 201, 207	Pressure Switch Barksdale/B2T, D2H, PIH	Inadequate documentation Qualified life Steam exposure (profile) Radiation	Currently being evaluated Test Reports: 596-0398 & 15566-23. Qualified life analysis in progress

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
195	Pressure Switch Mercoid/DA23804	Inadequate documentation	Replace with qualified pressure switch
146	Temperature Element Thermo Electric/3544710	Inadequate documentation	Replace with qualified equipment
42, 152, 153, 154, 155, 156, 157, 158, 185	HPCI Turbine Controls Various Equipment	Inadequate documentation	Currently being evaluated, FMEA in progress to evaluate out of scope status
172	Pressure Switch Barton/278	Inadequate documentation	Replace component parts with qualified parts. Test Report R3-288a-1
249	Cable GE/Vulkene supreme	Inadequate documentation, similarity	Qualified: Test Report FC-4497-2 Qualified life analysis in progress
250	Cable GE/Vulkene SIS	Qualified	Currently being evaluated for radiation
251	Cable BIW/Bostrad	None	Qualified Test Report B901A

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
254, 255	Limit Switch Namco/EA740	Similarity	Replace with qualified equipment
264, 266, 281	Switch electro Switch/24/40	Inadequate documentation	Currently being evaluated Test Reports: 2392-2, 2392-14, 3030-1
270	Cable GE/Vulkene SIS	Inadequate documentation, similarity	Qualified: Test Reports: 43905-2 & EPAQ-047
271, 272, 273, 274, 275, 276, 277, 278, 279, 280	Terminal Block GE/CR-151	None	Qualified: Test Reports: GEN-8-18 & B0119

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
43, 44	Solenoid Valve Atkomatic/247214	Exempt	Out of Scope of 10CFR50.49
45b, 45c, 45d, 45e, 45g, 45h 45i, 46b, 47b, 62e, 78e, 78f, 80, 83, 84, 282	Solenoid Valve ASCO/NP8320A184E	Qualified life	Out of scope of 10CFR50.49
51	Solenoid Valve ASCO/HVA90405	Inadequate documentation	Out of scope of 10CFR50.49
52, 57E, 57F, 57G, 57H	Solenoid Valve Valcor/V5265683 /V526529231	Qualified life	Out of scope of 10CFR50.49
63, 68, 69 71	Solenoid Valve Valvor/V526529212	Qualified life	Out of scope of 10CFR50.49
76	Solenoid Valve ASCO/HT8210C22	Inadequate documentation	Out of scope of 10CFR50.49
104a, 104b, 104c, 104d, 104e	Terminal Block Buchanan/525	Inadequate documentation similarity	Out of scope of 10CFR50.49
125	Electrical Penetration Conax/Modular Type	Inadequate documentation similarity	Out of scope of 10CFR50.49

PILGRIM NUCLAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
126	Electrical Penetration Physical Science/Canister Type	Documentation Not Available	Out of scope of 10CFR50.49
128a, 128b, 128c, 128d, 128e, 128f, 128h, 129e	Electrical Penetration GE/238X60NLG	Inadequate documentation similarity	Out of scope of 10CFR50.49
130	Pressure Switch Meletron/92416SS5A	Inadequate documentation	Out of scope of 10CFR50.49
131, 133, 134, 168, 169, 216, 217	Transmitter GE/551	Inadequate documentation or exempt	Out of scope of 10CFR50.49
138	Transmitter Foxboro/611DM	Inadequate documentation	Out of scope of 10CFR50.49
148	Limit Switch NAMCO/EA740	Similarity	Out of scope of 10CFR50.49
149	Limit Switch NAMCO/D1200G2	Inadequate documentation	Out of scope of 10CFR50.49
151	Fuse Panel GE/238X278G1	Exempt	Out of scope of 10CFR50.49
165	Electric Heater	Inadequate documentation	Out of scope of 10CFR50.49

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

TER #	EQUIPMENT TYPE MANUFACTURER/MODEL #	TER DEFICIENCY	RESOLUTION
215	Level Switch	Inadequate documentation	Out of scope of 10CFR50.49
228	Level Switch McDonnell/63SY	Exempt	Out of scope of 10CFR50.49
229, 230, 231	Level Switch Robertshaw/SL305E7X /SL702A1	Exempt	Out of scope of 10CFR50.49
141, 142	Thermostat Johnson Controls	Inadequate documentation	Out of scope of 10CFR50.49
184	Pressure Switch Mercoid/AP7021153	Inadequate documentation	Out of scope of 10CFR50.49
135	Temperature Element	Inadequate documentation	Out of scope of 10CFR50.49
150	Hydrogen Analyzer Consip Delphi/KIY	Aging degradation Qualified life Radiation	Out of scope of 10CFR50.49
115, 116	Cable Rockbestos/Firewall III	Inadequate documentation	Out of scope of 10CFR50.49

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

PNPS ID #	Equipment Type Manufacturer/Model #	Resolution
T11, T12, T13, T14	Limit Switch NAMCO/SL3	Currently being evaluated, FMEA in progress.
LS302 - 82A/B/C/D	Level Switch ROBERTSHAW/SL-305-E7X	Replace with qualified equipment
FT1360-4 FT1049A/B	Transmitter GE/555	Replace with Qualified equipment
PS4008, FS1360-7, DPIS2352, DPIS2353	Pressure Switch Barton/288, 288A, 289A	Currently being evaluated. Test Reports: 145C3008, 145C3009, R3-288A-1 Analysis in progress to address operability and qualified life
PS1360-21, PS1360-26A/B	Pressure Switch Mercoid/DAW-443-4132, DA-23-804	Replace with qualified equipment
LS1301-15, P221, P222 & Turbine Controls	Equipment for RCIC Turbine and Controls	Currently being evaluated. Options include: Test, Replace, Relocate
MO1301-53, MO1301-62, MO1301-48, MO1301-49, MO1301-22, MO1301-61, MO1001-19, MO2301-6, MO4065, MO4009A/B, MO4083, MO3806, MO3805	Motor Operator Limiterque/SMB	Inspect and replace component parts with qualified parts.

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

PNPS ID #	Equipment Type Manufacturer/Model #	Resolution
PS2389A/B/C/D PS2368A/B, PS504A/B/C/D	Pressure Switch Barksdale/PIH, B2T	Currently being evaluated. Test Reports: 596-0398 & 15566-23. Qualified life analysis in progress.
PS503A/B/C/D	Pressure Switch Barksdale/DIT	Replace with qualified equipment.
Tip Shear & Ball Valves: 1, 2, 3, 4	Valves G.E.	Currently being evaluated. FMEA in progress.
RE1735 A/B/C/D	Radiation Monitor GE/194X927	Currently being evaluated. Radiation analysis in progress. Test Report: QSR-015-A-01
RE1734A/B/C/D	Radiation Monitor GE/194X629	Currently being evaluated. Similarity to existing test data being verified
B14	Motor Control Center Nelson Electric/1035E	Currently being evaluated. Options being considered: Upgrade components, testing, enclosure

PILGRIM NUCLEAR POWER STATION - S.E.R. DEFICIENCY RESOLUTIONS

PNPS ID #	Equipment Type	Resolutions
Terminal Blocks, Fuse Blocks, Wiring, Terminations, Splices, Cable Codes: 106, CXB, CX1, CX2, CX4, CX5, D05, D27, S15, 716, S48, S37, CXG, CX8, C02, C03, S19, S27, S1B, 212B, E12, Z27	Cable, Instrument Rack, Control Switch and Junction Box Equipment- Various Manufacturers	Currently being evaluated FMEA for removal from scope. Similarity analysis under evaluation. Some documentation complete. At the end of the analysis all undocumented equipment will be tested/replaced.
SVL61, SVL82, SVL83	Solenoid Valve ASCO/HT8320A107, HT8320A22	Replace with qualified equipment
P202D/E/F, VAC202A/B	Motor GE/5K Series	Test Reports: G-HK-0-163. Qualified life and similarity analysis in progress.
CS42-1724, CS42-1725, CS42-1824, CS42-1825, CS42-1721, CS42-1722, CS42-1821, CS42-1822	Control Switch Dwyer/1637-.25	Currently being evaluated for applicability to 50.49 requirement.
512A, 210A, 712A, 912A	Cable Okonite/Okolon	Qualified Test Report: NQRN-1
512B	Cable Rockbestos/Firewall III	Currently being evaluated. Test Report: 2806 & QR-1806 & 110-11516 & F-C-3798 & F-C-5022-2
B9	Cable Okonite/Okoprene or Kerite/FR/FR	Qualified Test Report: NQRN-1, 17446-2 & 47066-CAB-3
C12	Cable Kerite/FR/FR	Qualified Test Report: 17446-2 & 47066-CAB-3

MAINTENANCE & SURVEILLANCE AT PNPS

The Equipment Qualification Process as envisaged by BECo for Pilgrim Nuclear Power Station is as detailed in the logic. The logic will show how different aspects of the qualification process are tied together to ensure that the components once qualified are maintained continuously qualified. The Process will accomplish at least two goals. First, the system will establish the necessary administrative controls and feedback mechanism to ensure proper management of engineering and plant activities involved in equipment qualification and second, maintain the qualification integrity of equipment throughout the plant's life.

The maintenance management system (as indicated by the heavy lines) will function to:

- 1) Track and maintain equipment with respect to its qualification.
- 2) Ensure that spare and replacement parts comply with equipment qualification requirements.
- 3) Provide surveillance data to substantiate the basis of existing equipment qualification and to provide assurance of maintaining qualification for the next schedule interval, and
- 4) Provide auditable documentation for qualified equipment over the plant's lifetime.

Preventive Maintenance & Surveillances are performed and controlled by procedures and tracked by computer based tracking systems currently in place.

Corrective Maintenance is performed through Maintenance Requests and ensures that quality of the corrected component is at least equivalent to the original design and that appropriate quality requirements are specified.

Modifications and not-in-kind corrective maintenance are implemented using Plant Design Change process and Temporary Modification Procedure, respectively. EQ requirements to assure continued qualification of the safety-related equipment are incorporated in the evaluations performed as part of these activities.

Failure and Malfunction Reports identify deviation or problems associated with the operation of the plant. This report ensures internal review and safety assessment of events of potential safety consequences as well as determination of reportability to the NRC. This evaluation documents immediate corrective action, the root cause of failure, and the resultant effect to the Equipment Qualification Program.

