



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

February 5, 1992

Docket No. 50-390
50-391

MEMORANDUM FOR: Document Control Desk Personnel

FROM: Peter S. Tam, Senior Project Manager
Project Directorate II-4
Division of Reactor Projects - I/II

SUBJECT: WATTS BAR NUCLEAR PLANT -- MAKING TWO
DOCUMENTS ON ENVIRONMENTAL QUALIFICATION
INTERIM REVIEW RESULTS PUBLICLY AVAILABLE
(TAC M63591)

The enclosed documents (Enclosures 1 and 2) represent interim review findings on the Watts Bar Environmental Qualification Program. These documents will be provided to TVA personnel to facilitate their preparation for an upcoming teleconference or meeting with the staff.

By copy of this memorandum, the NRC and local PDRs are provided with a copy of the subject documents.

A handwritten signature in cursive script that reads "Peter S. Tam".

Peter S. Tam, Senior Project Manager
Project Directorate II-4
Division of Reactor Projects - I/II

cc. Docket files
NRC PDR
Local PDR

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APPENDIX A
EQUIPMENT QUALIFICATION STATUS

The attached table lists the status of class 1E equipment for the Watt's Bar Nuclear Plant, Unit 1, (WBN). The codes below are used in the deficiencies/concerns column. Page numbers listed refer to Tab B of the binders for the equipment items.

- Q - Qualified
- T - Temperature
- R - Radiation
- S - Submergence
- CS - Containment Spray
- A - Aging
- OT - Operating Time
- QL - Qualified Life
- TS - Test Sequence
- SM - Similarity

TABLE 1. Watts Bar Nuclear Plant, Unit 1, Equipment Qualification Status

| <u>BINDER NUMBER</u> | <u>EQUIPMENT TYPE</u> | <u>VENDOR</u> | <u>DEFICIENCIES/CONCERNS</u> |
|----------------------|---|----------------|--|
| WBNEQ-CABL-006 | Signal Cable - FR-EP INS/ <i>TVA Type MS</i> | Anaconda | Open items p. B-3 TVA Type MS |
| WBNEQ-CABL-010 | Signal Cable - XLPE INS/ TVA Type MS | Belde | Open items p. B-3 |
| WBNEQ-CABL-012 | Signal Cable - XLPE INS/ TVA Type MS | Brand Rex | Open items p. B-2 |
| WBNEQ-CABL-013 | Signal Cable - TEFZEL INS/ TVA Type ETFE | Carolina W & C | SM |
| WBNEQ-CABL-017 | Signal Cable - XLPO INS/ TVA Type MS | Eaton | Open items p. B-3, R |
| WBNEQ-CABL-021 | Low Voltage Power and and Control -EPR/CSPE INS/TVA Type PXJ and PXMJ | Essex | Q |
| WBNEQ-CABL-037 | Signal Cable - KXL760D-CXLPE INS/TVA Type MS | Rockbestos | Q |
| WBNEQ-CABL-043 | Low Voltage Power and Control -EPR INS/TVA Types PXJ and PXMJ | Okonite | Open items p. B-3 |
| WBNEQ-CABL-044 | Insulated Switchboard Wire - KXL760G - RXLPE INS/TVA Type SIS | Rockbestos | Open items p. B-3 |

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Table 1. (Continued)

| <u>BINDER NUMBER</u> | <u>EQUIPMENT TYPE</u> | <u>VENDOR</u> | <u>DEFECIENCIES/CONCERNS</u> |
|----------------------|--|---------------|---|
| WBNEQ-CABL-047 | Signal Cable - Tefzel Ins/ TVA Type ETFE | Teledyne | Q |
| WBNEQ-CABL-049 | Signal Cable - KXL780 - CXLPE INS/TVA Types MS and PXMJ | Rockbestos | Open items p. B-3 |
| WBNEQ-CABL-051 | Low Voltage Power and Control Cable - FRXLPE INS/TVA Types PXJ and PXMJ | Okonite | Open items p. B-3 (cable not presently in use at WBN) |
| WBNEQ-CABL-052 | Power and Control Cable TVA -Types PXJ and PXMJ | Rockbestos | Open items p. B-3 (cable not presently in use at WBN) |
| WBNEQ-CABL-053 | Power and Control Cable - XLPE INS/TVA -Types PXJ and PXMJ | Rockbestos | Open items p. B-3 (cable not presently in use at WBN) |
| WBNEQ-CABL-055 | Thermocouple Extension Cable TVA Type YPS (TX) | Rockbestos | Open items p. B-3 (cable not presently in use at WBN) |
| WBNEQ-CABL-063 | Low Voltage Power and Control Cable -EPR INS/TVA Type PXJ | Okonite | Open items p. B-2 |

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Table 1. (Continued)

| <u>BINDER NUMBER</u> | <u>EQUIPMENT TYPE</u> | <u>VENDOR</u> | <u>DEFECIENCIES/CONCERNS</u> |
|----------------------|---|---------------|---|
| WBNEQ-CSC-001 | Electric Conductor Conduit Seal Assemblies (ECSA) | Conax Corp. | Q |
| WBNEQ-CSC-002 | Conduit Seal Assemblies | Namco | Qualified to specified conditions (seals not presently in use at WBN) |
| WBNEQ-HS-001 | Handswitches | Square D | Q |
| WBNEQ-HS-002 | Handswitches | Cutler Hammer | Qualified to specified conditions (seals not presently in use at WBN) |
| WBNEQ-HTR-001 | Electric Heaters/Hydrogen Recombiners | Westinghouse | Open item p. B-3 |
| WBNEQ-IFS-001 | Flow Switches | FCI | Open items p. B-3 |
| WBNEQ-ILCV-001 | Electropneumatic Valve Positioner | Masoneilan | Open items p. B-3 |
| WBNEQ-ILP-001 | Hydrogen Analyzers | Comsip Delphi | R |
| WBNEQ-ILT-001 | E13DM Pressure Transmitter | Foxboro | Open items p. B-4 |
| WBNEQ-IMIK-001 | Heater and Heater Controls | Nutherm | Open item p. B-3 |

Table 1. (Continued)

| <u>BINDER NUMBER</u> | <u>EQUIPMENT TYPE</u> | <u>VENDOR</u> | <u>DEFECIENCIES/CONCERNS</u> |
|----------------------|--|------------------------|------------------------------|
| WBNEQ-IPT-001 | Pressure Transmitters | Westinghouse | Q |
| WBNEQ-IRE-001 | Radiation Monitors | General Atomic Company | Open item p. B-2 |
| WBNEQ-ITE-001 | Strap-On RTD | Westinghouse (Minco) | Open item p. B-2, S |
| WBNEQ-ITE-003 | Resistance Temperature Detector (RCS Well-Mounted) | RdF | Open items p. B-5, S |
| WBNEQ-ITE-004 | Resistance Temperature Detector (Fast Response Well-Mounted) | RdF | Open item p. B-5, S |
| WBNEQ-ITS-001 | Temperature Switches | Fenwal | Open item p. B-4, R |
| WBNEQ-ITS-002 | Temperature Switches | Static-O-Ring | Open items p. B-5 |
| WBNEQ-IZS-001 | EA 180 Series Limit Switches Manufactured after 7/30/80 | Namco | Open items p. B-2, T |
| WBNEQ-IZS-002 | EA 180 Series Limit Switches Manufactured between 9/5/78 and 7/30/80 | Namco | Open item p. B-2 |

Table 1. (Continued)

| <u>BINDER NUMBER</u> | <u>EQUIPMENT TYPE</u> | <u>VENDOR</u> | <u>DEFECIENCIES/CONCERNS</u> |
|----------------------|---|-------------------|--|
| WBNEQ-IZS-003 | EA 740 Limit Switches Manufactured after 10/01/81 | Namco | Open item p. B-5 |
| WBNEQ-IZS-004 | EA 740 Limit Switches Manufactured between 2/20/78 and 10/01/81 | Namco | Open items p. B-3 |
| WBNEQ-IZS-005 | EA 180 Limit Switches Manufactured after December 1986 | Namco | Qualified to specified conditions (Switches not presently in use WBN) |
| WBNEQ-JBOX-001 | Junction Boxes | Various | Open items p. B-3 |
| WBNEQ-MOT-001 | Large Electric Induct- tion Motors - Outside Containment | Westinghouse | Open item p. B-2, T |
| WBNEQ-MOT-002 | Electric Induction Motors with Type RH Insulation - Inside Containment | Reliance Electric | Open item p. B-2, CS |
| WBNEQ-MOT-003 | Electric Induction Motors with Type RH Insulation - Outside Containment | Reliance Electric | Open item p. B-2 |

Table 1. (Continued)

| <u>BINDER NUMBER</u> | <u>EQUIPMENT TYPE</u> | <u>VENDOR</u> | <u>DEFICIENCIES/CONCERNS</u> |
|----------------------|---|---------------|------------------------------|
| WBNEQ-MOT-004 | Electric Squirrel Cage Induction Motor - Outside Containment | Louis Allis | Open items p. B-2, OT, T |
| WBNEQ-MOV-001 | Motorized Valve Actuators with Type RH Insulation | Limitorque | Open items p. B-2, T, S |
| WBNEQ-MOV-003 | Motorized Valve Actuators with Class B Insulation | Limitorque | Open items p. B-5 |
| WBNEQ-PENT-002 | Primary Containment Electrical Penetrations, Low Voltage Power and Control | Conax Corp. | Open item p. B-6 |
| WBNEQ-PENT-003 | Primary Containment Electrical Penetrations, Instrumentation and Indication | Conax Corp. | Open item p. B-6 |
| WBNEQ-SOL-001 | Solenoid Operated Valves Target Rock for NSSS Systems | Target Rock | A, OT |
| WBNEQ-SOL-002 | Solenoid Operated Valves Target Rock for B.O.P. Systems | Target Rock | Open items p. B-3 |

Table 1. (Continued)

| <u>BINDER NUMBER</u> | <u>EQUIPMENT TYPE</u> | <u>VENDOR</u> | <u>DEFICIENCIES/CONCERNS</u> |
|----------------------|--|------------------|-------------------------------|
| WBNEQ-SOL-003 | Solenoid Operated Valves - ASCO Model 206-381 | ASCO | Open items p. B-4, R |
| WBNEQ-SOL-004 | MSIV Air Manifold Assembly Solenoid Operated Valves | Gould Allied | QL |
| WBNEQ-SOL-005 | Solenoid Operated Valves - ASCO Model 206-380 | ASCO | R |
| WBNEQ-SOL-006 | Solenoid Operated Valves - ASCO Model NP8316 | ASCO | Open items p. B-5, R, S |
| WBNEQ-SOL-007 | Solenoid Operated Valves - ASCO Model NP8320 | ASCO | Open items p. B-4 |
| WBNEQ-SPLC-001 | Heat Shrink Cable Splices (600 VAC or less) | Raychem | S, T |
| WBNEQ-TB-001 | Terminal Blocks | General Electric | Open items p. B-3 |
| WBNEQ-XMTR-001 | Transmitter 764 Lots 7 & 4 (Westinghouse) | Barton | Open items p. B-5, TS |
| WBNEQ-XMTR-004 | Transmitter 763 Lot 7 | Barton | Open item p. B-5, TS, T, S |

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The following binders were not available for pre-audit review

WBNEQ-CABL-002
WBNEQ-CABL-003
WBNEQ-CABL-005
WBNEQ-CABL-008
WBNEQ-CABL-015
WBNEQ-CABL-022
WBNEQ-CABL-032
WBNEQ-CABL-033
WBNEQ-CABL-036
WBNEQ-CABL-050
WBNEQ-CABL-056
WBNEQ-CABL-061
WBNEQ-INM-001
WBNEQ-IPT-002
WBNEQ-ITE-005
WBNEQ-ITE-006
WBNEQ-IXT-001
WBNEQ-MOV-002
WBNEQ-SOL-009
WBNEQ-XMTR-006

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Enclosure 2

| | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | H | H | H | I | I | I | I | I | I | I | I | I | I | I | I | I | J | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | S | S | S | T | F | L | L | L | M | P | R | T | T | T | T | T | T | T |
| | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | B | * | * | * | R | S | C | C | I | K | * | * | * | * | * | * | * | * | |
| | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | 0 | 0 | 0 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | X |
| | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 1 | 1 | 1 | 1 | 2 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | 6 | 0 | 2 | 3 | 7 | 1 | 7 | 3 | 4 | 7 | 9 | 1 | 2 | 3 | 5 | 3 | | | | | | | | | | | | | | | | | | | |
| Questions: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1) Test temperature discrepancy between reported and calculated values indicate reported values too low for thermal aging. [H(4)d] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2) Were the insulation resistance (IR) and LOCA test a simultaneous test? Was leakage identified? | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3) What is meant by fail safe circuit? [K(7)] <i>Failure mode analysis?</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4) Why were the mechanical, electrical and process stresses not considered in the test? [H(2)] <i>what is it?</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5) Need to list Activation Energies when employing the Arrhenius Method. [H(4)f] <i>Need explanation?</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6) Does IEEE 383-1974, para. 1.3.4.1 and 2.3.1 justify equipment as being sat. for vibrational characteristics? [H(2), H(6) & H(7)] <i>N/A</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7) Is "nomal" misspelled to mean normal or nominal? [J(5)a, Justification and Comments] <i>N/A</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8) Anomalies concluded as having no significant impact must be listed. Some anomalies seem subject to scrutiny. [M(5)] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9) Should jacketed (sacrificial) material be listed as a material susceptible to significant thermal/radiation degradation? [I] <i>N/A</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

RTV only

