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

April 13, 1989

Docket No. 50-390

LICENSEE: Tennessee Valley Authority

FACILITY: Watts Bar Nuclear Plant, Unit 1

SUBJECT: MEETING SUMMARY FOR THE MARCH 16 AND 17, 1989 MEETING BETWEEN NRC AND TVA REGARDING THE WATTS BAR ELECTRICAL REVIEW PROGRAM

On March 16-17, 1989, a meeting was held at the Watts Bar site between the NRC staff and representatives of TVA for the purpose of discussing the status of TVA's electrical review program for Watts Bar. Enclosure 1 is the list of attendees and Enclosure 2 is a copy of the handouts provided by TVA at the meeting.

TVA opened the meeting with an overview of the Corrective Action Programs (CAPs) which address electrical related issues. The presentation included the cable issues, electrical issues and instrument line issues CAPs and a brief description of the other electrical issues.

In the area of cable issues, according to TVA, the Computerized Cable Routing System (CCRS) is in general agreement with the as pulled cables based on the signal tracing of the cables and cross checking of the pull cards with the CCRS. It appears that the CCRS can be used to address many other issues related to cable routing, e.g., cable ampacity, cable separation, etc.

TVA intends to bound the cable installation problems at Watts Bar with the Sequoyah cable test results. For cases where it can not be bound, TVA proposes either to remove those cables or perform additional testing. The type of testing has not been decided as yet. The staff raised the concern that the CAP does not address the problem of pulling the large cables through 90° condulet which was identified at Browns Ferry, Unit 2. TVA agreed to review the issue and revise the CAP, if necessary. Regarding cable splices, TVA has decided to replace all existing cable splices. TVA will address later how it will assure that all splices have been identified.

The electrical issues CAP addresses the adequacy of safety-related installations in the areas of flexible conduit, physical cable separation and electrical isolation, contact and coil rating of electrical devices, torque switch and overload relay bypass capability for active safety related valves, and adhesive-backed cable support mounts. In response to NRC staff questions, TVA stated that the electrical issues CAP is not inclusive of all electrical issues or concerns, for example, there is a special program for the Master Fuse List. Other concerns identified in CAQRs or NCRs will be resolved and tracked separately.

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The instrument line CAP is very similar to the program at Sequoyah which was reviewed and approved by the staff. The staff raised the concern regarding NCR 6278 for the hydrostatic testing program. TVA stated that they plan to test the instrument lines for the leakage either in accordance with the code requirements or per ANSI B31 requirements, as applicable.

Rajender Auluck, Project Manager
TVA Projects Division
Office of Nuclear Reactor Regulation

Enclosures:
1. Attendance List
2. Handouts Provided By TVA

cc w/enclosures:
See next page

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Those on Attached List

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ENCLOSURE 1

ATTENDANCE LIST

Name	Affiliation
A. K. Gwal	Watts Bar Program Team
M. C. Brickey	Watts Bar Program Team
R. R. Hoesly	Watts Bar Program Team
P. R. Maudarno	Watts Bar Program Team
K. W. Brown	TVA
K. A. Petty	SWEC
G. P. Eckert	SWEC
D. W. Bryson	Watts Bar
Jim Young	Watts Bar
Glen Walton	NRC
Suzanne Black	NRC
Morris Branch	NRC
Angelo Marinos	NRC
Hukam Garg	NRC
Raj Auluck	NRC
Walt Horn	Watts Bar
Ed Fuller	Watts Bar
B. E. Lewis	Watts Bar
Hoyt C. Johnson	Watts Bar
Tom Ippolito	TVA
Russell Spiess	Watts Bar
Tammra Horning	Watts Bar
Dennis McCloud	Watts Bar
John F. Cox	Watts Bar
Pranab K. Guha	TVA
Ken Barr	NRC
Jim Hutson	TVA
W. H. Denney	TVA
W. M. Stone	Watts Bar
W. M. Berry	Watts Bar

Enclosure 2

TVA MEETING WITH NRC ON MARCH 16, 1988
AGENDA FOR PRESENTATION OF WBN CORRECTIVE ACTION PROGRAMS

8:00 - 8:15	I. INTRODUCTION	E. D. Fuller, Chairman, WBPT
8:15 - 11:00	II. CABLE ISSUES	M. C. Brickey, Lead Electrical, I & C Engineer

Attendees:
WBPT
P. R. Mandava, Project Engineer
R. R. Hosley, Project Manager (CAP)
J. Hutson, Chief Electrical Engineer
K. Brown, Staff Specialist
K. Petty, Staff Specialist
G. Eckert, SWEC Site Lead Engineer
R. Spiess, Principal Electrical Engineer
D. Bryson, Electrical Engineer
D. Leckie, Electrical Engineer
H. C. Johnson, NQA

11:30 - 1:30	III. ELECTRICAL ISSUES	M. C. Brickey

Attendees:
Same as II

1:30 - 2:30	IV. INSTRUMENT LINES	M. C. Brickey

Attendees:
WBPT
P. R. Mandava, Project Engineer
W. M. Stone, Project Manager (CAP)
J. Hutson, Chief Electrical Engineer
P. Guha, I & C Specialist
R. Johnson, Staff Specialist
H. Denny - Instrumentation Engineer
H. C. Johnson, NQA

2:30 - 4:00 V. ADDITIONAL ELECTRICAL AND INSTRUMENTATION TOPICS

• Ampacity	M. C. Brickey
• Diesel Generator Loading Analysis	"
• Elec. Calculation Program	"
• ATWS Compliance	"
• Safety Parameter Display System	"
• RG 1.97 - Post Accident Monitoring	"
• Static "0" Ring Switches	"
• IE - Bulletins (Electrical, I & C)	J. H. Young & D. E. McCloud, Site Licensing

Attendees:
Same as II and IV

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CABLE ISSUES
CORRECTIVE ACTION PROGRAM PLAN
WATTS BAR NUCLEAR PLANT

- Computerized
  Cable Routing System (CCRS)

- Cable issues

CCRS

Does CCRS data represent the as-designed, as-built configuration?

Five steps to resolution:

a.) Analyze results from EQ program and appendix 'R' Program as a basis for verifying CCRS data.

b.) Add new configuration data attributes (tray covers, firewrap, cable coating, and penetrations)

c.) Use CCRS programs to identify overfilled & overweight raceway conditions.

d.) Implement procedure changes to prevent recurrence.

e.) Rework if required.

CCRS DATA BASE EVALUATION

- ESTABLISH ACCEPTANCE CRITERIA
- REVIEW EXISTING REPORT RESULTS
- ASSESS IMPACT ON PLANT SAFETY
- PREPARE & ISSUE EVALUATION CALCULATION

CCRS EVALUATION CONCLUSIONS

SUMMARY:

- ✓ Reviewed 4595 EQ and Appendix "R" Cables
- ✓ 244 EQ and 60 Appendix "R" Cables had documentation discrepancies.
- ✓ Verified database and physical configuration.
- ✓ Existing WBN programs/procedures ensure corrective actions have been identified and address safety concerns.
- ✓ Discrepancies do not adversely effect plant safety.

CCRS SOFTWARE WAS NOT QUALITY ASSURED

a.) Define system requirements (functional specification)
b.) Modify program according to requirements
c.) Develop user documentation
d.) Qualification tests
e.) Retain current system data
f.) Revise user procedures
g.) Transfer data to new program
h.) Train users
i.) Release programs to production

RELATED ISSUES

The following calculations are based on CCRS information:

Cable Ampacity	Voltage Drop	Appendix "R
Raceway Loading	Short Circuit	Others

- 15 Employee Concerns addressing unverified data released to DNC (over-filled tray and conduit, failure to follow procedure, raceway support adequacy not documented, and unverified input to the CCRS).

- Various Condition Adverse to Quality Reports identifying 10 problems with cable installation and documentation. (50.55e final report, "cable Documentation Control", WBRD-50-390/86-61 & WBRD-50-391/87-12).

- Violation 50-390/87-11-02 addressing unverified cable data input to the CCRS, impacting tray loading.

CABLE INSTALLATION ISSUES

1. Silicone Rubber Insulated Cable
2. Cable Jamming
3. Cable Support in Vertical Conduit
4. Cable Support in Vertical Trays
5. Cable Proximity to Hot Pipes
6. Cable Pullby
7. Cable Bend Radius
8. Cable Splices
9. Cable Sidewall Bearing Pressure
10. Pulling Cable Through Condulets & Flexible Conduits

SILICONE RUBBER INSULATED CABLE

➡ ISSUE:

NRC/TVA Identified issue at SQN due to cable test failures.

✓ RESOLUTION:

1. Identify critical case conduits located in harsh environment that contain class 1E silicone rubber insulated cable.

2. WBN cables have been removed for laboratory LOCA testing.

CABLE JAMMING

➡ ISSUE:

NRC/TER concerns of undetected damage for 3 single cable pulls with critical jam ratio.

✓ RESOLUTION

1. Identify potential conduit/cable with critical jam ratio.
2. Compare WBN with SQN tested cables for same issue.
3. On site testing or replacement if SQN testing does not envelope WBN.

CABLE SUPPORT IN VERTICAL CONDUIT

➡ ISSUE:

NRC/TER concern for cable damage due to inadequate cable support in vertical conduit.

✓ RESOLUTION

1. Identify critical cases & compare WBN with SQN tested cables for same issue.
2. On site testing or replacement if SQN testing does not envelope WBN.
3. To prevent long term cable degradation, evaluate class 1E vertical conduits against an acceptance criteria & add supports as required.

CABLE SUPPORT IN VERTICAL TRAYS

➡ ISSUE:

NRC identified that cables in vertical tray may need supports per NEC ART. 300-19 and tray support seismic calculations may assume uniform cable loading.

✓ RESOLUTION

1. Vertical cable loads, both self weight and seismic, will be addressed by the cable tray and cable tray support CAP.
2. To prevent long term cable damage, evaluate vertical tray sections against NEC ART. 300-19 and add supports as required.

CABLE PROXIMITY TO HOT PIPES

➡ ISSUE:

NRC Information Notice 86-49 identified cable damage due to close proximity to hot pipes.

✓ RESOLUTION

1. Develop walkdown criteria supported by calculations and SQN experiences.
2. Evaluate class 1E cables.
3. Change pipe insulation, raceway rework, or reanalyze temperature limits, as needed.

CABLE PULLBY

➡ ISSUE:

NRC/TER concern for cable damage due to TVA practice of pulling cables in occupied conduits (pullbys).

✓ RESOLUTION

1. Identify WBN critical case conduits and compare to SQN tested conduits/cables for same issue.
2. On site testing or replacement if SQN testing does not envelope WBN.

CABLE BEND RADIUS

➡ ISSUE:

NSRS report and DNE staff identified areas in which cable bend radius limits by manufacturer may not have been adhered to.

✓ RESOLUTION

1. For coaxial, triaxial, and shielded power cable identify critical cases and perform laboratory testing/analysis. Unaccepable cables will be replaced or reworked.

CABLE BEND RADIUS

✓ RESOLUTION (continued)

2. For control cable, analyze preexisting bend radius limits. An analysis and/or a walkdown may be required to resolve any deviations.
3. Review all installation procedures to verify adequacy of inspection attributes.
4. Review class 1E cables to confirm if installation procedures for bend radius are adequate.

CABLE SPLICES

➡ ISSUE:

NRC Information Notice 86-53, and internal review of WBN indicate unqualified splices may exist.

✓ RESOLUTION

1. Splice list and location will be developed.
2. Class 1E splices in harsh environment will be replaced. Approach pending due to budget approval.

CABLE SIDEWALL BEARING PRESSURE

➡ ISSUE:

NSRS report identified that WBN cable installation specification did not address cable sidewall bearing pressure during cable installation in conduits.

✓ RESOLUTION

1. WBN determined maximum expected SWBP for 81 worst case conduits ~~ses and perform laboratory~~
2. TVA conducted SWBP test to demonstrate WBN cable did not exceed SWBP limits.
3. TVA has presented results to NRC and completed NRC followup action items.
4. WBN will make minor revisions to a calculation, as suggested by TVA contractor.

PULLING CABLE THROUGH 90 DEGREE CONDULET
& FLEXIBLE CONDUIT

ISSUE:

NRC/TER expressed concern that cables could have been pulled through 90 degree condulets and flexible conduit, with resultant cable damage. TER recommended further investigation.

RESOLUTION

1. Silicone rubber cables have been removed for LOCA testing from a conduit with 2-90 degree condulets. This will envelope all insulation types at WBN. The WBN results are pending.
2. A review of cable which have significant section of flexible conduit will be made for evidence of damage.

CABLE ISSUES
CONCLUSION

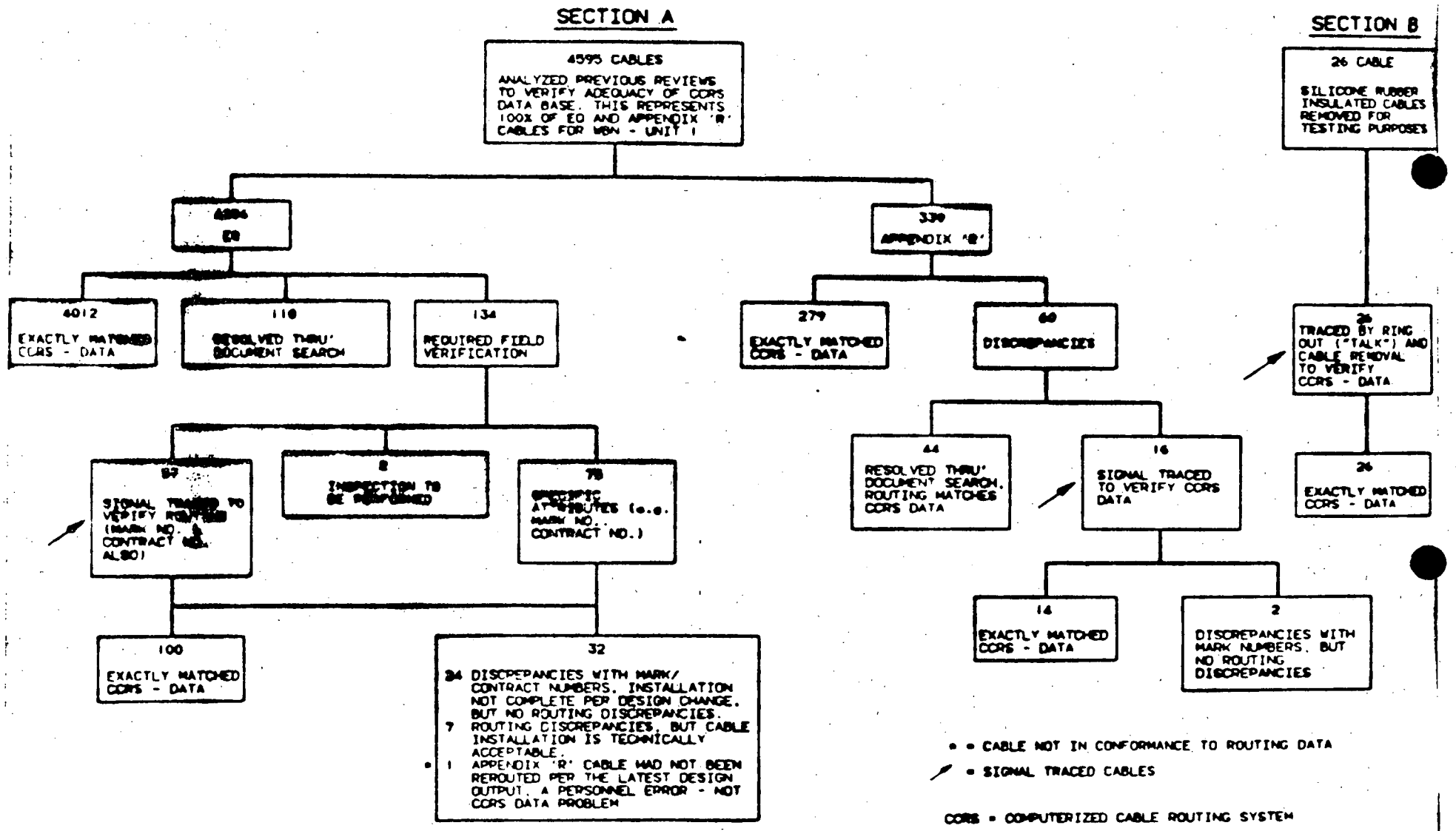
Implementation of This Program Will:

- Validate & Verify CCRS.

- Revise or Develop Engineering Procedures & Cable Installation Procedures to Prevent Recurrence.

- Resolve Design & Construction Concerns By:
  1. Qualification (test or analysis)
  2. Rework.

ATTACHMENT - ADEQUACY OF CCRS DATA-BASE



AMPACITY

(Part of Electrical Calculation Program - DBVP CAP)

- Same program as SQN
- Identify all derating factors for class 1E power cables.
- Perform ampacity calculations
- Compare results with as-installed and rework as necessary

DIESEL GENERATOR LOADING ANALYSIS

- Same program as SQN.
- Perform Diesel Generator loading calculation. (electrical calculation program)
- Conduct preop tests to acquire actual voltage and frequency profile.
- Evaluate system response.
- Perform calculation to define voltage margins using results of preop test (electrical calculation program).
- Prepare final report.

ELECTRICAL CALCULATION PROGRAM

(DESIGN BASELINE VERIFICATION PROGRAM CAP)

- 100% regeneration of essential electrical calculations.
- Auxiliary power system (load, voltage, and short circuit)
- Penetration protection.
- Diesel Generator loading and voltage.
- Auxiliary power system protection.
- 125 VDC vital control power (loading, voltage, protection).
- 120 VAC vital control power (loading, voltage, protection).
- Cable ampacity.
- Instrument and control calculations.
- Miscellaneous calculations (e.g., Heat Generation).

ATWS COMPLIANCE

- Issue Design Basis Document.
- Implement modifications
  (e.g. Install AMSAC).

SAFETY PARAMETER DISPLAY SYSTEM

(SPECIAL PROGRAM CAP)

- Issue Design Basis Document

- Develope Engineering Requirement Specification for hardware and software.

- Develope Software and install integrated system.

RG 1.97 POST ACCIDENT MONITORING

(SPECIAL PROGRAM CAP)

- Issue Design Basis Document.

- Evaluate installed I&C equipment for compliance and rework as necessary.

NRC BULLETINS

STATUS OF INDIVIDUAL RESPONSES

ITEM	TITLE	DATED	RESPONSE SUMMARY
Pre-1985 Bulletins	Various	1971-1984	TVA closure reviewed by NRC as documented via WBN Inspection Report 390/391-85-08.
85-02	UV trip attachments of Westinghouse DB-50 type trip breakers	12/03/85	WBN uses DS-416 RTBs; the shunt-trip modification has been done on unit 1 and will be done on unit 2 by its fuel load.
86-02	Static O-Ring differential pressure switches	11/20/86	WBN does not utilize any of the SOR Model 102 or 103 switches.
88-01	Defects in Westinghouse circuit breakers	04/13/88	WBN will: (1) complete inspection of all applicable class 1E circuit breakers; (2) establish an inspection program in maintenance instructions based on the recommendation outlined in NRC Bulletin 88-01; (3) submit the letters of confirmation to NRC within 30 days after completion of the inspections as required by the bulletin.
88-03	Inadequate latch engagement in HFA-type latching relay manufactured by GE	07/06/88	WBN will: (1) complete inspections and the resulting repair or replacement of the subject HFA-type latching relays before startup of each unit; (2) report to NRC within 30 days of completion of the inspections for each unit in accordance with the bulletin.
88-10	Nonconforming molded-case circuit breakers	In Process	(1) No response to NRC yet - scheduled for April 1, 1989 (2) molded-case circuit breakers that are being maintained as stored spares for safety-related and commercial grade circuit breakers have been identified; (3) molded-case circuit breakers installed in safety-related applications as replacements or installed during modifications between 08/01/83 and 08/01/88 are being reviewed; (4) obtaining the traceability of the breakers is being investigated; (5) projected completion is fall 1989.

NRC BULLETINS - SINCE 1985

(ELECTRICAL OR INSTRUMENTATION ISSUES)

ITEM	TITLE	RESPONSE DATED
85-02	UV TRIP ATTACHMENTS OF WESTINGHOUSE DB-50 TYPE TRIP BREAKERS	12/03/85
86-02	STATIC O-RING DIFFERENTIAL PRESSURE SWITCHES	11/20/86
88-01	DEFECTS IN WESTINGHOUSE CIRCUIT BREAKERS	04/13/88
88-03	INADEQUATE LATCH ENGAGEMENT IN HFA-TYPE LATCHING RELAY MANUFACTURED BY GE	07/06/88
88-10	NONCONFORMING MOLDED-CASE CIRCUIT BREAKERS	IN PROCESS

NRC BULLETIN
RESPONSES

(ELECTRICAL OR INSTRUMENTATION ISSUES)

- TVA PROCESS
- PROVIDE STATUS OF INDIVIDUAL RESPONSES
  - PRIOR TO 1985
  - SINCE 1985 (POST SER)
- OPEN DISCUSSION

Master Fuse List

The three objectives of the Master Fuse List program are to formulate a Master Fuse List (MFL) of Class 1E fuses, resolve the use of Bussman KAZ actuator fuses, and to resolve deficiencies for electrical penetration assembly (EPA) overcurrent protection fuses. The MFL development will reflect the corrective actions taken to resolve both the use of the Bussman KAZ fuses and deficiencies with EPA fuses.

The root causes for the inappropriate use of the KAZ fuses and failure to provide proper EPA redundant overcurrent protection fuses are given below:

- Nuclear Engineering (NE) did not provide an adequate design basis document at the time of the fused circuit design to require that device coordination studies be performed to ensure selectivity under fault conditions.
- NE did not provide adequate output documents showing properly coordinated fuses.
- NE did not provide adequate design input and output documents to detail and clarify the design process to ensure proper EPA protection fuses.
- NE did not properly coordinate and review the fuse design.

These issues are addressed by the following corrective actions.

1. NE to develop and issue a Master Fuse List for all Class 1E fuses. This list will be maintained as a design output document.
2. NE will issue design output to replace the existing Bussman KAZ fuses.
3. NE will evaluate all EPA protection fuses and perform calculation to ensure adequacy or rework as necessary.

The recurrence control for the inappropriate use of the KAZ fuse and for ensuring adequate EPA fuses is given below:

- Design Criteria WB-DC-30-27 has been issued and requires device coordination studies to be performed to ensure selectivity.
- NEP 5.2 has been issued and requires design verification procedures including checklists and questions to be addressed during design verification and reviews.

These actions will prevent recurrence of these deficiencies.

These corrective actions are being implemented in accordance with existing design change processes and procedures. All corrective actions will be completed before fuel load.

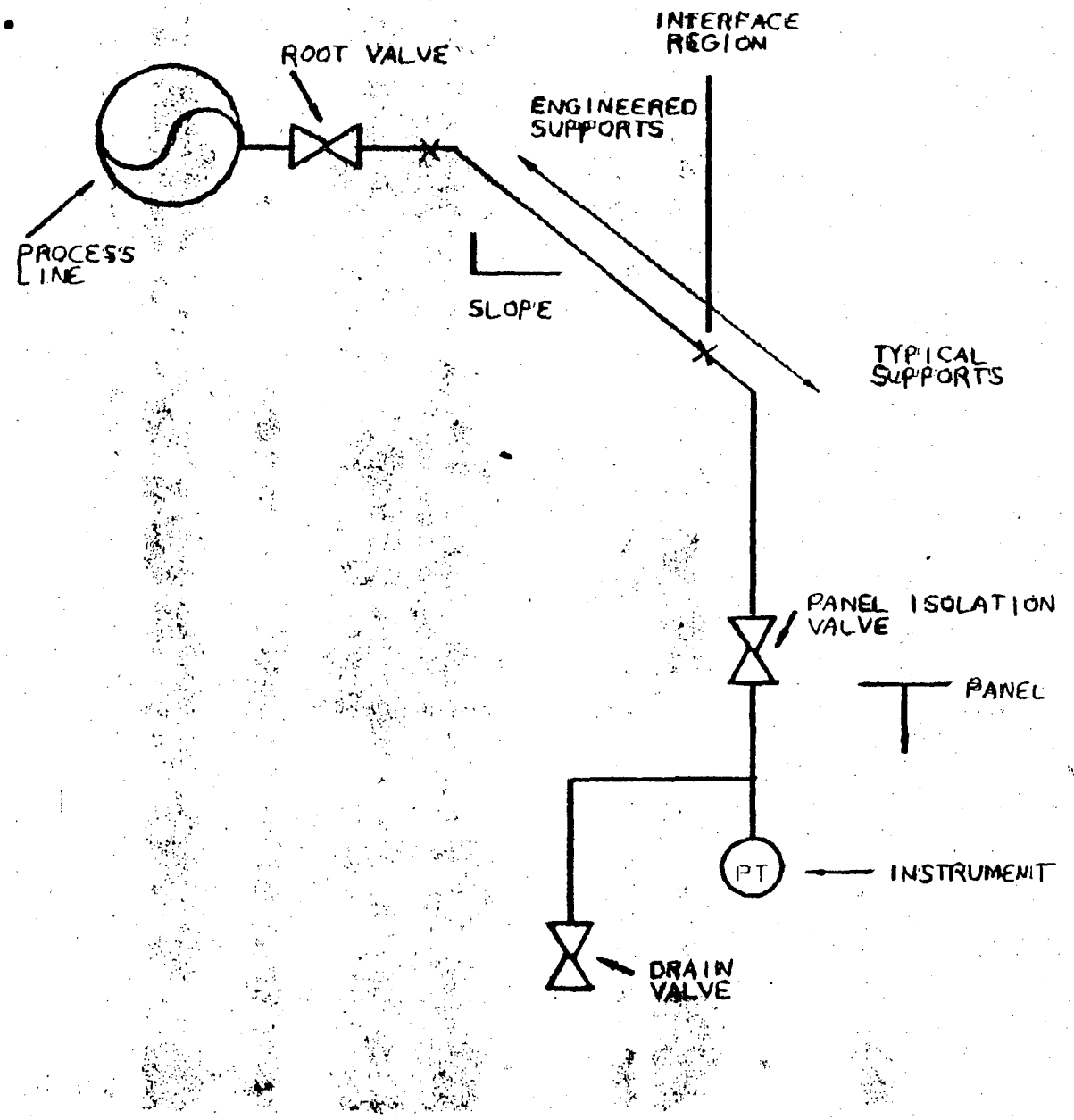
MAJOR TECHNICAL ISUES

- **Functional**
  - Slope Adequacy
- **Structural**
  - Thermal Effects
  - Pipe & Tube Bending
  - Compression Fittings
  - Installation Discrepancies

INSTRUMENT LINES

- SENSE LINES
- SIGNAL LINES
- SAMPLING SYSTEM LINES
- RADIATION MONITOR SYSTEM LINES
- CONTROL AIR BRANCH LINES

SENSING LINE



INSTRUMENT-RELATED PROBLEMS IDENTIFIED

- Conditions Adverse to Quality (CAQ)
- Employee Concerns (EC)

SENSE LINE ISSUES

- Slope Adequacy
- Root Valve Orientation
- Separation
- Condensate Chamber Design
- Capillary/Sensor Bellows Installation

INSTRUMENT PROJECT

- Formed in October 1985
- Define Problem Areas
- Develop Corrective Actions
- Establish Recurrence Control

PHASE I

INSTRUMENT PROJECT

Identification of Technical Issues

- CAQs & Employee Concerns Assembled
- Corrective Actions & Recurrence Controls Established
- Instrument Project was phased out in December 1986

PHASE II

Resolution of Technical Issues

☐ SENSE LINE SLOPE

✓ Clarify Design Requirements

✓ Rework Safety Related Lines

STOP WORK ORDER (SWO)

- Issued January 12, 1987
- Unresolved Quality-Related Issues
- Partial Release - February 6, 1987
- Full Release - January 26, 1988

ENGINEERING REQUIREMENTS SPECIFICATION (ERS)

- ER-WBN-EEB-001 Was Issued On January 28, 1987

- ERS Addressed Quality-Related Issues Identified in the SWO

PHASE III

IMPLEMENTATION PLAN

✓ Sense Line Slope

- Safety-Related Lines Comply With ERS
- Complete Established Corrective Action (ECN 6792)

✓ Other ERS Requirements

- Separation
- Root Valve Orientation
- Condensate Chamber Design
- Cappilary/Sensor Bellows Installation

ROOT CAUSE

o NUCLEAR ENGINEERING (NE)

- Design Requirements were not clearly stated and in certain cases incomplete.
- Discipline interface responsibilities in certain cases were not clearly defined.

o NUCLEAR CONSTRUCTION (NC)

- Site Implementing Procedures (SIP) did not include certain installation requirements.

o NUCLEAR QUALITY ASSURANCE (NQA)

- SIPs did not include certain inspection requirements.
- Inspector training was inadequate.

RECURRENCE CONTROL

- **NE DESIGN REQUIREMENTS**
  - ER-WBN-EEB-001 Provides a Concise, Comprehensive Source of Engineering Requirements.

- **NC IMPLEMENTATION**
  - SIPs Updated to Reflect Engineering Requirements.

- **NQA INSPECTION & DOCUMENTATION**
  - SIPs Updated to Reflect Engineering Requirements.
  - Training Programs Implemented.

INSTRUMENT LINE
CONCLUSION

Instrument Line CAP Identifies The Major Technical Issues And Corrective Actions Required to Ensure Instrument Lines Comply With Functional & Structural Design Criteria Requirements.

ELECTRICAL ISSUES
CORRECTIVE ACTION PROGRAM PLAN
WATTS BAR NUCLEAR PLANT

- Flexible conduit installation deficiencies
- Physical cable separation and electrical isolation
- Contact and coil rating of electrical devices
- Torque switch and overload relay bypass capability for active safety-related valves
- Adhesive-backed cable support mounts (ABCSM)

FLEXIBLE CONDUIT INSTALLATION DEFICIENCIES

ISSUES:

- ➡ Inadequate length to account for seismic/thermal movement.
- ➡ Lack of compliance with minimum bend radius requirements.
- ➡ Loose fittings and damaged flex.

RESOLUTIONS:

- ✓ Revise design output documents for length, bending radius and loose fittings.
- ✓ Revise site implementing procedures.
- ✓ Nuclear Construction to walkdown class IE flexible conduits and rework as necessary.

PHYSICAL CABLE SEPARATION AND ELECTRICAL ISOLATION

ISSUE:

- Separation between redundant divisions of class 1E conduits.

RESOLUTION:

- Rework redundant conduits in noncompliance.

PHYSICAL CABLE SEPARATION AND ELECTRICAL ISOLATION

ISSUE:

- Internal panel separation between redundant divisions of class 1E cables.

RESOLUTION:

- Revise design input and output documents.
- Rework or evaluate those in noncompliance.

PHYSICAL CABLE SEPARATION AND ELECTRICAL ISOLATION

ISSUE:

- Coil-to-contact and contact-to-contact isolation between class 1E and non class 1E circuits.

RESOLUTION:

- Issue calculation to verify acceptability.
- Revise design input.
- Review qualification of devices used as isolators, and replace, as necessary.

CONTACT AND COIL RATING OF ELECTRICAL DEVICES

ISSUES:

- ➡ Inductive load rating of contacts.
- ➡ Maximum and minimum credible voltage at coil terminals.

RESOLUTION:

- ✓ Review devices and determine if the contacts have an acceptable current rating
- ✓ Review inductive devices for the highest and lowest credible voltage
- ✓ Issue design output documents as required
- ✓ Implement design changes in the field if necessary

TORQUE SWITCH & OVERLOAD RELAY BYPASS CAPABILITY

ISSUE:

Torque switch and thermal overload relay bypass capability for certain active safety-related valves required to operate during a design basis event was not provided.

RESOLUTION:

- ✓ Revise design input documents to provide for the requirement.
- ✓ Issue a calculation to indicate which active valves require thermal overload relay and torque switch bypass capability
- ✓ Review all active valve circuits to insure that all thermal overload relay and torque switch bypass capability are properly implemented. Issue design output documents.
- ✓ Perform field modifications as necessary.

ADHESIVE BACKED CABLE SUPPORT MOUNTS

ISSUE:

Vendors and TVA have used ABCSM inside equipment to support/restrain wires and field cables.

RESOLUTION:

- ✓ Ascertain ABCSM technical requirements for vendor and field wiring.
- ✓ Evaluate use of ABCSM for field wiring and issue design input documents identifying the technical requirements for existing ABCSM.
- ✓ Issue design output documents to reflect established engineering requirements and to restrict future use of ABCSM.
- ✓ Perform field modifications if required.

ELECTRICAL ISSUES
CONCLUSION

Implementation of This Program Will:

- Revise or develop Design Input Documents, Design Output Documents and Site Implementing Procedures to Prevent Recurrence.

- o Resolve Design & Construction Concerns By:
  1. Qualification (test or analysis)
  2. Rework.

INSTRUMENT LINE
CORRECTIVE ACTION PROGRAM PLAN
WATTS BAR NUCLEAR PLANT

OBJECTIVE

To assure that the instrument lines and their supports meet the functional and structural requirements specified in DBDs.

FSAR and licensing commitments shall be consistent with the Design Basis Requirements