Local Copy

September 26, 1994

Tennessee Valley Authority
ATTN: Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: MEETING SUMMARY - WATTS BAR UNITS 1 AND 2

Gentlemen:

This letter refers to the meeting conducted at the Watts Bar site on September 14, 1994. The meeting was at our request to discuss problems identified during the 75% inspection of the Electrical and Cable Issues Corrective Action Programs. Enclosure 1 is a list of the individuals who attended the meeting and Enclosure 2 is the TVA handout for the meeting. It is our opinion that this meeting was beneficial and provided a better understanding of TVA's activities.

Should you have any questions concerning this letter, please contact me.

Sincerely,

Original Signed By:
J. P. Jaudon
Johns P. Jaudon, Acting Deputy Director
Division of Reactor Projects

Docket Nos. 50-390, 50-391
License Nos. CPPR-91, CPPR-92

Enclosures: 1. List of Attendees
2. TVA Handout

cc w/encls: (See page 2)

IE01

cc w/encls:
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Mr. M. H. Mobley, Director
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The Honorable Robert Aikman
County Executive
Rhea County Courthouse
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The Honorable Garland Lanksford
County Executive
Meigs County Courthouse
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Distribution w/encls: (See page 3)

Distribution w/encls:
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E. W. Merschoff, DRP/RII
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J. P. Stohr, DRSS/RII
F. J. Hebdon, NRR
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SEND	OFC	DRP/RII				
TO	NAME	PFredrickson:vg				
PDR?	DATE	09/ /94	/ /94	/ /94	/ /94	/ /94
Yes No	COPY?	Yes No	Yes No	Yes No	Yes No	Yes No

OFFICIAL RECORD COPY DOCUMENT NAME: G:\SEC4B\MTGSUM.706

ENCLOSURE 1

LIST OF ATTENDEES

Name	Title
NRC Staff	
F. J. Hebdon	Director, Project Directorate II-4, Division of Nuclear Reactor Regulation (NRR)
P. E. Fredrickson	Chief, TVA Construction Branch, Division of Reactor Projects (DRP), Region II (RII)
G. A. Walton	Construction Senior Resident Inspector, DRP, RII
M. I. Good	Contractor, Comex
TVA Staff	
P. Pace	Site Compliance Licensing Manager
R. Stockton	Licensing Engineer
M. D. Skaggs	Manager of SP Projects
J. D. Collins	Project Engineer
C. Lyke	Electrical Engineer
M. Brickley	Lead Electrical Engineer
J. A. Simmons	CAP/SP Manager

ENCLOSURE 2

ELEC CAP STATUS

The information summarized below is derived from WBN Corrective Action Program Documents WBSCA940019 and WBSCA940041.

1. The following Electrical CAP subissues had 75% inspection findings:

   - Elec Separation
   - Flexible Conduit

2. Summary of Findings:

   - Corrective actions/recurrence controls inadequate for conduit identification, train marking, marinite boards, and electrical separation:
     - Marinite boards not installed per typical details
     - Missing conduit identification
     - Missing train color marking
     - Electrical separation deficiencies for rigid to rigid conduit, rigid to flex, flex to flex and free air cable to conduit. In addition, hot pipe separation deficiencies were found for flexible conduit.
     - By EOC found flexible conduit bend radius and length discrepancies
   - Corrective actions/recurrence controls inadequate for flexible conduit length and bend radius attributes:
     - A significant percentage (approximately 22%) of evaluated flexible conduits fall in between the two specified minimum values for bend radius.
     - A small percentage (approximately 1.5%) of evaluated flexible conduits fall below the minimum allowable bend radius and appear to have been caused by subsequent damage.

- Approximately 4% of evaluated conduits were short by a maximum dimension of 3/4".
- One evaluated conduit was 3" short.

3. Summary of Causes:

o Electrical Separation (See WBSCA940019):

Previous Program Work	New Program Work/QC
a. Measurement Technique	a. Measurement Technique
b. Complex criteria for craft	b. Lack of criteria for free air to conduit configuration
c. Inadequate training	c. Human error
d. No QC involvement	d. Affected by subsequent work
e. Craft two-party verification technique	e. No design provision for flex migration
f. Difficult access	
g. Program not tracked for management	
h. Affected by subsequent work	

o Flexible Conduit (See WBSCA940041):

- Affected by subsequent work (bend radius)
- Redundant criteria (bend radius)
- Measurement criteria and technique (length)
- Lack of flex conduit attributes on field data sheets

4. Extent of Condition:

- Electrical Separation
  - All Class 1E conduit (four attributes)
  - Flex to Hot Pipe

- Flex Conduit
  - Conduits between minimum values of bend radius - criteria revised; no violations to new criteria.
  - Conduits below minimum appear to be the result of subsequent damage; no implications to design requirements or installation process.
  - All short flex length examples have been evaluated as acceptable by NE, conducting EOC sample at present.

5. Corrective Actions:

- Electrical Separation
  - NE issue enhanced criteria
    - Separation criteria
    - Flex migration guidance
  - Fabricated templates to facilitate inspection
  - Reinspect all Class 1E conduits for four attributes using non-manual personnel and QC oversight - in progress
  - Monthly report to management
  - Revise data sheets to address flex attributes
  - Perform enhanced training

- Perform QA assessments of other Modifications walkdown activities
- Perform QA reviews prior to future NRC inspections

o Flexible Conduit

- Revise bend radius table and specification requirements
- Perform sample of installed flexible conduits for length

CABLE CAP STATUS

The information summarized below is derived from WBN Corrective Action Program Documents WBSCA940051, WBPER940405 and WBPER940388.

1. The following Cable CAP subissues had 75% inspection findings:
   - o CCRS
   - o Vertical Cable in Tray
   - o Vertical Cable in Conduit
   - o SWBP

2. Summary of Findings:
   - o CCRS-
     - CCRS implementation deficiencies
       a) Problem with mid-route sections where interfaces occurred
       b) Abandoned cables and field changes not reflected in CCRS
   - o Vertical Cable in Tray
     - Supports were not installed where required
     - Supports were not installed in accordance with requirements
     - Certain installation circumstances not addressed by design

- Vertical Cable in Conduit
  - Workplans did not incorporate all design requirements
  - Supports were not installed where required
  - Calculation errors

- SWBP
  - Design input errors in calculations

3. Preliminary Summary of Causes (still under development):
   - CCRS
     - Inadequate field training to CCRS operation
     - A population of previously abandoned cables are not in CCRS
     - F-DCNs did not fully implement routing changes
     - No F-DCN initiated to correct adjacent node point
   - Vertical Cable in Tray
     - Misinterpretation of design output
     - No installation criteria for certain situations
     - Supports not installed to design requirements
     - QC did not identify problems
   - Vertical Cable in Conduit
     - Design requirements not included in workplan
     - No installation criteria for certain situations
     - Failure to follow procedure
     - Human error

- SWBP
  - Design input errors

4. Preliminary Extent of Condition:
   - CCRS
     - All tray nodes
     - Abandoned cables not in CCRS
     - F-DCNs with cable routing changes
   - Vertical Cable in Tray
     - All Corrective Action Program cable supports
   - Vertical Cable in Conduit
     - EOC determination in progress
   - SWBP
     - Design calculation - similar design inputs

5. Corrective Actions (Preliminary):
   - CCRS
     - Revise Procedure
     - Training
     - Input abandoned and spare cables into CCRS
     - Correct identified CCRS problems

- Vertical Cable in Tray
  - Revise G-Spec
  - Perform enhanced training
  - Reinspect installations and correct as necessary

- Vertical Cable in Conduit
  - Perform enhanced training
  - Reinspect Silicon Rubber cables with vertical supports
  - Walkdown all vertical conduits that took credit for concurrent DCN work
  - Review F-DCNs against vertical cable base DCNs
  - Sample previous vertical cable supports installed per corrective action DCNs
  - Correct known deficiencies
  - Enhanced QC attribute tool
  - Develop list of conduits using Kellem grips and reinspect

- SWBP
  - Review design inputs and revise calculation

ELECTRICAL PENETRATION

KAPTON DAMAGE

The information summarized below is derived from WBN Corrective Action Program Document WBNSCA940055.

1. Summary of Findings:

   - Kapton insulation damage to outboard electrical penetration pigtails

2. Summary of Causes (Preliminary):

   - Evaluating two areas; 1) performance of work under penetration workplans and 2) subsequent damage

3. Extent of Condition (Preliminary):

   - Preliminary EOC evaluated five outboard penetrations. Four have occurrences of insulation damage; mostly to spare conductors