7.2.1.3 Site Specific - SQN (continued)

Hence, this employee concern item requires no further corrective action.

- Cable outside diameters used in the conduit fill program were not auditable. Cable diameters measured at TVA's Singleton Labs established new average cable diameter values for use in the conduit and cable tray fill program. SQN must incorporate the new values into their fill programs and determine if overfill had occurred (CATD 10900-NPS-05).

The line management response to CATD 10900-NPS-05 was:

The new cable diameters are being incorporated into the SQN cable routing system per memorandum to Roberts from Raughley dated September 23, 1986 (B45 860923 908). Corrective action to NCR SQNEEB8601 will assure verification of cable input diameter information and that the cable raceway fill program is reevaluated using the new verified values.

This corrective action was a SQN restart item.

7.2.1.4 Site Specific - BFN

- Cable sidewall pressure calculations were not considered in the design process. As a result, SCR BFNEEB8631, Revision 0, was written. The resolution will depend on DNE's ongoing evaluation discussed in section 7.2.1.1.

- Violations of the recommended MBR were being tracked by SCR BFNEEB8634, Revision 0. The resolution will depend on DNE's ongoing evaluation discussed in section 7.2.1.1.

7.2.1.4 Site Specific - BFN (continued)

- Cable outside diameters used in the conduit fill program were not auditable. Cable diameters measured at TVA's Singleton Labs established new average cable diameter values for use in the conduit and cable tray fill program. BFN must incorporate the new values into their fill programs and determine if overfill had occurred (CATD 10900-NPS-05). See section 7.2.1.2 for corrective action.

7.2.1.5 Site Specific - BLN

- Corrective actions for SWP, MPT, and MBR issues were generic and were as given in section 7.2.1.1.

- Cable sidewall pressure calculations were not considered in the design process. As a result, PIR BLNREB3518 was written to identify the problem. The resolution will depend on DNE's ongoing evaluation discussed in section 7.2.1.1.

- PIR GENSRB8605 was written to address the bend radius of cable in standard conduit. The resolution of this and other MBR issues will depend on DNE's ongoing evaluation discussed in section 7.2.1.1.

- Cable outside diameters used in the conduit fill program were not auditable. Cable diameters measured at TVA's Singleton Labs established new average cable diameter values for use in the conduit and cable tray fill program. BLN must incorporate the new values into their fill programs and determine if overfill had occurred (CATD 10900-NPS-05). See section 7.2.1.2 for corrective action.

7.2.2 Splicing

7.2.2.1 Generic

The corrective actions for this issue were handled on a site specific basis.

7.2.2.2 Site Specific - WBN

- The resolution of the splicing problems at WBN were tied to the corrective actions of NCRs 6208, 6224, and 6536.

  NCRs 6208 (unit 2) and 6224 (unit 1) dealt with splices made with Raychem products in harsh environments which were not made in accordance with SD-E12.5.7-1. The disposition of NCR 6208 required rework of the suspect splices. This rework had not begun because the site procedures had not been revised to reflect the rework. The rework due to NCR 6224 had begun but was not complete.

  NCR 6536 specified that the incorrect Thomas and Betts connectors were referenced in site procedures and G-38. The rework for this NCR had not begun. WP N6536-1 was in the review cycle (CATD 10900-WBN-06) (QR).

The line management responce was:

NCR 6208 and 6224 will be resolved as described in our input to the 50.55(e) final report. All open items are tracked under TROI numbers NCR WBN 6208 and NCR WBN 6224.

NCR 6536 was upgraded to SCR 6536-S. The corrective action is described in memorandum 826 860218 147. All open items are tracked under TROI numbers NCR WBN 6536 and SCR WBN 6536.

7.2.2.3 Site Specific - SQN

The corrective actions for this issue were complete and were described in section 7.1.2.3.

7.2.2.4 Site Specific - BFN

NCR 6208 (also described in 7.2.2.2) was found to be applicable to BFN. As a result SCR BFNEEB8518 was initiated. This SCR was closed out because the concern was handled on SCR BFNEQP8501. The SCR dealt with the fact that Brown's Ferry had been built according to General Construction Specification G-4 which allowed for splicing methods which were not qualified for Class 1E application in harsh environments. As a result of this, G-38 was revised to indicate that BFN modifications were subject to this instruction. The BFN EQ project was committed to a walkdown of all cable termination splices on safety-related equipment. The matter of unqualified materials used for splices of Class 1E equipment in harsh environments (NCR 6536) did not exist at BFN. The site procedures referenced the correct series product (CATD 10900-BFN-01) (QR).

The line management response was:

1. The issue of inadequate or incorrect Raychem splices has been addressed by several documents which are listed below.

   SCRBFNEQP8501 (BFC-85-1013-002)
   SCRBFNEEB8649
   EMPLOYEE CONCERN 302.01-BFN
   NRC INFORMATION NOTICE 86-053

2. The documents identify the following Issues and Concerns.

   Too many procedures/instructions
   Difficult to understand and use procedures
   Conflicts between procedures
   Inadequate training
   Document control of procedures and vendor data
   Raychem manuals not in vendor manual control system
   Splice damage due to manipulation before tubing sufficiently cooled
   Minimum bend radius of cable or splice exceeded
   Less than minimum heat shrink tubing required overlap
   Heat shrink tubing applied directly over braided cable jacket
   Bare conductors exposed
   Heat shrink tubing not adhering to cable jacket

7.2.2.4 Site Specific - BFN (continued)

Splices not staggered
Heat shrink tubing not properly shrunk
Improper taping
Incorrect heat shrink materials applied
Unauthorized use of taped splices
Unauthorized use of wire nuts
Undocumented splices
Disposition of substandard splices in non 1E, mild environment applications

3. A single CAQ document shall be used to define the corrective action and track this corrective action to its completion. The basic overall approach to the corrective action for the entire issue of Raychem splices is summarized below.

4. An overall plan and schedule for inspection and installation and documentation of installed splices has been developed. Splice installation criteria have been developed and necessary documents are being revised to incorporate this criteria. A method for documentation of splice details on engineering drawings shall be complete by October 5, 1987. Inspection teams have been organized and trained for inspection of new splices. A plan for non harsh 1E and non 1E splice applications shall be implemented by March of 1988. A plan for minimizing the impact of new enclosure designs which are required because of space or qualification of the new splices shall be complete by October 5, 1987.

5. All Class 1E splices which are located in harsh environments shall be located, inspected and, if inadequate, replaced within the requirements of General Construction Specification G-38 before the startup of the applicable unit.

7.2.2.5 Site Specific - BLN

The corrective actions for this issue were complete and were described in section 7.1.2.5.

7.2.3 Cable Terminations

7.2.3.1 Generic

The corrective actions for this issue were handled on a site specific basis.

7.2.3.2 Site Specific - WBN

- Junction box 1918 in the unit 2 Accumulator Room Number 4 was found to have a bent lug problem with the terminations. The DNC engineer responsible for the junction box discovered that the installed box was smaller than the box specified by DNE. The box had been replaced on WP FR063B-Z but the workplan was on hold for inspection (CATD 10900-WBN-07) (NQR).

The line management response was:

Junction box 2-JB-293-1918 has had the smaller box replaced and the correct size box installed on workplan FR063BZ. Inspection is complete and documentation is in the vault.

- There were concerns which reported a lack of continuity or megger tests. A review of SOP-14, Revision 2 revealed that megger testing was still a requirement for non-QA cables. However, the engineers interviewed revealed they did not know of the existence of this document and were not having megger tests run. No corrective action for this condition had begun (CATD 10900-WBN-08) (NQR).

The line management response was:

Electrical Engineering will conduct and document training on WBN SOP-14. Provision is being made through DNE Electricl Engineering Administrative Guidelines for the training and periodic review of this procedure by all present and future employees.

- There were several corrective actions associated with NSRS report I-85-101-WBN on the misapplication of AMP PIDG lugs. DNE procedures had been revised to shorten the NCR processing time. DNE personnel had been retrained on the new procedure. The DNE procedure for corrective action had been revised to add a note cautioning the preparer of FE/FRs that the applicable failure history should be considered. ECN 5879 (unit 1) and 5880 (unit 2) were written to

7.2.3.2 Site Specific - WBN (continued)

rework PIDG lugs on solid conductors. WP 5879-1 and -2 had completed the work for unit 1. Unit 2 work was not scheduled for completion until unit 2 fuel loading (CATD 10900-NPS-03) (QR).

The line management response on a corporate level was:

> Replace PIDG terminal lugs or add solder to PIDG terminal lugs for those used in safety-related circuits where failure would create a safety concern.
>
> To prevent recurrence TVA has revised General Construction Specification G-38 to specify the correct lugs to use. Also, construction and plant implementing and inspection procedures have been revised.

CAQs written were SCRSQNEEB8620, WBN 6076, and SCRWBN8537.

It should be noted that those lugs required to be replaced or soldered were to be designated by DNE.

7.2.3.3 Site Specific - SQN

A formal replacement and/or solder program for PIDG lugs on solid conductors was recommended in NSRS report I-85-101-WBN. Work was conducted using SMI-2-317-25. All work was complete except for replacement of lugs on surge suppression networks for solenoid valves (CATD 10900-NPS-03).

The line management response to CATD 10900-NPS-03 for SQN was:

> Corrective action which included soldering or replacing AMP (PIDG) terminal lugs on solid wire, has been completed for unit 2 per SMI-2-317-25 except the solenoid valve surge suppression networks.
>
> Those CAQ's will be addressed by the resolution of the more specific employee concerns 241.02-SQN-01 and 241.02-SQN-02.

7.2.3.3 Site Specific - SQN (continued)

The estimated completion date of employee concern 10900-NPS-03 will be determined by the dates shown on employee concerns 241.02-SQN-01 and 241.02-SQN-02.

The line management response to 241.02-SQN-01 and 241.02-SQN-02 was:

For solenoid valve arc suppressors, those identified as required for safety require replacement. Rework should be completed prior to restart on each unit. Arc suppressors required for safety on both units will be identified on the schematics prior to unit 1 restart.

This corrective action was a SQN restart item.

7.2.3.4 Site Specific - BFN

BFN was in the process of scheduling walkdowns to determine if a problem existed with the use of AMP PIDG lugs on solid conductors. They had identified three mark number types with solid conductors.

Further evaluation was needed to determine the extent of the use of this wire and other vendor wire supplied along with a piece of equipment which had been used in conjunction with an AMP PIDG terminal lug (CATD 10900-NPS-03). See section 7.2.3.2 for corrective action.

7.2.3.5 Site Specific - BLN

There was no corrective action for this issue at BLN.

7.2.4 Inspection of Cable

7.2.4.1 Generic

There was no generic corrective action for this issue.

7.2.4.2 Site Specific - WBN

The corrective actions for this issue were complete and were described in section 7.1.4.2.

7.2.4.3 Site Specific - SQN

There was no corrective action for this issue at SQN.

7.2.4.4 Site Specific - BFN

There was no corrective action for this issue at BFN.

7.2.4.5 Site Specific - BLN

There was no corrective action for this issue at BLN.

7.2.5 Fireproofing Cables

7.2.5.1 Generic

- DNE was actively evaluating ampacity losses due to cable coatings. W. S. Raughley's memorandum dated September 8, 1986, provided direction on the performance of corrective action and the establishment of a sampling program to determine the adequacy of cables with respect to their ampacity rating. At the writing of this report, a schedule had not been established to finalize this work. See site specific sections for more information (CATD 10900-NPS-04) (QR).

The line management response on a corporate level was:

Cable ampacity is to be evaluated in accordance with memorandum B43 861008 909 and design standard DS-E12.6.3 which includes appropriate derating factors.

CAQs written were PIRGENEEB8605, SCRSQNEEB86178, and PIRBLNEEB8628.

- The use of a fish hook tool to beach fire barriers was not verified. However, the use of fish tape was found to be allowable in M&AI-13. Fish tape had been deleted from WBN MAI-14. This same change should be evaluated at SQN. (CATD 10900-NPS-02) (QR).

The line management response on a corporate level was:

7.2.5.1 Generic (continued)

Construction Specification G-38 or appropriate engineering requirements specifications will be reviewed and revised as necessary to identify the requirements for breaching and the proper tools to be used. This in turn will require implementing procedures to be revised, if necessary.

DNE will evaluate each project's implementing procedures for adequacy. This task will not be scheduled against plant milestones, since no deficiencies have been documented.

7.2.5.2 Site Specific - WBN

- One of the fireproofing concerns dealt with removal of Vimasco cable coating with sharp instruments. An NRC unresolved item (390/84-66-02) was generated on the subject. The corrective action required to clear this item was to restrict the use of sharp tools to remove Vimasco and to revise DNC procedure WBN-QCP-1.55, "Seals, Fire Stops, and Cable Coatings," to include a requirement to visually inspect the cable for damage after the coating was removed but prior to reapplication of Vimasco. This was completed. However, a review of MAI-14 revealed that this was not the case in ONP. There was nothing to prevent the use of sharp tools to remove Vimasco and no requirement to visually inspect the cable for damage before reapplication of Vimasco (CATD 10900-WBN-09) (NQR).

The line management response was:

WBN QCP-1.55 Revision 8 specifies in section 6.10.2 note 1, "Do not use any sharp instrument that could damage the cable jacket." This is in reference to when cable coating is reworked. Note 2 addresses performance of an intensive visual examination of the cables or sections of cables that had the cable coating removed, and

7.2.5.2 Site Specific - WBN (continued)

if damage is noted, an NCR will be initiated. Modifications will revise MAI-14 by June 1, 1987, (reference OISL R1471) to address precautionary measures on removal of Vimasco and Mechanical Maintenance will revise MI-304.1 by June 1, 1987, (reference OISL R1473) to address precautionary measures on removal of Vimasco.

- There were several concerns that cables had been bunched and covered with Vimasco so thickly that heat was not allowed to dissipate. Since the cable coating was not a part of the original design, the effects of Vimasco on cable sizing were not considered. Vimasco contracted Factory Mutual Research to conduct a test on the effect of Vimasco on ampacities in cable trays. However, it was concluded by the NSRS that the effect of Vimasco on cables with respect to ampacity had not been specifically documented for all WBN applications. Since that time, new ampacity tables had been generated in DS-E12.6.3 which included the effects of Vimasco on cable ampacities. A sampling procedure had been written by the WBEP to verify the adequacy of ampacity of V3, V4, and V5 level cables installed prior to the issuance of DS-E12.6.3. The sampling program had not begun. The NSRS also recommended that testing be conducted using configurations more typical than was used in the Factory Mutual test. No response had been made to this (CATD 10900-NPS-[illegible] and 10900-WBN-10) (QR).

The line management response to 10900-WBN-10 was:

The adequacy of Factory Mutual Test Report JI OFOQ5.AF dated December 19, 1980, will be reviewed to verify that the test report encompasses the worst case as constructed conditions at Watts Bar for Class 1E cable trays.

7.2.5.2 Site Specific - WBN (continued)

If the review identifies deficiencies in the test report or the associated DS-E12.6.3 table 4 (Derating Factors for Vimasco Cable Coating), a condition adverse to quality report (CAQR) will be initiated to govern the required corrective action.

See Section 7.2.5.1 for the line management response to CATD 10900-NPS-04.

- Another of the fireproofing concerns dealt with improper paperwork used to breach fire barriers while pulling cable. Corrective action consisted of allowing two specific groups to breach fire barriers using only one procedure and allowing a maximum of 25 breaches to provide better control over the process. A 100 percent walkdown of all fire barriers was completed in December 1985. Any problems identified at that time were repaired. However, SOP-42 which described the method that DNC was to use to request breaching unit 1 fire barriers was out of date since it referenced using a DNC group which no longer existed (CATD 10900-WBN-11) (NQR).

The line management response was:

DNC-WBN will delete SOP-42. Requests for breaching will be done on an Attachment D from the physical security instruction - 2 or "PHYSI-2." DNC work control instruction QCI-1.60, paragraph 6.1.7.3 provides the direction to accomplish this.

7.2.5.3 Site Specific - SQN

- The use of sharp instruments to remove Flamemastic was not verified at SQN. However, site procedures had no provisions to prohibit the use of sharp instruments to remove Flamemastic and no requirement to visually inspect the cable for damage after Flamemastic was removed (CATD 10900-SQN-04) (QR).

7.2.5.3 Site Specific - SQN (continued)

The line management response to CATD 10900-SQN-04 was:

(1) Determine if a CAQ exists.

(2) Identify the appropriate place to provide written instructions for craft and inspector use in the removal of Flamemastic. The written instruction is to include the identification of proper tooling and prohibit the use of sharp tools.

(3) Revise as appropriate the identified document or generate a new document to provide written instruction for the removal of Flamemastic.

This corrective action was not a SQN restart item.

- There were concerns that cables had been bunched and covered with Flamemastic so thickly that heat was not allowed to dissipate. A walkdown of the cable spread room resulted in trays which appeared to have excessive coating. As at WBN, there was a report on the effects of Flamemastic on ampacities in cable trays by the Joslyn Research Center. The report was quite similar to the Vimasco report at WBN. Therefore, the NSRS conclusion that the effect of flame retardant cable coatings on cables with respect to ampacity had not been specifically documented was applicable to SQN applications. The new ampacity tables mentioned in section 7.2.5.2 were also applicable to SQN. As at WBN, a sampling program to verify the adequacy of ampacity of V3, V4, and V5 level cables installed prior to the issuance of DS-E12.6.3 was planned. This program had not yet begun (CATD 10900-SQN-02 and 10900-NPS-04) (QR).

7.2.5.3 Site Specific - SQN (continued)

The line management response to CATD 10900-NPS-04 was:

> This potential problem was identified by Problem Identification Report PIR GENEEB8605 (B43 860808 908). This PIR will assure corrective action will be identified and implemented.

This corrective action was a SQN restart item.

The line management response to CATD 10900-SQN-02 was:

> An investigation was initiated in response to PIRGENEEB8605. A sampling program (that led to the evaluation of all 480V and 6900V Class 1E cables in trays and non-Class 1E cables routed with Class 1E cables in trays) was conducted to determine if the cables installed in Class 1E cable trays at Sequoyah are adequately sized. The cables were evaluated according to the requirements of electrical design standard DS-E12.6.3. This standard applied a derating factor for Flamemastic 77 cable coating. Other derating factors applied are cable tray covers, cable tray bottoms, cable tray fill and qualified cable insulation temperature. The derating factors for the effects of Flamemastic 77 on cable ampacity was derived from test data. The test applied varying cable coating thicknesses to cables grouped in bundles by voltage level as required by Construction Specification G-38. This program identified some undersized cables for which SCRSQNEEB86178 was initiated describing a condition adverse to quality. Those cables identified on SCRSQNEEB86178 were further evaluated, and certain physical modifications and engineering controls have been applied such that the majority of the cables were made acceptable for use. The remainder are being replaced with adequately sized cable. All future cables will be sized per Electrical Design Standard DS-E12.6.3.

7.2.5.3 Site Specific - SQN (continued)

The test will be reviewed to determined if the test report encompasses the worst case as constructed condition at Sequoyah for Class 1E cable trays.

- The use of a fish hook tool was not verified. As at WBN, the use of fish tape was assumed to be the problem. Fish tape was used to breach fire barriers at SQN. No problems had been identified due to the use of fish tape. However, MAI-14 at WBN had been revised to ban the use of fish tape to breach fire barriers. This should be considered for M&AI-13 (CATD 10900-NPS-02) (QR).

The line management response to CATD 10900-NPS-02 for SQN was:

No problems were identified during the investigation/evaluation because of the use of fish tape to breach fire barriers. Note that section 6.G.1.2 on page 29 of M&AI-13 satisfactorily addresses the use of metallic breaching tools.

7.2.5.4 Site Specific - BFN

- Concerns which dealt with excessive cable coatings were verified. The problem was documented in BF-CAR-86-0078. As a result of this, DNE contracted Joslyn Research Center to perform a test to determine the effects of Flamemastic on cable ampacities for various thicknesses. This was completed in test number 85-033. DNE also contracted United Engineering to walkdown and analyze the adequacy of installed cables. Their initial results were favorable. However, BF-CAR-86-0165 was written against the calculation and walkdown procedures. As a result, W. S. Raughley issued a memorandum on September 8, 1986, which provided direction for each project to proceed with the establishment of a new sampling procedure to determine the adequacy of cables with respect to their ampacity rating. At the time of this evaluation, each project was in the process of writing a walkdown procedure (CATD 10900-NPS-04). See section 7.2.5.1 for the line management response to CATD 10900-NPS-04.

7.2.5.4 Site Specific - BFN (continued)

- The use of sharp instruments to remove Flamemastic was not verified at BFN. However, site procedures had no provisions to prohibit the use of sharp instruments to remove Flamemastic and no requirement to visually inspect the cable for damage after Flamemastic was removed (CATD 10900-BFN-02) (NQR).

The line management response was:

None required at this time. BFN does not have an approved procedure for the removal of Flamemastic. The Division of Nuclear Construction (DNC) will issue a division level procedure containing guidelines for the removal of Flamemastic. Site procedures will be initiated as required.

- It was verified that fire barriers were breached with improper breaching forms. BF-DR-0397 had been written to document the problem. All breaching of cable fire barriers had been stopped at BFN until new instructions could be written and approved in a new site procedure (CATD 10900-BFN-03).

The line management response was:

The current FPP adequately controls breaching of fire stops. The employee concern addressed a discrepancy between MMI-75 and the FPP. Since the Industrial Safety and Fire Protection Section was responsible for both MMI-75 and the FPP (Modifications was not responsible for MMI-75 as stated in report 10900 and BF-DR-86-0397). This discrepancy of referencing two different breaching forms should not have occurred. The FPP incorporated the breaching form (BF-32) out of BF 14.15 and BF 14.15 was deleted. However, MMI-75 still referenced BF-32 instead of the FPP. DR-0397 recognized this discrepancy and MMI-75 was revised to reference the FPP.

7.2.5.4 Site Specific - BFN (continued)

- In a review of cable coating testing, the NSRS concluded that more testing was required for conditions prototypical of those in the plant. No response had been received to this recommendation (10900-BFN-04) (QR).

The line management response was:

CAR-81-35 originally identified the lack of ampacity derating data for Flamemastic in excess of a 1/4 inch. This CAR was replaced by unitized CARs 86-0078, 86-0079, and 86-0080. In order to resolve this issue Joslyn Corp. and United Engineers and Contractors (UE&C) were contracted to develop Flamemastic derating data and evaluate the results against the existing cable installation at BFN. Based on the UE&C Report, SCRBFNEEB8711RO was issued to document 75 cables that appear to be undersized as a result of ampacity derating from excessive Flamemastic.

Additionally, PIRGENEEB8605 (issued August 8, 1986) identified that Design Standards DS-E12.1.1 through DS-E12.1.4 did not adequately address all of the factors that affect cable sizing as related to ampacity. Some of the factors not properly considered are:

1. Cables in conduits were sized assuming single conductors
2. Assumed conduit spacing of at least one conduit diameter
3. Standard tray fill design allowed depth of cable greater than that assumed by the standards
4. Failure to account for variations in cable diameters from the standards
5. Assumed cables in trays (medium voltage) had a maintained spacing
6. Failed to consider effects of fire retardant cable coating, tray covers, fire barrier stops, and fire blanket wrap

7.2.5.4 Site Specific - BFN (continued)

Subsequently, DS-E12.6.3 was issued to supersede DS-E12.1.1 through DS-E12.1.4. All cable designed after September 2, 1986 will be sized according to DS-E12.6.3. The issues identified by PIRGENEEB8605 encompass and exceed the scope of the evaluation of the effect of Flamemastic coating on cable ampacity as originally defined by corrective action C of the previously mentioned CARs.

SCRBFNEEB8711RO and PIRGENEEB8605 will both be resolved under the BFN Cable Ampacity Program. This program consists of the following actions:

Phase I involves performance of the actions which are germane to unit 2 restart while Phase II involves non-unit 2 restart action.

I. Phase I: Unit 2 Restart Actions (To be completed prior to U2 restart)

Scope: Only those actions or items involved with unit 2 restart will be performed or addressed. Specific actions are as listed below.

1. Develop Procedures

2. Develop Computer Program for routing analysis and calculations.

3. Identify installed cables involved with unit 2 restart and verify the unit 2 data base.

4. Perform walkdowns of unit 2 class 1E V4 and V5 trays and conduits to verify their as-built condition (i.e., cable entry and exit locations, tray cover locations, flamemastic profile, tray width and depth, and conduit spacing).

7.2.5.4 Site Specific - BFN (continued)

5. Establish tray derating factors for each class 1E V4 and V5 tray segment involving unit 2 cables.

6. Calculate ampacity as required by DS-E 12.6.3 R1, and Division of Nuclear Engineering (DNE)/ Electrical Engineering Branch (EEB) policies or procedures for unit 2 required cables.

7. Document all cables found to be inadequate by CAQ documentation and perform all required corrective actions.

II. Phase II: Non-unit 2 Restart Actions (to be performed prior to U1 or U3 restart, or prior to installation for those cables (Units 1, 2, & 3) not yet installed)

Scope: Performance of non-unit 2 restart actions listed below.

1. Identify cables routed in trays and conduits which are not within the unit 2 restart envelope.

2. Perform walkdowns of identified trays and conduits to verify their as-built condition (i.e., cable entry and exit locations, tray cover locations, flamemastic profile, tray width and depth, and conduit spacing).

3. Verify unit 1 and 3 data bases.

4. Issue one line drawings.

5. Document all cables found to be inadequate by CAQ documentation and perform all required corrective actions.

7.2.5.5 Site Specific - BLN

All corrective action was complete at BLN. It was described in section 7.1.5.5.

7.2.6 Maintaining Cables

7.2.6.1 Generic

There were no generic corrective actions for this issue.

7.2.6.2 Site Specific - WBN

- One of the concerns in this issue dealt with steel filings in conduit. Examples were discovered in the evaluation. A review of ONP and DNC procedures indicated there were no measures to protect cables in conduit while condulet covers were removed. These procedures must be revised to add provisions to protect cables when condulet covers were removed. (CATD 10900-WBN-12) (QR).

The line management response was:

To ensure that cable raceway covers are installed, QE is revising QCP 3.03 and QCP 3.05 Cable Pulling per NQA-RR-165 by March 20, 1987. Modifications is requesting the Office of Construction to revise QCI 3.05 Cable Installation per WBN-DNC-RR-603. Modifications is revising MAI-3 "Installation and Inspection of Insulated Control, Signal and Power Cables;" MAI-4 "Installation and Inspection of Cable Terminations;" and MAI-13 "Installation of Conduit and Junction Boxes" by May 4, 1987 tracked by OISL number R1470. Electrical Maintenance is revising the MI-57.99 series "Electrical Configuration Control During Maintenance Activity" by August 3, 1987 tracked by OISL number R1469.

7.2.6.2 Site Specific - WBN (continued)

- There were also concerns which dealt with cable which was left unprotected after it was pulled. There were procedures (WBN-QCI-3.05, WBN-QCP-3.05, and WBN-QCI-1.36) which described how the cables were to be protected. There were also provisions for monthly walkdowns but since examples of uncoiled cables were discovered, more emphasis should be placed on watching for poor cable practices (CATD 10900-WBN-13) (QR).

The line management response was:

QCP 3.05, QCI 3.05, and QCP 1.36 contain the procedural requirements which sufficiently cover protection of cable. A February 17, 1987 memorandum from John Porch, General Construction Superintendent, to John Poe, Electrician Superintendent, adds additional management attention to the cable protection issue. Emphasis will be added to the identification of deficient items during the housekeeping walkdowns. AI-1.8 section 4.3 will be revised to include a requirement for the protection of cables in walkways by July 1, 1987.

7.2.6.3 Site Specific - SQN

There was no corrective action for this issue at SQN.

7.2.6.4 Site Specific - BFN

There was no corrective action for this issue at BFN.

7.2.6.5 Site Specific - BLN

There was no corrective action for this issue at BLN.

7.2.7 Insulation Damage

7.2.7.1 Generic

There was no corrective action for this issue.

7.2.7.2 Site Specific - WBN

There was no corrective action for this issue at WBN.

7.2.7.3 Site Specific - SQN

There was no corrective action for this issue at SQN.

7.2.7.4 Site Specific - BFN

There was no corrective action for this issue at BFN.

7.2.7.5 Site Specific - BLN

All corrective action was complete at BLN. It was described in section 7.1.7.5.