UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

May 9, 2003

EA-02-243

Duke Energy Corporation
ATTN: Mr. R. A. Jones
Site Vice President
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION - NRC SUPPLEMENTAL INSPECTION REPORT 50-269/03-08, 50-270/03-08, AND 50-287/03-08

Dear Mr. Jones:

On April 10, 2003, the NRC completed a supplemental inspection at your Oconee Nuclear Station. The enclosed report documents the inspection findings which were discussed on April 10, 2003, with Mr. D. Baxter and other members of your staff.

This supplemental inspection was an examination of your problem identification, root cause evaluation, extent of condition determination, and corrective actions associated with a White finding identified in the mitigating system cornerstone. The White finding involved the inadequate installation of the “red” and “black” connectors on the prestaged Unit 3 high pressure injection pump emergency power supply cable from the auxiliary service water switchgear.

Based on the results of this inspection, the NRC determined that your corrective actions (both planned and already completed) are appropriate to resolve the deficiencies related to the White finding. As such, the inspection objectives of Inspection Procedure 95001, “Inspection For One Or Two White Inputs In A Strategic Performance Area,” have been satisfied. Therefore, the White finding (including associated violation 50-287/03-07-01) is considered closed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system

(ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert C. Haag, Chief,
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos: 50-269, 50-270, 50-287
License Nos: DPR-38, DPR-47, DPR-55

Enclosure: NRC Supplemental Inspection Report 50-269,270,287/03-08
w/Attachment - Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-269, 50-270, 50-287
License Nos.:	DPR-38, DPR-47, DPR-55
Report No.:	50-269/03-08, 50-270/03-08, 50-287/03-08
Licensee:	Duke Energy Corporation
Facility:	Oconee Nuclear Station, Units 1, 2, and 3
Location:	7800 Rochester Highway Seneca, SC 29672
Dates:	April 7-10, 2003
Inspector:	C. Smith, Senior Reactor Inspector
Approved by:	Robert Haag, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000269-03-08, 05000270-03-08, 05000287-03-08; Duke Energy Corporation; 04/7-10/2003; Oconee Nuclear Station; Supplemental Inspection for degraded mitigating systems cornerstone.

The inspection was conducted by a regional inspector. The inspection identified no findings of significance. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Cornerstone: Mitigating Systems

This supplemental inspection was performed by the NRC to assess the licensee's evaluation and corrective actions associated with a White finding related to inadequately installed cable connectors on a pre-staged 4160 VAC emergency power supply cable from the auxiliary service water (ASW) switchgear to a high pressure injection (HPI) pump motor. This cable would be used to power an HPI pump motor following the loss of the essential electrical busses (normal AC electrical power supply) and the loss of the standby shutdown facility (SSF) function. The accident scenarios that this backup 4160 VAC emergency power supply cable is credited for includes high energy line break (HELB) and tornado events. The performance issue for the finding was previously characterized as having low to moderate risk significance (White) in NRC Final Significance Determination letter dated February 7, 2003.

During this supplemental inspection, which was performed in accordance with Inspection Procedure 95001, the inspector determined that the licensee performed an adequate evaluation of the performance deficiency. The licensee's formal root cause analysis for this finding which included an equipment failure mode investigation with corroborating data from a material laboratory failure analysis, was determined to be acceptable.

The inspector determined that the extent of condition review performed for the completed root cause evaluation associated with the performance deficiency was incomplete. Specifically, the licensee failed to identify additional applications of the 151LR Elastimold connectors at the other (switchgear) end of Unit 3 HPI pump motor emergency power supply cable. After the inspector pointed out this omission, the Elastimold 151LR connectors at the other end of Unit 3 HPI pump motor emergency feeder cable were inspected and found to be acceptable.

With the exception of the action described above, the licensee implemented adequate corrective actions to prevent recurrence based upon their root cause analysis.

Based on these inspection results, the White finding (including associated violation 50-287/03-07-01) is closed.

A. <u>Inspector Identified and Self-Revealing Findings</u>

No findings of significance were identified.

B. <u>Licensee Identified Violations</u>

None.

Report Details

01 Inspection Scope

This supplemental inspection was performed by the NRC to assess the licensee's evaluation and corrective actions associated with a low to moderate risk significance (White) finding applicable to Unit 3. The White finding was in the mitigating systems cornerstone in the reactor safety strategic performance area. The performance issues associated with this finding were previously described in NRC Inspection Report 50-269, 270,287/02-15 and later characterized as White in the NRC Final Significance Determination letter dated February 7, 2003. The inspection involved a review of the licensee's problem identification, root cause analysis, and corrective actions associated with this White finding.

The inspector assessed the adequacy of the licensee's root cause evaluation by determining if the root cause(s) and contributing cause(s) were understood, and if the resulting corrective actions were sufficient to address those causes in order to prevent recurrence. This assessment included a review of the licensee's root cause analysis, Problem Investigation Process reports (PIPs), completed/planned corrective actions, Installation and Maintenance procedures, Modification Manual, Purchase Requisition, related/referenced documents and drawings, interviews with key plant personnel, and field walk downs of applicable systems.

02 Evaluation of Inspection Requirements

02.01 Problem Identification

a. Determination of who (i.e., licensee, self-revealing, or NRC) identified the issues and under what conditions

During performance of Work Order (WO) 98271062 to repair a broken pull ring on Unit 3 high pressure injection (HPI) pump motor emergency power supply cable "black" (z phase) connector, the cable socket terminal became separated from the Elastimold elbow. Additional investigation by maintenance personnel revealed that the "red" (x phase) connector was also loose in the elbow. This cable provides an alternate means of powering the "A" or "B" HPI pump motor from the auxiliary service water (ASW) switchgear during a HELB or tornado event.

This self revealing issue was documented in PIP O-02-02972 and was screened as an Action Category 3, which requires that an apparent cause determination be performed in order to correct the immediate problem. The licensee later re-screened the PIP as a Category 2 and performed a root cause evaluation based on the NRC's determination that the performance deficiency was of regulatory significance.

b. Determination of how long the issues existed, and prior opportunities for identification

The HPI pump motor emergency power cables for the three Units, along with the ASW switchgear were installed by Nuclear Station Modification (NSM) 1012, Part K, in 1978 - 1979. The NRC later identified a procedural deficiency for re-powering the HPI motors

from the ASW switchgear in the event of a loss of normal 4160 VAC power. The licensee wrote PIP O-98-5986 and implemented corrective action which involved periodic energization of the applicable HPI pump motors from the ASW switchgear. The periodic test for Unit 3 was successfully completed in April 2000 using temporary test procedure T/T3/A/0251/081. After completion of the Unit 3 periodic test, WO 98271062 was initiated to repair the damaged pull ring on the “black” phase Elastimold connector. During this repair in May 2002, the licensee discovered the cable socket was separated from the elbow. Based on successful completion of the periodic test for Unit 3, the inspector concluded that the non-conforming condition for the black phase connector occurred after April 2000 and existed until repairs were performed by WO 98271062 on June 4, 2002.

The inspector concluded that the emergency power supply motor feeder cables are intended for emergency use only, and would not normally be placed into service without occurrence of the design basis events for which the cables may be required. Additionally, because the temporary test performed in April 2000 was intended to establish baseline conditions demonstrating the capability to energize the HPI pump motors from the ASW switchgear, earlier opportunities for identifying this non-conforming condition may not have been available.

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issues

The NRC in a letter dated November 21, 2002, stated that the change in core damage frequency (CDF) for this finding was calculated to be approximately 4 X 10-6/year. In their letter dated January 10, 2003, the licensee differed with the NRC’s conclusion concerning over heating and failure of the cable connectors, and provided their perspective on several other points regarding the ability of the emergency power cables to support operation of an HPI pump motor. The licensee did not provide any specific comments regarding the NRC’s calculated change in CDF. In response to these comments, the NRC stated in its February 7, 2003, letter that the licensee failed to provide reasonable assurance that the power cables would be available for postulated events that involve high energy line break and/or tornado event recovery. Therefore, the NRC concluded that the finding was appropriately characterized as White. During this review the inspector identified no additional information that would change this conclusion.

The inspector determined that the design basis specification for the HELB event requires operation of an HPI pump within eight hours and for a tornado event within nine hours. Re-powering the HPI pump motor from the ASW switchgear is accomplished by use of procedure EM/0/A/0050/001. NSM -1012, Part K, specified and procured Elastimold 151LR connectors as terminations for both the normal and emergency power cable connectors for the HPI pump motors. The specific design objective was to facilitate a quick disconnect/connect means in order to accomplish these time critical actions. The NRC determined that the licensee failed to adequately implement the vendor’s written instructions for installation of the Elastimold 151LR connectors. This failure defeated the design objective thus making vulnerable the ability to re-connect a 4160 VAC power supply to the Unit 3 HPI pump motor after a licensing basis event involving HELB or tornado.

d. Assessment

The inspector concluded that the Category 3 PIP that was used to document this performance deficiency was indicative of the low safety significance with which the licensee initially regarded this plant problem. Subsequently the PIP for this issue was designated a Category 2. While the inspector noted the validity in some of the technical discussion comments in the licensee's January 10, 2003, letter, the NRC's conclusion regarding a lack of reasonable assurance for the emergency power supply cable to perform its intended function is unchanged. The NRC evaluated this performance deficiency using the significance determination process (SDP) and concluded that the final risk significance of the inspection finding was appropriately characterized as white.

02.02 Root Cause and Extent of Condition Evaluation

a. Evaluation of methods used to identify root causes and contributing causes

The inspector reviewed the results of the licensee's root cause analysis documented in the Root Cause Failure Analysis Report, Unit 3 HPI Pump ASW Power Cable Connector Failure, Revision 0. The root cause methodology examined possible failure modes of the Elastimold 151LR connector. Additionally, a failure analysis was conducted on the z phase connector and a comparison was made with the undamaged y-phase connector from the same Unit 3 cable. The results of the failure mode investigation revealed that with the connector properly installed per instructions provided by the manufacturer, the elbow could unexpectedly become disconnected or loosened only by mechanical damage resulting in stripped or weakened threads on the socket terminal or elbow receptacle. The results of the material laboratory failure analysis, however, did not identify any thread damage. Examination of the micro-structure of the z and y connectors was also found to be similar with no evidence of excessive heating or cold working. Micro-hardness readings of both connectors was found to be similar.

The licensee evaluated three possible "Inappropriate Actions" (IA) scenarios that could account for the z-phase elbow disconnection from the conductor when it was moved off its storage location for pull ring repair. The first involved the original installation by NSM-1012, which could have resulted in the z-phase connector having little or no thread engagement with its elbow receptacle. The second scenario postulated that the z-phase connector became loosened post-NSM1012 and prior to performance of TT/3/A/0251/081 (Unit 3 HPI System/ASW Switchgear Test) in April 2000. The final scenario postulated that the z-phase connector became loosened after performance of TT/3/A/0251/081 in April 2000. The licensee concluded that the most credible of the three scenarios was the last and attributed the loosening of the z-phase connector to inadvertent manipulation of the elbow resulting in the z-phase connector becoming unscrewed and subsequently completely disconnected from the elbow.

b. Level of detail of the root cause evaluation

The inspector's review of the licensee's root cause analysis demonstrated that it was performed to a level of depth which provided reasonable assurance that the root cause and contributing causes would be identified.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience

The licensee performed an Operation Experience data base and PIP search to see if similar problems had previously been identified in connection with Elastimold 151LR connector failures. No earlier failures were identified based on this search.

d. Consideration of potential common causes and extent of condition of the problem

The inspector determined that potential common cause failure mechanism associated with the Elastimold 151LR connectors was adequately addressed by the licensee. The licensee concluded that the design of this connector makes it susceptible to the failure identified with the z-phase connector.

The inspector also determined that the extent of condition for the non-conforming cable connector was performed by completing an “Operability and Transportability “ review. The licensee identified from review of drawing 2748D55, Revision 7, that the Elastimold 151LR connectors were used on the normal power supply cables for Units 1, 2, and 3 HPI “A” and “B” pump motors. A corrective action was proposed to check and tape these connectors during the next available maintenance or refueling outage. The licensee also identified that Elastimold 151LR connectors were used on the portable chillers. Corrective actions similar to that for the normal power supply cables were proposed. The licensee concluded that transportability of this IA to other electrical connections was not warranted because other connections were either crimped, bolted, or lugged and therefore, were not susceptible to inadvertent loosening by hand manipulations.

The inspector reviewed drawing 0-702-A1, One Line Diagram, 6900V and 4160V Station Auxiliary System, in order to verify the as-built configuration of the ASW Switchgear and determined additional Elastimold 151LR connectors existed on the other end of Unit 3 HPI emergency feeder cable. These terminations were located within the ASW Switchgear enclosure. The licensee’s extent of condition review failed to recognize these connectors were part of the ASW Switchgear installation. The licensee wrote PIP O-03-02010 to document the condition and initiate corrective action. The immediate action was to review all medium voltage switchgear one line drawings in order to verify that no additional Elastimold 151LR connectors were installed in the plant. No additional connectors were found. The inspector accompanied engineering and maintenance personnel during a visual inspection of the Elastimold 151LR connectors within the ASW switchgear in order to verify that they were properly terminated. The inspector concluded that the condition of the connectors was acceptable. The inspector also witnessed implementation of WO 98592058 which taped the socket terminals to the elbows of the Elastimold 151LR connectors in order to avoid a failure similar to that which occurred at the other end of the cable.

e. Assessment

The licensee’s root cause evaluation review for the White finding was adequate, however, the extent of condition review failed to identify all applicable applications of connectors that may be vulnerable to the same failure mechanism.

02.03 Corrective Actions

a. Appropriateness of corrective actions

The inspector reviewed all completed and pending corrective actions related to this finding. Corrective actions implemented at the time of the inspection included:

- WO 98553737-01, completed on January 20, 2003, replaced the Elastimold 151LR series connectors for Unit 2 HPI motor emergency power supply cable with 156 style connectors.

- WO 98552104-01, completed on October 31, 2002, replaced the 151LR series connectors for Unit 3 HPI motor emergency power supply cable with 156 style connectors.

- Work Request 98269885, inspected the connectors installed on the portable chiller cables on February 18, 2003. The power terminations were determined to be Elastimold type 156LR dead break elbow connectors which are not susceptible to becoming unscrewed from the cable socket terminal.

(Note: The Unit 1 HPI emergency power supply cable Elastimold connectors were previously changed to the new 156 style connectors.)

At the time of the inspection, corrective action (CA) sequence No. 4 from a February 18, 2003, Corrective Action Review Board had not been completed. This action was to inspect the normal power supply cable Elastimold 151LR connectors for Units 1, 2, and 3 HPI motors for tightness and apply tape to the cables and elbows to prevent loosening. Also, drawing 2748D55 was to be revised to show taping requirements. The inspector discussed the status of CA No. 4 with the licensee's engineering staff and reviewed HPI pump motor stator temperature trend data, which demonstrated that the motors were operating within their design requirements. The inspector was also informed that the HPI pump motor load current is monitored by the Operations staff and these readings have not shown any abnormality in motor operation. The inspector agreed with the licensee's conclusion that based on the motor's performance data there was reasonable assurance that the Elastimold 151LR normal power supply cable connectors were properly installed. Currently CA No.4 is scheduled to be completed on all six HPI pumps between June 23, 2003 and July 7, 2003.

Corrective action inspections for the Unit 3 Elastimold 151LR connectors located within the ASW switchgear enclosure were witnessed by the inspector. The inspector considered the corrective actions to be adequate and timely.

To evaluate the effectiveness of the licensee's Corrective Action Program, the inspector reviewed the resolution of risk significant performance issues that were documented in Category 3 PIPs. The inspector reviewed several Category 3 PIPs written for recurring performance problems encountered during removal and reinstallation of HPI pump motors. The problems were not related to the Elastimold connectors, but dealt with the motor lead terminal connections and stripping of the threads on the high voltage bushing stud when disconnecting the motor leads. PIP O-00-04437 stated that a possible

contributor to this problem was less than adequate motor lead length which put a strain on the lug crimp connection during torquing of the terminal lug to the high voltage bushing stud. All these deficiencies were written on Category 3 PIPs, which requires an apparent cause evaluation. The corrective actions implemented for Category 3 PIPs are intended to correct the problem and are not considered “Corrective Action to Prevent Recurrence” (CAPR). The apparent failure of the corrective action program to resolve this recurring performance problem resulted in maintenance personnel recommending that the high voltage bushings be changed out each time an HPI pump motor lead was disconnected. This corrective action was implemented by PIP O-00-04437, which revised procedure MP/O/A/3009/020B to permit installation of the high voltage bushing by screw connections in lieu of tack welded connections.

In later discussions with the high voltage bushing vendor, the licensee was informed that the bushing was never intended to have the flange drilled for mounting bolts. The licensee was also informed that the small size bolts used for installing the 2B HPI motor high voltage bushings may not withstand a faulted condition on the equipment and cable. At the time of the inspection, the licensee was preparing a minor modification package to demonstrate the acceptability of this mounting arrangement for the high voltage bushings.

The inspector concluded that the apparent failure of the corrective action program to effectively resolve this recurring problem with the HPI pump motor lead terminations was due, in part, to the inherent subjectivity of PIP trending for problems that were resolved by Category 3 PIPs.

b. Prioritization of corrective actions

The inspector determined that priority codes assigned to corrective actions are intended to ensure that the group responsible for implementing the corrective action is identifying and working on issues that are most important. CAPR’s are assigned priority code 1 and are actions that must be performed to prevent recurrence of issues identified from Root Cause Assessments. Routine corrective actions are assigned priority code 2 and are those actions that have the goal of fixing problems or issues that are not CAPR or are electives/enhancement issues. Routine corrective actions are to be implemented in a time frame commensurate with their safety significance. The inspector concluded that the licensee’s corrective actions were properly prioritized to address the risk for the White finding after associated PIP O-02-02972 was re-screened from action Category 3 to action Category 2.

c. Establishment of schedule for implementing and completing the corrective actions

The inspector verified that the licensee’s corrective action program identified assigned individuals, completion dates, and reference numbers to facilitate adequate tracking of corrective actions to ensure the corrective actions would be completed commensurate with the assigned priority code.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence

The effectiveness of the CARP for the inadequately installed HPI emergency power supply cable connectors will be trended/evaluated under the provisions of the licensee's corrective action program.

e. Assessment

Corrective actions implemented by the licensee were adequate to resolve the deficiencies associated the White finding. The priority given to the corrective actions was appropriate, based on the final significance (Category 2 PIP) that the licensee assigned to this problem.

Continuing problems with HPI pump motors lead terminations (not related to Elastimold connectors) highlighted a weakness in the corrective action program to effectively resolve recurring problems due, in part, to the inherent subjectivity of PIP trending for problems that were resolved by Category 3 PIPs.

The White mitigating systems finding (including associated violation 50-287/03-07-01) is closed based on objective evidence reviewed by the inspector.

03 Exit Meeting

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on April 10, 2003. The licensee acknowledged the findings presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Baxter, Engineering Manager
E. Burchfield, Design Basis Group Manager
T. Curtis, Reactor & Electrical Systems Manager
R. Matheson, Safety Review Group
R, Hare, Maintenance Supervisor
B. Spear, Engineer
J. Weast, Regulatory Compliance
K. Weeks, Technical Specialist, Rotating Eqquipment

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

50-287/03-07-01	VIO	Inadequate Installation of HPI Pump Emergency Power Cable Connectors. (Section 02.03.e)

Discussed

None

DOCUMENTS REVIEWED

NRC Letter, Loren R. Plisco, Director, Division of Reactor Projects (DRP), Region II (RII) to Mr. R. A. Jones, Site Vice President Oconee Nuclear Station, NRC Inspection Report 50-269,270,287/02-15; PRELIMINARY WHITE FINDING, dated November 21, 2002

Duke Letter, Ronald A. Jones, Site Vice President, Oconee Nuclear Station- Units 1, 2 and 3 Docket Nos. 50-269, 50-270, 50-287 Response to NRC Preliminary White Finding, dated January 10, 2003

NRC Letter, Luis A. Reyes, Regional Administrator, NRC, RII to Mr. R. A. Jones, Site Vice President Oconee Nuclear Station, FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND NOTICE OF VIOLATION (NRC INSPECTION REPORT NO. 50-269/03-07, 50-270/03-07, 50-287/03-07, OCONEE NUCLEAR STATION), dated February 7, 2003

PIP O-00-04437, 1A-HPI Motor, 68F20801 2S-69, arrived at Westinghouse, Spartanburg with a missing terminal lug on one of the main power leads. Also possible problems with Stress cones on “House Lead” in connection box, dated December 8, 2000

PIP O-01-04118, Risk Significant Maintenance Rule ; ASW Switchgear provides backup power to HPI motors does not have TS/SLC to monitor performance, dated November 7, 2001.

PIP O-01-01901, The high voltage bushing threaded connector stripped while applying torque, dated May 19, 2001

PIP O-02-02972, Cable fell out of plug while trying to disassemble Elastimold plug for replacement, dated May 30, 2002

PIP O-02-02978, Connector (lug) ordered for repair of the z-phase of HPI Pump Emergency Power cable will not fit on wire. A different lug will have to be ordered and this work will not be completed as scheduled, dated May 31, 2002

PIP O-03-01093, Through a sequence of actions that would not be viewed as meeting current standards, the mounting for the 2B HPI motor high voltage bushings was changed without a minor modification, dated February 28, 2003

PIP O-03-02010, ONS Engineering discovered a deficiency in the transportability review for completed root cause associated with PIP O-02-2972 (ASW/ HPI emergency cable connector problem), dated April 8, 2003

Root Cause Failure Analysis Report (Unit 3 HPI Pump ASW Power Cable Connector Failure), Revision 0, PIP O-02-2972, dated January 7, 2003

High Pressure Injection Health Report, Report Time Period: 2002Q4

Nuclear System Directive 208, Problem Investigative Process, Revision 12

Nuclear System Directive 223, Trending of PIP Data, Revision 3

Nuclear System Directive 210, Corrective Action Program Directive, Revision 3

Nuclear System Directive 212, Cause Analysis, Revision 13

Procedure No. IP/0/A/3009/018, Terminating and Splicing of Cable Rated Greater Than 600V to 15KV, Revision 12

Procedure No. MP/0/A/3009/020B, Motors-Electric-Removal, Replacement, And Post Maintenance Testing, Revision 17

Procedure No. MP/0/A/1300/020, Pump-Ingersol-Rand-High Pressure Injection- Removal And Replacement Of Pump And Motor, Revision 42

Procedure No. MP/0/A/3009/004, Motor-HPI Pump- Disassembly, Repair, And Assembly, Revision 3

2002 First Quarter Trending Report for RES, dated July 26, 2002

2002 Second Quarter Trending Report for RES, dated September 6, 2002

2002 First Quarter Trending Report for MCE, dated June 7, 2002

Drawing No. 0EE-319-19, Elementary Diagram 4160 V Switchgear #3TC Unit #8, HP Injection Pump Motor No. 3A, Revision 4

Drawing No. 0EE-317-48, Elementary Diagram 4160 V Switchgear #3TE Unit #9, HP Injection Pump Motor No. 3B, Revision 4

Drawing No. O-702-A, One Line Diagram, 6900V & 4160V Auxiliary System, Revision 25

Drawing No. O-702-A1, One Line Diagram, 6900V & 4160V Auxiliary System, Revision 17

Drawing No. O-2702, One Line Diagram, 6900V & 4160V Auxiliary System, Revision 19

Drawing No. O-800-D, One Line Diagram, AC Elementary Diagram, 3 Line Connection Diagram Transformer CT4, Revision 9

Drawing No. 2748D55, Westinghouse Electric Corporation Motor LAC Frame # 688, 5P30 YSS DP CSP Outline, Revision 7

Engineering Manual EM-4.6, Engineering Systems, Structure, and Component Walkdowns Revision 2

Modification Manual 4.1, Minor Modification Program, Revision 15

Purchase Requisition No. 7310840775, Emergency HPI Motor Portable Feeder Cables

Summary Display of HPI Motors Stator Temperature