



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

February 1, 2005

Rick A. Muench, President and
Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000482/2004005

Dear Mr. Muench:

On December 31, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. The enclosed integrated report documents the inspection findings which were discussed on January 5, 2005, with you and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 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 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).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

David N. Graves, Chief
Project Branch B
Division of Reactor Projects

Docket: 50-482
License: NPF-42

Enclosure:

NRC Inspection Report 05000482/2004005
w/attachment: Supplemental Information

cc w/enclosure:

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SISP Review Completed: __dng__ ADAMS: / Yes No Initials: __dng_
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RIV:SRI:DRP/B	RI:DRP/B	SRI:DRP/B	C:DRS/PEB	C:DRS/EB
FLBrush:sa	TBRhoades	MSPeck	LJSmith	JAClark
E - DNGraves	E - DNGraves	E - DNGraves	/RA/	/RA/
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C:DRS/OB	C:DRS/PSB	C:DRP/B		
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-482

License: NPF-42

Report: 5000482/2004005

Licensee: Wolf Creek Nuclear Operating Corporation
Wolf Creek Generating Station

Location: 1550 Oxen Lane NE
Burlington, Kansas

Dates: September 27 through December 31, 2004

Inspectors: F. L. Brush, Senior Resident Inspector
T. B. Rhoades, Resident Inspector
R. E. Lantz, Senior Emergency Preparedness Inspector
M. E. Murphy, Senior Operations Engineer
M. S. Peck, Senior Resident Inspector, Callaway
G. D. Repogle, Senior Reactor Inspector, Plant Engineering Branch

Approved By: D. N. Graves, Chief, Project Branch B

SUMMARY OF FINDINGS

IR 500482/2004005; 9/27/04-12/31/04; Wolf Creek Generating Station.

The report covers a 14-week period of resident inspection. No findings were identified. The significance of most issues is indicated by their color (Green, White, Yellow, or Red) using IMC 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be "Green" or be assigned a severity level after NRC management review. 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.

A. NRC-Identified and Self-Revealing Findings

The body of the report is organized under the broad categories of reactor safety and other activities as listed in the summaries below. There were no findings identified in these areas.

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

The plant operated at essentially 100 percent power for the report period, with the following exceptions. On September 28, 2004, the licensee reduced power to approximately 77 percent to allow deenergization and work on the switchyard east bus. The licensee returned the plant to full power later the same day. On October 7, 2004, the plant tripped when a lightning strike close to the plant caused the main turbine bearing vibration protective circuit to actuate. The lightning strike produced a current surge in the protective circuit which did not decay away before the trip function actuated. The licensee started up the plant on October 8 and returned the plant to full power on October 9, 2004. On October 11, 2004, the licensee reduced plant power to approximately 80 percent when the west switchyard bus isolated due to a ground on a startup transformer protective relay. On October 12, the licensee returned the plant to full power after repairs to the relay.

1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope

On November 23, 2004, the inspectors completed the inspection of the licensee's preparations for winter weather. The inspectors walked down the licensee's implementation of Procedure STN GP-001, "Plant Winterization," Revision 32. The areas inspected included heat tracing and steam heating for outdoor tanks and piping associated with the condensate storage tank and refueling water storage tank; ventilation lineups for power block buildings, including the control building ventilation; and hot water lineups for power block ventilation heating. The inspectors also discussed preparations for cold lake temperatures with licensee personnel. As of the date of inspection, the lake temperature was above 50EF. The licensee had staged the frazil ice mitigation equipment associated with essential service water in preparation for colder lake temperatures.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial System Walkdowns. The inspectors performed the following two partial walkdowns:

C Essential service water Train B during a Train A outage, December 9, 2004

Enclosure

- C Residual heat removal system Train A during a Train B outage, October 28, 2004

The inspectors performed the walkdowns to verify equipment alignment and identify discrepancies that could impact redundant system operability.

- b. Findings

No findings of significance were identified.

1R05 Fire Protection (711111.05)

- a. Inspection Scope

Quarterly Fire Area Walkdowns. The inspectors toured the following six areas to assess the licensee's control of combustibles, the material condition and lineup of fire detection and suppression systems, and the material condition of manual fire equipment and passive fire barriers. The licensee's fire preplans and fire hazards analysis report were used to identify important plant equipment, fire loading, detection and suppression equipment locations, and planned actions to respond to a fire in each of the plan areas selected. Compensatory measures for degraded equipment were evaluated for effectiveness.

- C Control building 1984 foot level access control and health physics spaces, November 22, 2004

- C Control building 2016 foot level vital air conditioning Trains A and B rooms, October 25, 2004

- C Condensate storage tank valve and pipe rooms, November 22, 2004

- C Auxiliary building 2000 foot level hot machine shop, November 22, 2004

- C Fuel building emergency exhaust filter absorber rooms, Trains A and B, October 20, 2004

- C Reactor building, September 30, 2004

- b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

Seasonal. On November 29, 2004, the inspectors verified that the licensee's internal flood mitigation plans and equipment were consistent with the licensee's design requirements and the risk assumptions in the Updated Safety Analysis Report. The area inspected was the auxiliary building 1974 foot elevation level. The inspectors reviewed the following:

C MPM XX-002, "Watertight Doors Preventative Maintenance Activity," Revision 4

C Work Order 04-261280-000

The inspectors also inspected the floor drain cover screens for debris and the seals on the watertight doors for degradation.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

1. Biennial Inspection

a. Inspection Scope

The inspector reviewed the annual operating examination test results for 2004 conducted between August 23 and October 15, 2004. This was the biennial requalification cycle; the licensee administered the written and operating examination. These results were assessed to determine if they were consistent with NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, Supplement 1, guidance and Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process," requirements. This review included examination of test results, which included no failures during the job performance measures, no crew failures out of nine crews, and two failures during the written examination out of 53 licensed operators. All personnel who failed were remediated and passed their re-mediation examinations prior to returning to licensed duties.

b. Findings

No findings of significance were identified.

2. Resident Inspector Review

a. Inspection Scope

On November 3, 2004, the inspectors observed control room operator simulator training to verify that the licensed operator requalification program ensures safe operation of the plant by adequately evaluating how well the operators and crews have mastered the training objectives. The inspectors used Simulator Guide LR5002003, "Loss of Service Water," Revision 3, to evaluate operator performance.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's maintenance rule implementation for the following two systems to assess the effectiveness of maintenance efforts in accordance with 10 CFR 50.65.

- C Auxiliary building room coolers for safety-related pumps, November 18, 2004
- C High pressure safety injection system, December 8, 2004

The inspector's reviewed work practices, scoping in accordance with 10 CFR 50.65(b), performance, 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification goals, and identification of common cause failures. The inspectors reviewed various documentation and discussed maintenance rule items with licensee personnel.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors reviewed three of the licensee's risk assessments for equipment outages as a result of planned and emergent maintenance in accordance with the requirements of 10 CFR 50.65(a)(4) and licensee Procedure AP 22C-003, "Operational Risk Assessment Program," Revision 9. The inspectors also discussed the planned and emergent work activities with operations, planning, and maintenance personnel. The inspector's reviewed the following:

- C Operational risk assessments for planned maintenance for the weeks of October 4 and 11 and December 6, 2004

C Actual, planned, and emergent work schedules for the same weeks

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Nonroutine Evolutions and Events (71111.14)

1. Replacement of a Switchyard Potential Transformer

a. Inspection Scope

On September 28, 2004, the inspectors observed the licensee's performance while shifting the offsite power supply for Vital Bus NB01 to an alternate source and reducing reactor power to approximately 77 percent. This was done to de-energize the switchyard east bus for replacement of a potential transformer. The inspectors discussed the event with licensee personnel and reviewed the following procedure:

C TMP 01-014, "Transferring XNB01 Supply Between SL7 and the Athens Line,"
Revision 1

b. Findings

No findings of significance were identified.

2. Reactor Trip

a. Inspection Scope

On October 7, 2004, the inspector observed portions of the control room operators' response to a reactor trip. The reactor tripped from full power when the main turbine tripped due to a lightning strike close to the plant. The main turbine bearing vibration trip circuitry actuated due to electromagnetic induction from the lightning bolt when the induced voltage did not decay below the trip setpoint within 6 seconds. The inspectors observed plant parameters and reviewed the following:

C Control room operator logs
C EMG ES-02, "Reactor Trip Response," Revision 14
C GEN 00-005, "Minimum Load to Hot Standby," Revision 51
C Posttrip review package

The inspector also discussed the cause of the trip and operator response with various licensee personnel.

b. Findings

No findings of significance were identified.

3. Startup Transformer Protective Relay Causes Switchyard West Bus Isolation

On October 11, 2004, the inspector observed portions of the licensee's response to the loss of the startup transformer. The startup transformer was supplied by the west switchyard bus. A startup transformer protective relay developed a ground which caused isolation of the west bus, thereby removing power to the transformer. The transformer supplied power to vital Bus B. Emergency Diesel Generator B started and energized the bus as designed. All other equipment also functioned as designed.

The licensee reduced power to approximately 80 percent, at the request of the load center, in order to ensure grid stability. On October 12, 2004, the licensee returned the plant to full power after repairing the startup transformer relay and re-energizing the west switchyard bus. The licensee then transferred vital Bus B to the normal power source and secured Emergency Diesel Generator B.

The inspectors observed plant parameters and reviewed the following:

- C Control room operator logs
- C OFN NB-030, "Loss of AC Emergency Bus NB01 (NB02)," Revision 13
- C Performance Improvement Request (PIR) 2004-2684

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected two operability evaluations conducted by the licensee during the report period involving risk-significant systems or components to review. The inspectors evaluated the technical adequacy of the licensee's operability determinations, verified that appropriate compensatory measures were implemented, and verified that the licensee considered all other pre-existing conditions, as applicable. Additionally, the inspectors evaluated the adequacy of the licensee's problem identification and resolution program as it applied to operability evaluations. Specific operability evaluations reviewed are listed below.

The components or systems were:

- C Emergency Diesel Generator A jacket water system O-rings
- C Main Steam Isolation Valve D yellow train accumulator

The inspectors also discussed the operability evaluations with licensee personnel.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

On November 22, 2004, the inspectors reviewed the operator workaround list to select one for further review. The licensee did not have any identified workarounds. The inspectors then reviewed the operator burden list, installed temporary modifications, and interviewed operations personnel. The inspectors discussed, with licensee operations personnel, long-term equipment problems that were not included in the workaround list but were on the burden list as well as any additional plant equipment problems. The inspectors also reviewed licensee Administrative Procedure AI 22A-001, "Operator Workarounds," Revision 2. The inspectors did not identify any burdens or equipment problems that met the definition of a workaround.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

On October 5, 2004, the inspectors completed the review of the commercial grade dedication of thermo assemblies integral to the temperature control valves used in the emergency diesel generator jacket water, lube oil, and intercooler systems. The following documents were reviewed:

- C Safety Classification Analysis SCA-92-0143, Revision 0
- C Commercial Grade Dedication 009-P0002, "96995-A Series Thermo Assembly (Power Pill) for a Robert Shaw Temperature Regulator I-1285-S Series," Revision 1
- C Purchase Order 727398, Revision 0
- C Wolf Creek receiving inspection report, 04-038207

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed or observed four postmaintenance tests on the following equipment or systems to verify that procedures and test activities are adequate to verify system operability:

- C Centrifugal charging Pump A, October 28, 2004
- C Control room air conditioning heat exchanger, Train B, October 19, 2004
- C Essential service water Pump A and discharge check valve, December 13, 2004
- C Residual heat removal Pump A, October 8, 2004

In each case, the associated work orders and test procedures were reviewed to determine the scope of the maintenance activity and determine if the test adequately tested components affected by the maintenance. The Updated Safety Analysis Report, design basis documents, and selected calculations were also reviewed to determine the adequacy of the acceptance criteria listed in the test procedures.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed or observed all or part of three surveillance activities in accordance with inspection Attachment 71111.22 to verify that risk significant structures, systems, and components are capable of performing their intended safety functions and assessing their operational readiness:

- C STS BB-005, "RCS Water Inventory Balance Using EXCEL," Revision 5, December 14, 2004
- C STS EM-100A, "Safety injection Pump A Inservice Pump Test," Revision 23, November 4, 2004
- C STS IC-211A. "Actuation Logic Test Train A Solid State Protection System," Revision 30, November 13, 2004

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspector reviewed records of emergency plan and emergency action level changes that had been submitted during the past year, 2004. The inspector contacted the emergency preparedness manager to confirm that no changes had been made during 2004. The inspector completed one sample during this inspection.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On October 18, 2004, the inspectors observed and reviewed emergency drill activities in the simulator control room and the emergency offsite facility. The drill scenario involved an earthquake, a loss of coolant accident, fuel failure, and failure of containment. The inspectors attended the control room critique, reviewed drill related documents, and discussed the drill activities with various licensee personnel.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

1. Resident Inspection

a. Inspection Scope

The inspectors performed a review of three performance indicator data. The inspectors reviewed the licensee's data submittal using NEI (Nuclear Energy Institute) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The inspectors reviewed various licensee indicator input information to determine the accuracy and completeness of the performance indicator.

C Reactor coolant system leakage - October 2003 through September 2004, completed November 10, 2004

- C Safety system unavailability - emergency ac power systems - October 2003 through September 2004, completed November 10, 2004
- C Safety system unavailability - high pressure safety injection systems - October 2003 through September 2004, completed November 30, 2004

The inspectors discussed system status with various licensee personnel. The inspectors also reviewed licensee information, including control room logs, and the Technical Specifications.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

1. Resident Inspector Annual Sample Review

a. Inspection Scope

On December 6, 2004, the inspectors completed a review of the licensee's response to PIR 2004-2176. With this PIR, the initiator requested an evaluation of the activities associated with the performance of quality control plant evaluation reports. Specifically, the PIR described concerns about perceived arbitrary deletion of inspection hold points, misuse of limited inspection resources, and inadequate training.

The licensee's response included an evaluation of each of the initiator's concerns. The licensee's evaluation determined that no regulations were being violated and that some of the concerns were a matter of perception. However, it also determined that some of the hold point deletions and inspection resource allocations may not have had prudent technical bases.

The licensee has generated a corrective action plan that calls for a review of the program with respect to the technical bases of concern and improved training for quality control inspectors performing plant evaluation reports.

The inspectors reviewed the following documents:

- C AP 20A-008, "Plant Evaluation Program," Revision 5
- C AP 20G-001, "Control of Inspection Planning and Inspection Activities," Revision 6
- C PIR 2004-2176, including the associated evaluation and corrective actions

b. Findings

No findings of significance were identified.

2. Resident Inspector Semiannual Trend Review

a. Inspection Scope

On December 22, 2004, the inspectors completed the semiannual review of licensee documents, audits, reports, and internal performance indicators to identify trends that might indicate the existence of more safety significant safety issues. The time period for the review was June 1 through November 30, 2004. The inspectors reviewed the following:

- C System health reports
- C Performance improvement requests
- C Power block corrective maintenance backlog
- C Quality audit executive summaries
- C Wolf Creek internal performance indicators

b. Findings and Observations

No findings of significance were identified. However, the inspectors observed that there continues to be a large number of personnel errors. The most significant error resulted in a reactor trip which was discussed in NRC Inspection Report 05000482/2004004. There were also valve mispositioning and clearance order errors. The licensee implemented corrective actions for each error. The licensee also conducted an in-depth review to determine the underlying causes of the more significant errors. The licensee stated that the results of the review would be available in the near future.

4OA3 Event Followup (71153)

1. (Closed) Licensee Event Report (LER) 50-482/2004-004-00. Insufficient Planning Results in a Reactor Trip When Restoring From a Test

On August 22, 2004, the plant tripped while restoring from a surveillance test. After receiving an unexpected result, licensee personnel did not appropriately restore from the test, which led to the trip. The licensee documented the trip and subsequent corrective actions in PIR 2004-2162. NRC Inspection Report 50-482/2004004002, Section 4OA3, described the event and documented a noncited violation as a result of the personnel error. This LER is closed.

2. (Closed) LER 50-482/2004-005-00. Reactor Trip Due to Lightning Strike in Switchyard

On October 7, 2004, the plant tripped due to a lightning strike in the switchyard. The strike affected the main turbine generator high-high vibration circuit. All systems

responded as required. The licensee documented the trip in PIR 2004-2644. Please refer to Section 1R14 of this report for further information. This LER is closed.

3. (Closed) LER 50-482/2004-006-00. Automatic Start of Emergency Diesel B Due to a Startup Transformer Protective Relay Failure

On October 10, 2004, Emergency Diesel Generator B started when a protective relay on the startup transformer failed and caused the transformer to de-energize. The transformer supplied power to vital Bus B. All systems responded as required. The licensee documented the event and subsequent corrective actions in PIR 2004-2684. Please refer to Section 1R14 of this report for further information. This LER is closed.

4OA6 Meetings, including Exit

The inspectors presented the resident inspection results to Mr. R. A. Muench and other members of licensee management after the conclusion of the inspection on January 5, 2005.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

None.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

R. A. Muench, President and Chief Executive Officer
M. Sunseri, Vice President Oversight
K. A. Harris, Director, Performance Improvement and Learning
D. Jacobs, Vice President Operations and Plant Manager
K. Scherich, Director Engineering
T. East, Manager, Emergency Planning

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

50-482/2004-004-00	LER	Insufficient planning results in a reactor trip when restoring from a test (Section 4OA3)
50-482/2004-005-00	LER	Reactor trip due to lightning strike in switchyard (Section 4OA3)
50-482/2004-006-00	LER	Automatic start of Emergency Diesel Generator B due to a startup transformer protective relay failure (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Emergency Preparedness

C Scenario 04-SA-02
C Selected position logs
C Public notification and protective action recommendation forms
C EPP 06-001, "Control Room Operations," Revision 7
C EPP 06-003, "Emergency Operations Facility Operations," Revision 10
C EPP 06-005, "Emergency Classification," Revision 1
C Wolf Creek Emergency Plan, Revision 5

Equipment Alignment

- C CKL EF-120, "Essential Service Water Valve, Breaker and Switch Lineup," Revision 38
- C CKL EJ-120, "RHR Normal System Lineup," Revision 30
- C Temporary modifications

Fire Protection

- C Updated Safety Analysis Report, Section 9.5, fire hazards analysis

Maintenance Effectiveness

- C Final scope evaluations for auxiliary building heating, ventilation, and air conditioning
- C Functional failure evaluations for auxiliary building heating, ventilation, and air conditioning
- C Functional failure evaluations for high pressure coolant injection system
- C Maintenance rule bases information for auxiliary building heating, ventilation, and air conditioning
- C Maintenance rule bases information for high pressure coolant injection system
- C Maintenance rule (A1) disposition checklist and document summary for GS-02
- C Maintenance rule expert panel meeting minutes for high pressure coolant injection system
- C Maintenance rule performance evaluations for auxiliary building heating, ventilation, and air conditioning
- C Maintenance rule performance evaluations for high pressure coolant injection system
- C PIRs 2003-0976, -1277, -1790, -2245, -2600, -2872, and -2954; 2004-0131, -0688, -0805, -0973, -0991, -1002, -1417, and -2905
- C System health report for auxiliary building heating, ventilation, and air conditioning
- C System health report for high pressure coolant injection system
- C Work Requests 4041668, 4042397, 4043028, 4045219, 4042650, 4043787, 4044001, and 4045035

Operability Evaluations

- C Control room logs for October 18 and 19, 2004
- C Control room logs for November 2 and 3, 2004
- C Performance Improvement Request 2004-2758
- C Performance Improvement Request 2004-2841

Performance Indicator Verification

- C Licensee performance indicator worksheets
- C Performance indicator summary reports
- C Selected NRC inspection reports
- C Selected control room operator logs

Postmaintenance Testing

- C AP 20G-001, "Control of Inspection Planning and Inspection Activities," Revision 6
- C STS BG-100B, "Centrifugal Charging System "B" Train Inservice Pump Test," Revision 29
- C STS EF-100A, "ESW System Inservice Pump A and ESW A Discharge Check Valve Test," Revision 26
- C STS EJ-100A, "RHR System Inservice Pump A Test," Revision 28
- C STS GK-002B, "Control Room A/C Unit Operability Test," Revision 0
- C STN PE-037B, "ESW Train B Heat Exchanger Flow and DP Trending," dated October 19, 2004
- C Work Orders: 04-258758-000 and 04-258758-001