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

August 5, 2004

EA-04-134

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 05000482/2004003

Dear Mr. Muench:

On June 26, 2004, the NRC completed an inspection at your Wolf Creek Generating Station. The enclosed integrated report documents the inspection findings which were discussed on June 30, 2004, 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.

The report documents two self-revealing findings of very low safety significance (Green). Both of these findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as noncited violations consistent with Section VI.A of the NRC Enforcement Policy. Additionally, two licensee-identified violations of very low safety significance are listed in this report. If you contest the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Wolf Creek Generating Station facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made 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).

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 05000482/2004003
w/attachment: Supplemental Information

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FLBrush:sa	TBRhoades	LJSmith	ATGody	JAClark
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C:DRS/PSB	RIV:ACES	C:DRP/B		
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-482
License:	NPF-42
Report:	05000482/2004003
Licensee:	Wolf Creek Nuclear Operating Corporation
	Wolf Creek Generating Station
Location:	1550 Oxen Lane NE Burlington, Kansas
Dates:	April 8 through June 26, 2004
Inspectors:	F. L. Brush, Senior Resident Inspector T. B. Rhoades, Resident Inspector R. A. Kopriva, Senior Project Engineer B. D. Baca, Health Physicist P. J. Elkmann, Emergency Preparedness Inspector B. K. Tharakan, Health Physicist
Approved By:	D. N. Graves, Chief, Project Branch B

ATTACHMENT: Supplemental Information

Enclosure

SUMMARY OF FINDINGS

IR 5000482/2004003; 4/8/04 - 6/26/04; Wolf Creek Nuclear Operating Corporation; Occupational Radiation Safety

The report covered the period of resident inspection and announced inspections by two Region IV inspectors. Two self-revealing Green findings were identified. The significance of the issues is indicated by their color (Green, White, Yellow, or Red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609. Findings for which the Significance Determination Process does not apply are indicated by the severity level of the applicable violation. 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

Cornerstone: Occupational Radiation Safety

- Green. A self-revealing noncited violation of a Technical Specification 5.4.1(a) required procedure was reviewed because workers failed to obtain a radiological survey before removing materials from a contaminated area. On December 1, 2003, three workers alarmed the personnel contamination monitors upon exiting the radiologically controlled area because they had become contaminated. A followup survey of the work area identified contamination levels up to 100,000 disintegrations per minute per 100 cm^2. The licensee determined that personnel became contaminated when they improperly moved a drip catch from a posted contaminated area.

  The failure to obtain a radiological survey before removing materials from a contaminated area is a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Program and Process attribute and affected the cornerstone objective, which is to ensure adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that the finding was of very low safety significance because it did not involve: (1) as low as is reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had a crosscutting aspect associated with problem identification and resolution. The immediate corrective actions were narrowly focused (Section 2OS1).

- Green. A self-revealing noncited violation of a Technical Specification 5.4.1(a) required procedure was reviewed because a health physics technician failed to provide adequate contaminated area controls. On October 31, 2003, after working on a refueling water storage tank line flange, three personnel alarmed the personnel contamination monitors as they exited the radiologically controlled area because they had become contaminated. The licensee determined that the health physics technician covering the above work activity did not properly establish contamination controls, area

posting, and protective clothing instructions in accordance with procedural requirements.

The failure to provide adequate contaminated area controls is a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Program and Process attribute and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that the finding was of very low safety significance because it did not involve: (1) as low as is reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had a crosscutting aspect associated with problem identification and resolution. The immediate corrective actions were narrowly focused (Section 2OS1).

B. Licensee-Identified Violations

Two violations of very low significance were identified by the licensee and have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violations and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant operated at essentially 100 percent power for the report period.

1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope

On May 7, 2004, the inspectors performed a walkdown of various power block buildings to verify that hot summer weather would not affect mitigating systems. The licensee performed the restoration section of the plant winterization procedure to prepare for hot weather. The licensee also implemented the hot weather operations procedure. The inspectors used the following documents for the walkdown:

- GEN HW-001, "Hot Weather Operations," Revision1
- STN GP-001, "Plant Winterization," Revision 31

Additionally, the inspectors discussed adverse weather preparations with various licensee personnel.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial walkdowns

The inspectors performed three walkdowns to verify equipment alignment and identify discrepancies that could impact redundant system operability. The inspectors used the Updated Safety Analysis Report, system drawings, and system lineup checklists to perform the walkdowns. The inspectors also discussed the walkdowns with various licensee personnel. The inspectors performed the following partial walkdowns:

- Turbine-Driven auxiliary feedwater pump during an emergency diesel generator outage, June 10, 2004

- Centrifugal Charging Pump A during a Centrifugal Charging Pump B outage, April 28, 2004
- Emergency Diesel Generator A during an Emergency Diesel Generator B outage, May 20, 2004

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Area Walkdowns

a. Inspection Scope

The inspectors toured the following six areas to assess the licensee's control of transient combustible materials, 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 plant areas selected. Compensatory measures for degraded equipment were evaluated for effectiveness.

- Auxiliary building 1974 foot level corridor, June 4, 2004
- Control building 2047 foot level, May 17, 2004
- Fuel building 2026 foot level, April 29, 2004
- Radwaste building 1976 foot level, April 16, 2004
- Reactor trip switchgear room, April 26, 2004
- Safety Injection Pump A, Centrifugal Charging Pump A and Containment Spray Pump A room, May 19, 2004

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On May 17, 2004, the inspectors verified that the licensee's flooding mitigation plans and equipment were consistent with the licensee's design requirements and the risk assumptions in the Updated Safety Analysis Report. The inspectors conducted walkdowns of areas susceptible to external flooding to verify that risk-significant equipment was adequately protected. The inspectors also examined the plant cooling lake's normal and emergency overflow structures. The inspectors observed that the structures were clear of debris which would restrict overflow functions.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On April 15, 2004, the inspectors observed testing to verify that potential heat exchanger deficiencies were identified. The licensee performed the tests following treatment of the essential service water system for biological growth. The inspectors reviewed the components' historical test data and compared it to the as-found test results. Licensee Procedure STN PE-37A, "ESW Train A Heat Exchanger Flow and DP Trending," Revision 6, delineated the acceptance criteria. The licensee performed the test on the following components:

- Component cooling water heat Exchanger A
- Centrifugal charging Pump A room cooler
- Spent fuel pool cooling Pump A room cooler

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On May 14, 2004, the inspectors observed control room operator simulator training to verify that the licensed operator requalification program ensured safe operation of the plant. The inspectors observed crew performance during simulator sessions to

evaluate the clarity and formality of communications, the correct use of procedures, high risk operator actions, and the oversight and direction provided by the control room supervisor. The inspectors used Simulator Guide LR5001002, "Steam Space Break/ATWT," Revision 6.

The inspectors also reviewed the scenario sequences and objectives, observed the licensee's critique, and discussed crew performance with licensee monitors for the training.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Component cooling water system
- Engineered safety features actuation system

The inspectors 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 Evaluations (71111.13)

a. Inspection Scope

The inspectors reviewed four 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 planning and maintenance personnel. The inspectors reviewed the following:

- Operational risk assessments for planned maintenance for the weeks of April 12 and 19, May 10, and June 7, 2004
- Actual, planned, and emergent work schedules for the same weeks

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected three 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. The specific operability evaluations reviewed are listed below.

The components or systems were:

- Emergency Diesel Generator B, June 2, 2004
- Engineered safety feature switchgear rooms flooding analysis, May 17, 2004
- Yellow train nitrogen accumulator for main steam isolation Valve Actuator B (ABHV017), May 10, 2004

The inspectors also reviewed applicable portions of the Updated Safety Analysis Report, Technical Specifications, and system drawings, and discussed the operability evaluations with licensee personnel.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

On May 13, 2004, the inspectors completed the review of the operator workaround for the auxiliary feedwater pump suction pressure indicators, AL PI-37, -38, and -39. The instruments were used in the emergency management guidelines to verify that the auxiliary feedwater pumps had adequate suction pressure. The value used in the guidelines was 6.9 psig. The licensee determined that the scaling factor for the indicators was not consistent with the actual suction pressure swapover setpoint. This was due to the difference between the actual pump suction piping elevation and transmitter elevation. The licensee posted an operator aid on the main control board to identify the workaround.

The indicators' value that the licensee used to confirm the auxiliary feedwater pumps' suction pressure was conservative. The displayed value was 4.3 psi higher than the actual required pump suction pressure. The scaling factor that was used provided additional margin for the minimum auxiliary feedwater pump suction pressure. The licensee was changing the appropriate emergency management guidelines to use 2.6 psig for the minimum suction pressure. This was to preclude requiring the control room operators to perform manual calculations when using an emergency management guideline.

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 to verify that procedures and test activities are adequate to verify system operability:

- Centrifugal charging system Train B, April 29, 2004
- Control room air conditioning Train B, April 29, 2004
- Emergency Diesel Generator A, June 14, 2004
- Spent fuel pool cooling Pump A and discharge check valve, April 15, 2004

In each case, the associated work orders and test procedures were reviewed to determine the scope of the maintenance activity and determine whether components affected by the maintenance were adequately tested. The Updated Final Safety

Analysis Report, design basis documents, and selected calculations were also reviewed to determine the adequacy of the acceptance criteria listed for some of 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 the following five 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:

- STS AL-101, “MDAFW Pump A Inservice Pump Test,” Revision 31, April 15, 2004
- STS EM-100A, “Safety Injection Pump A Inservice Pump Test,” Revision 22, May 10, 2004
- STS IC-211A, “Actuation Logic Test Train A Solid State Protection System,” Revision 30, May 15, 2004
- STS KJ-005B, “Manual/Auto Start, Synchronization & Loading of Emergency D/G NE02,” Revision 42, April 22, 2004
- STS KJ-015B, “Manual/Auto Fast Start, Synchronization & Loading of Emergency D/G NE02,” Revision 17, May 20, 2004

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

On April 26, 2004, the inspectors reviewed Temporary Modification 04-006-GE. The modification removed the condenser air removal radiation monitor steam generator blowdown isolation function. The licensee stated that the temporary modification was

implemented to prevent spurious blowdown isolations due to electrical noise interference. The licensee planned to implement a design change to the monitor circuitry which would filter out the noise. The inspectors reviewed the following documents:

- OFN BB-07A, “Steam Generator Tube Leakage,” Revision 2
- Technical requirements manual Section 3.3.18, “Primary to Secondary Leakage Detection Instrumentation,” Revision 14
- Updated Safety Analysis Report, Sections 9.3, 10.1, 10.4, and 11.5

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert Notification System Testing (71114.02)

a. Inspection Scope

The inspectors discussed with licensee staff the status of offsite siren and tone alert radio systems to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee’s alert and notification system testing program was compared with criteria in NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” Revision 1; Federal Emergency Management Agency (FEMA) Report REP-10, “Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants;” Procedure EPP 6-019, “Alert and Notification System Sirens,” Revision 3; and the licensee’s current FEMA-approved alert and notification system design report. The inspectors completed one sample during this inspection.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors discussed with licensee staff the status of the emergency response organization augmentation system to determine the licensee's ability to staff emergency response facilities in accordance with the licensee's emergency plan and the requirements of 10 CFR Part 50, Appendix E. The inspectors compared the licensee's augmentation system to the requirements of Procedure EPP 06-015, "Emergency Response Organization Callout," Revision 6. The inspectors completed one sample during this inspection.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed the documents listed below related to the licensee's corrective action program to determine the licensee's ability to identify and correct problems in accordance with planning standard 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E. The inspectors completed one sample during this inspection.

- AP 28A-001, "Performance Improvement Request," Revision 24
- AI 28A-011, "PIR Initiation," Revision 3
- AI 28A-012, "PIR Screening," Revision 5
- AI 28A-013, "PIR Evaluation and Action Plans," Revision 8
- Summaries of 260 corrective actions assigned to the emergency preparedness department between January 2003 and March 2004
- WCNOC QE Audit K-600, Emergency Preparedness, July-August 2003
- Self-Assessment SEL 04-004, "EP PI Documentation Package Review," March 2004
- Details of 16 selected performance improvement requests (PIRs)

- 10 Drill and exercise reports

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess the licensee's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas (HRAs), and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the Technical Specifications, and the licensee's procedures required by Technical Specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Controls (surveys, posting, and barricades) of auxiliary, spent fuel, and radwaste building radiation, high radiation, or airborne radioactivity areas
- Controls for special areas that have the potential to become very HRAs during certain plant operations
- Performance indicator events and associated documentation packages reported by the licensee in the occupational radiation safety cornerstone
- Radiation work permit, procedure, and engineering controls and air sampler locations
- Conformity of electronic personal dosimeter alarm setpoints with survey indications and plant policy, workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools
- Corrective action documents related to access controls

- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies
- Adequacy of radiological controls such as required surveys, radiation protection job coverage, and contamination controls during job performance
- Posting and locking of entrances to all accessible high dose rate areas - HRAs and very HRAs
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements
- Self-assessments, surveillances, and audits related to the access control program since the last inspection

Either because the conditions did not exist or an event had not occurred, no opportunities were available to review the following items:

- Barrier integrity and performance of engineering controls in airborne radioactivity areas
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- Radiation work permit briefings and worker instructions
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem committed effective dose equivalent
- Licensee event reports (LERs) and special reports related to the access control program since the last inspection
- Changes in licensee procedural controls of high dose rate area - HRAs and very HRAs

The inspectors completed 21 of the required 21 samples.

b. Findings

1. Introduction. A Green self-revealing noncited violation (NCV) of a Technical Specification 5.4.1(a) required procedure was identified when workers failed to obtain a radiological survey prior to moving a drip catch from a contaminated area.

Description. On December 1, 2003, three insulation workers entered Residual Heat Exchanger Room B for re-installation of insulation. A health physics technician accompanying the workers surveyed the work area prior to the work activity and found the area to be clean. Upon exiting the radiologically controlled area, the workers alarmed the personnel contamination monitors because they had become contaminated. A followup survey identified contamination levels up to 100,000 disintegrations per minute per 100 cm^2 in the work area. The licensee determined that the workers moved a nearby drip catch from a posted contaminated area, contaminating themselves in the process.

In addition, this issue had a crosscutting aspect associated with problem identification and resolution. After reviewing the corrective action documentation and interviewing the radiation protection staff, the inspector determined that the immediate corrective actions were narrowly focused. The corrective actions did not communicate the event to other workers performing similar work activities. The licensee acknowledged that the problem resolution did not meet its expectations and initiated PIR 2004-0993.

Analysis. The failure to obtain a radiological survey before removing materials and equipment from a contaminated area is a performance deficiency. This finding is greater than minor because it is associated with the occupational radiation safety program and process attribute and affected the cornerstone objective, which is to ensure adequate protection of worker health and safety from exposure to radiation. Since this occurrence involves workers' unplanned, unintended dose or potential of such a dose which could have been significantly greater as a result of a single minor, reasonable alteration of circumstances, this finding was evaluated with the occupational radiation safety significance determination process. Using the occupational radiation safety significance determination process, the inspector determined that the finding was of very low safety significance because it did not involve: (1) as low as is reasonably achievable (ALARA) planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.

Enforcement. Technical Specification 5.4.1(a) required procedures applicable to Regulatory Guide 1.33, Revision 2, Appendix A, Section 7, for contamination control. Procedure AP 25B-100, "Radiation Worker Guidelines," Revision 20, Section 6.4.5, stated, in part, that material and equipment will be surveyed and marked with the radiological conditions when transferring from a contaminated area to a noncontaminated area. However, the workers moved a drip catch bag from a posted contaminated area before obtaining a radiological survey. Because the failure to obtain a radiological survey before removing materials and equipment from a contaminated area is of very low safety significance and has been entered into the licensee's corrective action program (PIR 2003-3610), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy:

NCV 05000482/2004003-01, failure to obtain a radiological survey before moving materials from a contaminated area.

2. Introduction. A Green self-revealing NCV of a Technical Specification 5.4.1(a) required procedure was reviewed because a health physics technician failed to provide adequate contaminated area controls.

Description. On October 31, 2003, after replacing a refuel water storage tank line gasket, three personnel alarmed the personal contamination monitors as they exited the radiologically controlled area because they had become contaminated. During the work activity, contamination surveys indicated contamination levels in the work area of up to 3,000 disintegrations per minute per 100 cm^2. A followup survey in the work area identified contamination levels greater than 100,000 disintegrations per minute per 100 cm^2. The licensee determined that the health physics technician covering the above work activity did not properly establish contamination controls, posting, and protective clothing in accordance with procedural requirements.

In addition, this issue had a crosscutting aspect associated with problem identification and resolution. After reviewing the corrective action documentation and interviewing the radiation protection staff, the inspector determined that the immediate corrective actions were narrowly focused. The corrective actions did not communicate the event to other health physicists performing similar work activities. The licensee acknowledged that the problem resolution did not meet its expectations and initiated PIR 2004-0993.

Analysis. The failure to provide adequate contaminated area controls is a performance deficiency. This finding is greater than minor because it is associated with the occupational radiation safety program and process attribute and affected the cornerstone objective, which is to ensure adequate protection of the worker health and safety from exposure to radiation. Since this occurrence involves workers' unplanned, unintended dose or potential of such a dose which could have been significantly greater as a result of a single minor, reasonable alteration of circumstances, this finding was evaluated with the occupational radiation safety significance determination process. Using the occupational radiation safety significance determination process, the inspector determined that the finding was of very low safety significance because it did not involve (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.

Enforcement. Technical Specification 5.4.1(a) required procedures applicable to Regulatory Guide 1.33, Revision 2, Appendix A, Section 7, Contamination Control. Procedure AP 25A-001, "Radiation Protection Manual," Revision 8, Section 8(a), stated, in part, that any accessible surface or equipment with removable contamination greater than 1,000 disintegrations per minute per 100 cm^2 shall be designated as a

Contaminated Area and be appropriately posted. In addition, Attachment A of Procedure RPP 03-505, "Selection of Protective Clothing," Revision 7, required the use of a full set of protective clothing for contaminated areas. However, the licensee determined that the health physics technician covering the above work activity did not properly establish contamination controls, posting, and protective clothing in accordance with procedural requirements. Because the failure to provide adequate contaminated area controls is of very low safety significance and has been entered into the licensee's corrective action program (PIR 2003-3270), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000482/2004003-02, failure to provide adequate contaminated area control.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

Reactor Safety Cornerstones

The inspectors performed a review of performance indicator data. The inspectors reviewed the licensee's data submittal using Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. Licensee performance indicator data were also reviewed against the requirements of Procedure AP 26A-007, "NRC Performance Indicators," Revision 3, and desktop instruction "Emergency Planning Performance Indicators," Revision 6. The inspectors reviewed various licensee indicator input information to determine the accuracy and completeness of the performance indicator:

- Safety system unavailability - heat removal (auxiliary feedwater system), April 2003 through March 2004, completed May 10, 2004

- Safety system functional failures - April 2003 through March 2004, completed June 2, 2004

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

Occupational Radiation Safety Cornerstone

- Occupational exposure control effectiveness - July 2002 through December 2003

Licensee records reviewed included corrective action documentation that identified occurrences of locked HRAs (as defined in Technical Specification 5.7), very HRAs (as defined in 10 CFR 20.1003), and unplanned personnel exposures (as defined in Nuclear Energy Institute 99-02). Additional records reviewed included ALARA/radiation work permit postjob reviews and whole body counts of selected individual exposures. The inspector interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator data. In addition, the inspector toured plant areas to verify that high radiation, locked high radiation, and very HRAs were properly controlled.

Public Radiation Safety Cornerstone

- Radiological effluent Technical Specification/offsite dose calculation manual radiological effluent occurrences - July 2002 through December 2003

Licensee records reviewed included corrective action documentation and the annual effluent release report that identified occurrences for liquid or gaseous effluent releases that exceeded performance indicator thresholds and those reported to the NRC. The inspector interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator data.

Emergency Preparedness Cornerstone

- Drill and exercise performance - April 2003 through March 2004
- Emergency response organization participation - April 2003 through March 2004
- Alert and notification system reliability - April 2003 through March 2004

The inspectors reviewed a sample of drill and exercise scenarios and licensed operator simulator training sessions, notification forms, and attendance and critique records associated with training sessions, drills, and exercises conducted during the verification period. The inspector reviewed selected emergency responder qualification, training, and drill participation records. The inspector reviewed alert and notification system testing procedures, maintenance records, and a 100 percent sample of siren test records. The inspector also interviewed licensee personnel responsible for collecting and evaluating performance indicator data. The inspector completed three samples during this inspection.

b. Findings and Observations

No findings of significance were identified; however, the inspector identified two cases of drill and exercise performance opportunities for which the licensee's evaluation could not be verified. In both cases, classifications occurred that deviated from the expected scenarios and were subsequently accepted as accurate by licensee evaluators. In one

case, drill participants concluded they had a breach of containment and release into the auxiliary building when they did not. The inspector was unable to verify the licensee's evaluation because critical information concerning deviations between the as-designed and as-run scenario were not retained. In the second case, drill participants classified the event at the correct emergency classification, although using a different emergency action level flowchart path than anticipated. The participants used a path in which emergency core systems were not required while the scenario expected a path in which emergency core cooling flow was both required and adequate. The inspector was unable to verify whether emergency core cooling systems were, or were not, actually required at the time of classification.

4OA2 Identification and Resolution of Problems (71152)

1. Resident Inspector Annual Sample Review

a. Inspection Scope

On May 19, 2004, the inspectors completed the review of the licensee's response to the reactor trip on February 13, 2004. The reactor tripped on lo-lo water level in Steam Generator D when the associated main feedwater regulating valve failed closed. Please refer to NRC Inspection Report 05000482/2004002 for a discussion of the trip. Also, the LER is closed out in Section 4OA3 of this report. The licensee initiated PIR 2004-0393 to document the evaluation and corrective actions.

The feedwater regulating valves were disassembled in the fall 2003 refueling outage. Licensee maintenance workers noted that the valve stems were loose in three of the valve plugs. The maintenance procedures did not have acceptance criteria and the system engineer did not provide appropriate guidance concerning the stem to plug tightness. The stem was loose which caused the threads to wear off due to the normal vibration of the valve plug. The antirotation pin broke, which allowed the plug to drop, thereby stopping feedwater flow to the steam generator. The operators took appropriate actions in response to the trip.

Findings and Observations

No findings of significance were identified.

2. Resident Inspector Semiannual Trend Review

a. Inspection Scope

On June 10, 2004, the inspectors completed the semiannual review of licensee internal documents, reports, audits, and performance indicators to identify trends that might

indicate the existence of more significant safety issues. The inspectors reviewed the following:

- Maintenance preventable functional failure PIRs
- System health reports
- Open temporary modifications
- PIR assigned a human error cause code
- Power block corrective maintenance backlog
- Quality audit executive summaries
- Wolf Creek internal performance indicators

b. Findings and Observations

No findings of significance were identified. However, during the review, the inspectors observed the following concern, which was discussed with licensee management:

Licensee personnel wrote 1421 PIRs from January 1 through May 31, 2004. Of these, the licensee attributed the cause of approximately 289 to personnel error. Many of these were minor in scope, such as the failure to perform monthly cleanliness inspections. A significant number of them identified material control issues in areas such as welding, parts (both warehouse issued and vendor supplied), and qualification of items. There were also a number of personnel errors that involved mispositioned valves and components.

Licensee management were aware of the decline in performance in these areas and have implemented programs to improve personnel performance.

3. Emergency Preparedness Annual Sample Review

a. Inspection Scope

The inspectors selected 16 problem identification requests for detailed review. The reports were reviewed to ensure that the full extent of the issues were identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the adequacy of problem identification request documentation using the requirements of

Procedures AP 28A 001, “Performance Improvement Request,” Revision 24, and AI 28A-012, “PIR Screening,” Revision 5.

b. Findings and Observations

No findings of significance were identified.

4. Radiation Safety Annual Review

Section 2OS1 of this report describes two self-revealing findings where the immediate corrective actions were not promptly communicated to other workers performing similar tasks.

4OA3 Event Followup (71153)

1. (Closed) LER 50-482/2004-001-00: Inadequate Verification of Valve Position Following Testing

On January 15, 2004, licensee personnel discovered that the containment spray Pump B test return line valve, EN-V025, to the refueling water storage tank was locked open. The valve was required to be closed for the containment spray system to be operable. The licensee last operated the valve on December 31, 2003, during a containment spray system surveillance test. Refer to NRC Inspection Report 05000482/2004002, Section 4OA7, licensee identified violations, for additional information. The inspectors reviewed this LER and did not identify any additional findings of significance.

The licensee performed a formal root cause determination that was accepted by the corrective action review board and documented in PIR 2004-0094. The root cause was stated to be the failure of the operators to validate and verify the valve position. The licensee identified the following seven corrective actions:

- The shift manager and/or control room supervisor conducted administrative and on-shift coaching and counseling for the operators involved.

- The performance improvement and learning department provided site-wide communications on the event and the recognition of error traps as well as the appropriate reactions to them.

- The licensee will, in part, work to improve recognition and response to error traps and raise knowledge of human performance fundamentals.

- The licensee revised Procedure AP 21G-001, “Control of Locked Component Status,” to be in conformance with the current independent verification terminology.

- Operations management will determine if changes are needed in the conduct of operations procedures for prejob and postjob briefings.

- Based on the above corrective actions, operations department management will revise their human performance tools.

- The information from PIR 2004-0094 will be placed into operations fundamental training.

This LER is closed.

2. (Closed) LER 50-482/2004-002-00: Reactor Protection System Actuation and Reactor Trip due to Main Feedwater Regulating Valve Failing Closed

On February 13, 2004, the reactor automatically tripped on lo-lo steam generator water level in Steam Generator D. Feedwater regulating Valve D failed closed when the valve plug separated from its stem. Refer to NRC Inspection Report 05000482/2004002, Section 4OA3.2, for additional information. The inspectors reviewed this LER and did not identify any additional findings of significance. The licensee documented the trip in PIR 2004-0393. This LER is closed.

3. (Closed) LER 50-482/2004-003-00: Automatic Start of Emergency Diesel Generator B Due to Startup Transformer Ground Fault

On March 6, 2004, the startup transformer neutral ground relays detected a ground fault and initiated the transformer’s protective relays, which isolated the transformer. The transformer was the normal feed to 4160 volt vital Bus B. Emergency Diesel Generator B automatically started and powered the bus. The fault was due to the type of lugs used on the transformer secondary winding output cables. The lugs were installed during original plant construction. Water had entered an inspection hole in the lugs and caused the fault. The licensee replaced the lugs and returned the transformer to service. The inspectors reviewed this LER and did not identify any additional findings of significance. The licensee documented the trip in PIR 2004-0586. This LER is closed.

4OA5 OTHER

1. Temporary Instruction (TI) 2515/156, Offsite Power System Operational Readiness

a. Scope

The inspectors collected data from licensee maintenance records, event reports, corrective action documents and procedures, and through interviews of station engineering, maintenance, and operations staff, as required by TI 2515/156. The data was gathered to assess the operational readiness of the offsite power systems in accordance with NRC requirements such as Appendix A to 10 CFR Part 50, General Design Criterion 17; Criterion XVI of Appendix B to 10 CFR Part 50, Plant Technical Specifications for offsite power systems; 10 CFR 50.63; 10 CFR 50.65 (a)(4); and licensee procedures.

b. Findings

No findings of significance were identified. Based on the inspection, no immediate operability issues were identified. In accordance with TI 2515/156 reporting requirements, the inspectors provided the required data to the headquarters staff for further analysis.

4OA6 Meetings

.1 Exit Meeting Summaries

On June 30, 2004, the inspectors presented the resident inspection results to Mr. R. A. Muench, President and Chief Executive Officer, and other members of licensee management.

On April 9, 2004, the inspector presented the Radiation Safety inspection results to Mr. R. A. Muench, President and Chief Executive Officer, and other members of his staff who acknowledged the findings.

On April 23, 2004, the inspector presented the Emergency Preparedness inspection results to Mr. K. A. Harris, Director, Performance Improvement and Learning, and other members of his staff who acknowledged the findings. On April 29, the inspector conducted a telephonic conference call with Mr. K. J. Moles, Manager, Regulatory Affairs, and members of his staff, to further discuss the characterization of an issue identified during the inspection.

A telephonic exit was conducted on June 22, 2004, with Mr. C. R. Younie, Director, Quality Oversight, and other members of the licensee's management to discuss the findings of the inspection related to a licensee-identified violation of Technical Specifications.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. The licensee furnished vendor proprietary information which was returned to them.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements, which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- 10 CFR 50.54(q) requires that the licensee follow and maintain an emergency plan, which meets the requirements of 10 CFR 50.47(b) and 10 CFR Part 50, Appendix E. Attachment D to the licensee's emergency plan requires a shift technical advisor as an on-watch position in the control room. Contrary to this, a separate shift technical advisor was not on watch December 10, 11, and 17, 2002. This was identified in the licensee's corrective action program as PIR 2002-3013. This finding is of very low safety significance because it did not represent a functional failure of planning standard 10 CFR 50.47(b)(2) in accordance with Manual Chapter 0690, Appendix B.

- Technical Specification 5.7.1 requires, in part, that access to and activities in HRAs shall be controlled by means of a radiation work permit. However, on February 24, 2004, a Severity Level IV violation (Enforcement Action EA-04-134) occurred when two licensee personnel entered a conspicuously posted and barricaded HRA, Room 1310, Residual Heat Exchanger Room A, on a radiation work permit that did not allow entry into HRAs, and despite verbal, written, and posted instructions to the contrary. The finding was entered into the licensee's corrective action program as PIR 2004-0496, and appropriate disciplinary actions were taken against the individuals. The violation is of very low safety significance because it did not involve ALARA planning or work controls, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised.

  Although this violation was willful, the licensee brought it to the NRC's attention, it involved the isolated acts of nonsupervisory individuals, and it was addressed by appropriate remedial action. Therefore, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as PIR 2004-0496.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

K. A. Harris, Director, Performance Improvement and Learning
R. A. Muench, President and Chief Executive Officer
D. Jacobs, Vice President Operations and Plant Manager
K. Scherich, Director Engineering

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000482/2004003-01	NCV	Failure to obtain a radiological survey prior to moving materials from a contaminated area (Section 2SO1)
05000482/2004003-02	NCV	Failure to provide adequate contaminated area controls (Section 2SO1)

Closed

05000482/2004003-01	NCV	Failure to obtain a radiological survey prior to moving materials from a contaminated area (Section 2SO1)
05000482/2004003-02	NCV	Failure to provide adequate contaminated area controls (Section 2SO1)
50-482/2004-001-00	LER	Inadequate Verification of Valve Position Following Testing (Section 4OA3)
50-482/2004-002-00	LER	Reactor Protection System Actuation and Reactor Trip due to Main Feedwater Regulating Valve Failing Closed (Section 4OA3)
50-482/2004-003-00	LER	Automatic Start of Emergency Diesel Generator B Due to Startup Transformer Ground Fault (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Equipment Alignment

- CKL AL-120, “Auxiliary Feedwater Normal Lineup,” Revision 33

- CKL BG-120, “Chemical and Volume Control System Normal Valve Lineup,” Revision 34

- CKL KJ-121, “Diesel Generator NE01 and NE02 Valve Checklist,” Revision 26

Fire Protection

- AP 10-100, “Fire Protection Program,” Revision 6
- AP 10-106, “Fire Preplans,” Revision 2

Identification and Resolution of Problems

- PIRs 2000-2873 and -3574; 2002-0048 and -1427; 2003-1800, -2501, and -3180; 2004-0393 and -0406

Maintenance Effectiveness Documents

- Final scope evaluation for EG, component cooling water

- Final scope evaluation for SA, engineered safety features actuation system

- Functional failure evaluations for EG, component cooling water

- Functional failure evaluations for SA, engineered safety features actuation system

- Maintenance rule expert panel meeting minutes for EG, component cooling water

- Maintenance rule expert panel meeting minutes for SA, engineered safety features actuation system

- Maintenance rule performance evaluation for EG, component cooling water

- Maintenance rule performance evaluation for SA, engineered safety features actuation system

- System health report for SA, engineered safety features actuation system

- System health report for EG, component cooling water

- PIRs 2002-1233, -1730, -2059, -2250, and -2283; 2003-2449, -2595, and -0818

Operability Evaluations

- Basic Engineering Disposition SWO 04-262828-001, April 22, 2004

- Engineering Disposition, “Evaluation of ABHV0017 Repair/Missile Shield Egress,” Revision 0, April 17, 2004

- Engineering Disposition, “Flooding Analysis in ESF Switchgear Rooms,” April 13, 2004

- Operability Evaluation OE KJ-04-002, Revision 0, for Emergence Diesel Generator B following a failed surveillance procedure, May 20, 2004
- Reportability Evaluation Request 2004-006, May 11, 2004
- Work Order 04-262828-000

Operator Workarounds

- Alarm response procedure ALR 00-127A, “AFP Suct Press Lo,” Revision 4
- Alarm response procedure ALR 00-127B, “ESW Vlv to AFW Opening,” Revision 7
- Alarm response procedure ALR 00-127C, “AFW Suct Switch to ESW,” Revision 8
- EMG C-0, “Loss of All AC Power,” Revision 14
- EMG CS-01, “Loss of All AC Power Recovery Without SI Required,” Revision 13
- EMG CS-02, “Loss of All AC Power Recovery With SI Required,” Revision 15
- PIR 1998-2063
- Piping and Instrumentation Diagram M-12AL01, “Auxiliary Feedwater System,” Revision 9

Performance Indicator Verification

- LERs 2003-002-000, 2003-003-000, 2003-004-000, and 2004-001-000
- Licensee performance indicator worksheets
- NUREG-1022, Revision 2
- Performance indicator summary reports
- Selected NRC Inspection Reports

Postmaintenance Testing

- STS BG-100B, “Centrifugal Charging System B Train Inservice Pump Test,” Revision 29
- STS BG-202, “Chemical and Volume Control System Valve Test,” Revision 0
- STS EC-100A, “Spent Fuel Pool Cooling Pump A Inservice Pump Test,” Revision 4
- STS KJ-015A, “Manual/Auto Fast Start, Sync & Loading of EDG NE01,” Revision 17
- STS GK-002B, “Control Room A/C Unit Operability Test,” Revision 2
- SYS GK-123, “Control Building A/C Units Startup and Shutdown,” Revision 3

C SYS KJ-123, “Post Maintenance Run of Emergency Diesel Generator A,” Revision 26

C Work Orders 03-253968-002, 03-253968-005, 03-254628-001, 03-254629-001, 03-255136-003, 03-257266-001, 03-258105-002, 04-258578-001, 04-259418-001, 04-260320-001, 04-260939-001, and 04-261810-002

Temporary Instruction 2515/156

C AP 21C-001, “Substation Protection,” Revision 5

C AP 22B-001, “Outage Risk Management,” Revision 6

C AP 22C-002, “Work Controls,” Revision 12

C OFN AF-025, “Unit Limitations,” Revision 14

C PIR 2002-2543

C SYS KJ-200, “Inoperable Emergency Diesel,” Revision 11

C Technical Specifications

C Updated Safety Analysis Report

Emergency Preparedness

1EP2

- EPP 06-022, “Tone Alert Radio Maintenance/Compensatory Measures,” Revision 1
- 2002 review of tone alert radio agreements, dated October 24, 2002
- 2003 review of tone alert radio agreements/contracts, dated December 19, 2003
- Wolf Creek Generating Station site-specific offsite radiological emergency preparedness alert and notification system quality assurance verification
- “Wolf Creek Generating Station Alert and Notification System Design Report,” April 1984
- “Evaluation of the Alert and Notification System for Wolf Creek Generating Station,” September 1985
- “Wolf Creek Generating Station Alert and Notification System Report Supplement,” October 1986
- “WCGS Alert and Notification System Supplemental Request,” September 1987
- “Wolf Creek Generating Station Alert and Notification System Modification,” January 1996

- WR-84-44R, “Acoustic Evaluation of the Alert and Notification System for Wolf Creek Generating Station,” Wyle Research, 1984

- “Appendix 2: Response to FEMA 43 Oversight Inquiries,” 1985

- Contingency Plan Implementing Procedure 40, “Siren Maintenance,” Coffey County Emergency Preparedness Office, June 1985

- Contingency Plan Implementing Procedure #42, “Tone Alert Radio Distribution and Maintenance,” Coffey County Emergency Preparedness Office

- Tone Alert Radio “Decline” List

1EP3

- EPP 06-001, “Control Room Operations,” Revision 7
- EPP 06-002, “Technical Support Center Operations,” Revision 10
- EPP 06-003, “Emergency Operations Facility Operations,” Revision 8
- EPP 06-007, “Emergency Notifications,” Revision 7
- EPP 06-009, “Drill and Exercise Requirements,” Revision 3
- AP 01A-001, “Fitness for Duty Program,” Revision 8
- NT ADS Test Plan and Documentation
- Report for call-out drill conducted January 21, June 10, July 24, and December 15, 2003
- Report for call-out drill conducted March 3, 2004

1EP5

- EPP 06-009, “Drill and Exercise Requirements,” Revision 3

- AP 21-001, “Conduct of Operations,” Revisions 25 and 27

- AP 21-003, “Operations,” Revision 7

- Report for the drill conducted February 6, March 6, April 16 and 30, May 14 and 21, July 31, and August 28, 2003

- Report for the 2003 medical drill

PIRs

- 2002-3013; 2003-0289, -0457, -0485, -0487, -0559, -0658, -1054, -1231, -1307, -1425, -1491, -1492, -1559, -2140, and -3762; 2004-0319 and -0451

4OA1

- APF 26A-007-03, “NRC Performance Indicator Data Transmittal Sheet - EP01,” Revision 0
- APF 26A-007-04, “NRC Performance Indicator Data Transmittal Sheet - EP02,” Revision 0
- APF 26A-007-05, “NRC Performance Indicator Data Transmittal Sheet - EP03,” Revision 0
- EPP 06-007, “Emergency Notifications,” Revision 7

- EPP 6-019, “Alert and Notification System Sirens,” Revision 3
- EPF 06-019A, “ANS Siren Test Report,” Revision 1
- Emergency plan training course content, Revisions 34 through 36

PIRs Generated During the Emergency Preparedness Program Inspection:

- 2004-1112, -1124, -1125, -1126, and -1131

Radiation Protection

PIRs

- 2003-3220 and -3269; 2004-0027, -0056, -0496, -0569, -0697, -0879, -0942, -0969, and -0970

Procedures
- AP 25A-001, “Radiation Protection Manual,” Revision 8
- AP 25A-200, “Access to Locked High or Very High Radiation Areas,” Revision 12
- AP 25B-100, “Radiation Worker Guidelines,” Revision 20
- AP 25B-300, “RWP Program,” Revision 12
- AP 28A-001, “Performance Improvement Request,” Revision 24
- RPP 02-105, “RWP,” Revision 20
- RPP 02-210, “Radiation Survey Methods,” Revision 24
- RPP 02-215, “Posting of Radiological Controlled Areas,” Revision 19
- RPP 02-305, “Personnel Surveys/Decontamination,” Revision 14
- RPP 20-405, “RCA Access Control,” Revision 11
- RPP 03-106, “Use of Special Dosimetry,” Revision 13
- RPP 03-505, “Selection of Protective Clothing,” Revision 7

Radiation Work Permits

- RWP 033230, 034051, 036031, 0306061, 037001, 037631, 040039, and 040071

Surveillances

- Plant Evaluation Report OB 03-1059, 03-1064, 03-1068, 03-1071, 03-1077, 03-1084, 03-1087, 03-1088, and 03-1092

IP 71151

Procedure

- AP 26A-007, “NRC Performance Indicators,“ Revision 3

Reports

- 2002 Annual Radioactive Effluent Release Report, Report 26
- 2003 Annual Radioactive Effluent Release Report, Report 27