

January 24, 2007

Mr. Gary Van Middlesworth
Vice-President
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER
NRC INTEGRATED INSPECTION REPORT 05000331/2006005

Dear Mr. Van Middlesworth:

On December 31, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Duane Arnold Energy Center. The enclosed integrated inspection report documents the inspection findings which were discussed on January 11, 2007, with you and other members of your staff.

The inspection 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, there were no NRC-identified and one self-revealed finding. Additionally, three licensee identified violations are listed in Section 4OA7 of this report.

If you contest the subject or severity of a Non-Cited Violation, 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 a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Duane Arnold Energy Center.

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 (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/

Bruce L. Burgess, Chief
Branch 2
Division of Reactor Projects

Docket No. 50-331
License No. DPR-49

Enclosure: Inspection Report 05000331/2006005 (DRP)
w/Attachment: Supplemental Information

cc w/encl: J. Stall, Senior Vice President, Nuclear and Chief
Nuclear Officer
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M. Ross, Managing Attorney
W. Webster, Vice President, Nuclear Operations
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R. Kundalkar, Vice President, Nuclear Engineering
J. Bjorseth, Site Director
D. Curtland, Plant Manager
S. Catron, Manager, Regulatory Affairs
Chairman, Linn County Board of Supervisors
D. McGhee, State Liaison Officer

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-331

License No: DPR-49

Report No: 05000331/2006005

Licensee: FPL Energy Duane Arnold, LLC

Facility: Duane Arnold Energy Center

Location: Palo, Iowa

Dates: October 1 through December 31, 2006

Inspectors: R. Orlikowski, Senior Resident Inspector
R. Baker, Resident Inspector
M. Bielby, Senior Operations Engineer (Lead Inspector)
C. Zoia, Operations Engineer
M. Phalen, Health Physicist Inspector
C. Brown, Engineering Inspector
J. Tapp, Reactor Engineer

Observers: C. Scott, Reactor Engineer

Approved by: B. Burgess, Chief
Branch 2
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000331/2006005; 10/1/2006 - 12/31/2006; Duane Arnold Energy Center. Licensed Operator Requalification Program.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections of radiation protection and licensed operator requalification. The inspections were conducted by Region III inspectors and the resident inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after Nuclear Regulatory Commission (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. Inspector-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was identified. The finding was associated with unsatisfactory operating crew performance on the simulator during facility-administered licensed annual operator requalification examinations. Of the ten crews evaluated, two did not pass their annual operating tests. The finding is of very low safety significance because the failures occurred during testing of the operators on the simulator, because there were no actual consequences to the failures, and because the crews were removed from watch-standing duties, retrained, and re-evaluated before they were authorized to return to control room watches. This issue was documented in the licensee's corrective action process (CAP) as CAP 044379. (Section 1R11.2)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Duane Arnold Energy Center operated at full power for the entire assessment period except for brief down-power maneuvers to accomplish rod pattern adjustments and to conduct planned surveillance testing activities with the following exceptions:

- On November 6, 2006, the reactor was shut down for a forced maintenance outage to investigate and repair a malfunction in the Main Turbine Electrohydraulic Control system speed control circuit logic. The reactor was restarted on November 8 and the turbine connected to the grid on November 9. Full power was achieved late on November 10, 2006.

1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather (71111.01)

.1 Winter Preparations

a. Inspection Scope

The inspectors performed a detailed review of the licensee's procedures and a walkdown of systems to observe the licensee's preparations for cold weather conditions. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. During the inspection, the inspectors focused on plant specific system design features and implementation of procedures for responding to or mitigating the effects of adverse weather. Inspection activities included, but were not limited to, a review of the licensee's adverse weather procedures, preparations for the winter season, and a review of the analysis and requirements identified in the Updated Final Safety Analysis Report (UFSAR).

The inspectors evaluated cold weather readiness of the following three systems for a total of one sample:

- Intake Structure heating, ventilation and air-conditioning (HVAC) system;
- Reactor Building HVAC system; and
- Pumphouse HVAC system.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial walkdowns of accessible portions of trains of risk-significant mitigating systems equipment. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. Equipment alignment was reviewed to identify any discrepancies that could impact the function of the system and potentially increase risk. Redundant or backup systems were selected by the inspectors during times when the trains were of increased importance due to the redundant trains of other related equipment being unavailable. Inspection activities included, but were not limited to, a review of the licensee's procedures, verification of equipment alignment, and an observation of material condition, including operating parameters of in-service equipment. Identified equipment alignment problems were verified by the inspectors to be properly resolved.

The inspectors selected the following equipment trains to verify operability and proper equipment line-up for a total of two samples:

- 'B' Emergency Diesel Generator (EDG) with the 'A' EDG out-of-service (OOS) for maintenance; and
- Reactor Core Isolation Cooling (RCIC) system with the High Pressure Coolant Injection (HPCI) system OOS for maintenance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Zone Walkdowns (71111.05Q)

a. Inspection Scope

The inspectors walked down risk-significant fire areas to assess fire protection requirements. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. Various fire areas were reviewed to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and had implemented adequate compensatory measures for OOS, degraded or inoperable fire protection equipment, systems or features. Fire areas were selected based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events, their potential to adversely impact equipment which is used to mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Inspection activities included, but were not limited to, the control of transient combustibles and ignition sources, fire detection

equipment, manual suppression capabilities, passive suppression capabilities, automatic suppression capabilities, compensatory measures, and barriers to fire propagation.

The inspectors selected the following areas for review for a total of ten samples:

- Area Fire Plan (AFP) 6, Reactor Building Residual Heat Removal (RHR) Valve Room;
- AFP 16, Turbine Building Condensate Pump Room;
- AFP 17, Turbine Building Condenser Bay, Heater Bay, and Steam Tunnel;
- AFP 21, Turbine Building North Turbine Operating Floor;
- AFP 22, Turbine Building South Turbine Operating Floor;
- AFP 23, Control Building Battery Room Corridor and Battery Rooms, 1D1, 1D2, and 1D4;
- AFP 24, Control Building Essential Switchgear Rooms 1A3 and 1A4;
- AFP 28, Pumphouse Emergency Service Water (ESW)/Residual Heat Removal Service Water (RHRSW) Pump Rooms and Main Pump Room;
- AFP 29, Pumphouse Fire Pump and Fire Pump Day Tank Rooms; and
- AFP 30, Pumphouse Safety Related Piping Area.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Operating Crew Evaluation

a. Inspection Scope

The inspectors observed a training crew performance on Simulator Exercise Guide 2006F-01 for a total of one sample. The scenario included an electrical Anticipated Transient Without Scram (ATWS) which, following injection with the standby liquid control system, transitioned to a hydraulic ATWS with a resulting reactor cooldown. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. The inspection activities assessed the licensee's effectiveness in evaluating the requalification program, ensuring that licensed individuals operated the facility safely and within the conditions of their license, and evaluated licensed operators' mastery of high-risk operator actions. Inspection activities included, but were not limited to, a review of high risk activities, emergency plan performance, incorporation of lessons learned, clarity and formality of communications, task prioritization, timeliness of actions, alarm response actions, control board operations, procedural adequacy and implementation, supervisory oversight, group dynamics, interpretations of Technical Specifications (TSs), simulator fidelity, and the licensee critique of performance.

The crew performance was compared to licensee management expectations and guidelines as presented in the following documents:

- Administrative Control Procedure (ACP) 110.1, "Conduct of Operations," Revision 4;
- ACP 101.01, "Procedure Use and Adherence," Revision 39; and
- ACP 101.2, "Verification Process and Self/Peer Checking Practices," Revision 5.

b. Findings

No findings of significance were identified.

.2 Annual Operating Test Results and Biennial Written Examination Results

a. Inspection Scope

The inspectors reviewed the pass/fail results of the individual biennial written tests administered by the licensee during calendar year 2006. The inspectors also reviewed the operating and simulator tests (required to be given annually per 10 CFR 55.59(a)(2)) administered by the licensee during calendar year 2006. The overall written examination and operating test results were compared with the significance determination process in accordance with NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance SDP."

b. Findings

Crew Performance on the Dynamic Scenario Portion of the 2006 Facility-Administered Annual Requalification Examination Operating Test

Introduction: The inspectors identified a (Green) finding of very low safety significance, based on two of ten crews not passing the facility-administered dynamic scenario portion of their annual operating test.

Description: During facility-administered annual operating testing of the licensed operators, licensee training staff evaluated crew performance on dynamic scenarios using performance standards derived from NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." Facility results of crew performance showed that two of the ten crews evaluated (20.0 percent) did not pass their simulator exams. The licensee initiated CAP 044379 and conducted an Apparent Cause Evaluation (ACE) 001652 in accordance with station procedures.

Analysis: A performance deficiency was identified in that two of ten licensed operator crews did not pass an NRC required annual operating test administered by the licensee. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for affecting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or licensee procedures. The finding is greater than minor because the performance deficiency affected the mitigating systems cornerstone objective to ensure mitigating system reliability and availability, and its related attribute on human performance (Human Error [Pre-Event and Post-Event]). Specifically, the finding reflected potential shortcomings responding to actual abnormal or emergency conditions. The risk associated with the number of crews not passing the

annual operating test is provided in the Simulator Operational Evaluation Matrix of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance SDP." The Matrix was entered using the number of crews that took the simulator test, ten and two crews that demonstrated unsatisfactory performance and did not pass. Based on these numbers, the finding was characterized by the SDP as having very low safety significance (20 - 33 percent failure rate), or Green.

This finding has a cross-cutting aspect in the area of human performance because the licensee failed to communicate a decision and the basis for that decision (a clear strategy for transient mitigation). Specifically, during the dynamic simulator operating test, one crew failed to spray the drywell before temperature reached 280 degrees F as required by Emergency Operating Procedures (EOP) while in the safe region of the Drywell Spray Initiation Limit Curve because the Control Room Supervisor was not clear in communicating the current strategy and action points to the Balance of Plant (1C03) operator. The second crew failed to terminate and prevent injection to the reactor pressure vessel (RPV) until pressure was below the minimum steam cooling pressure as required by the ATWS EOP while implementing the Emergency Depressurization EOP because the Control Room Supervisor had not identified and communicated the proper conditions and required change in strategy regarding injection to the RPV to the Reactor Operator (1C05). Both crews demonstrated the lack of communication of a clear strategy for transient mitigation to the crew members.

Enforcement: NRC regulations require that licensed operators pass an annual operating test; the regulations do not specify pass/fail rates. When a failure occurs, requirements are met by restricting the operator, or crew, from licensed duties until the operator, or crew, has been retrained and successfully retested, steps which the licensee staff completed. Therefore, no violation of regulatory requirements occurred (FIN 05000331/2006005-01). Operator and crew performance on the 2006 annual operating examinations has been entered into CAP 044379 and the facility performed an ACE 001652 of the crew failures.

.3 Examination Security

a. Inspection Scope

The inspectors observed and reviewed the licensee's overall licensed operator requalification examination security program related to examination physical security (e.g., access restrictions and simulator considerations) and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of examinations and tests." The inspectors also reviewed the facility licensee's examination security procedure, any corrective actions related to past or present examination security problems at the facility, and the implementation of security and integrity measures (e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the examination process.

b. Findings

Copies of the licensed operator requalification 2006 biennial written examination, Series B, were inadvertently printed to the instructor area printer instead of to the

examination room printer. An instructor who was not on examination security found the uncontrolled copies and notified facility management, who notified regional NRC personnel. Facility personnel replaced the Series B written examination and associated questions used on the Series C written examination prior to administration of the respective series examinations. The training department documented this lapse of examination material control in CAP 045106.

The inspectors reviewed the licensee's investigation and assessed the overall incident for possible violation of 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors determined that no actual examination compromise had occurred. These issues were considered minor in nature and were not subject to enforcement action in accordance with NRC enforcement policy.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the following system to assess maintenance effectiveness. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. Maintenance activities were reviewed to assess maintenance effectiveness, including maintenance rule activities, work practices, and common cause issues. Inspection activities included, but were not limited to, the licensee's categorization of specific issues including evaluation of maintenance performance criteria, appropriate work practices, identification of common cause errors, extent of condition, and trending of key parameters. Additionally, the inspectors reviewed implementation of the Maintenance Rule (10 CFR 50.65) requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, functional failure determinations associated with reviewed condition reports, and current equipment performance status.

The inspectors performed the following maintenance effectiveness reviews for a total of one sample:

- A function-oriented review of the RCIC system was performed because it was designated as risk-significant under the Maintenance Rule.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk, scheduling, and configuration control. An evaluation of the performance of maintenance associated with planned and emergent work activities was completed by the inspectors to determine if they were adequately managed. In particular, the inspectors reviewed the program for conducting maintenance risk safety assessments and to ensure that

the planning, assessment, and management of on-line risk was adequate. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. Licensee actions taken in response to increased on-line risk were reviewed including the establishment of compensatory actions, minimizing activity duration, obtaining appropriate management approval, and informing appropriate plant staff. These activities were accomplished when on-line risk was increased due to maintenance on risk-significant structures, systems, and components (SSCs).

The following activities were reviewed for a total of five samples:

- Maintenance risk assessment for work planned during the weeks ending October 7, October 28, November 4, December 16, and December 23, 2006.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed licensee's operability evaluations of degraded or non-conforming systems. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. Operability evaluations were reviewed that affected mitigating systems or barrier integrity cornerstones to ensure adequate justification for declaration of operability and that the component or system remained available. Inspection activities included, but were not limited to, a review of the technical adequacy of the evaluation against the TSs, UFSAR, and other design information; validation that appropriate compensatory measures, if needed, were taken; and comparison of each operability evaluation for consistency with the requirements of ACP 114.5, "Action Request System" and ACP 110.3, "Operability Determination."

The inspectors reviewed the following operability evaluations for a total of four samples:

- ACE 001655, 'A' Standby Diesel Generator (SBDG) Tripped on High Crankcase Pressure;
- Operability (OPR) 000344, 'B' SBDG Standby Lube Oil Pump Did Not Start Within 10 After SBDG Shutdown;
- Corrective Work Order (CWO) A75001, RPV High Pressure Input to Reactor Protection System (RPS) Channel 'B' Calibration; and
- OPR 000345, HPCI Pump Suction High Alarm Activated While Cycling MO2022.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed post-maintenance testing (PMT) activities. The documents listed in the Attachment were used to accomplish the objectives of the inspection procedure. PMT procedures and activities were verified to be adequate to ensure system operability and functional capability. Inspection activities were selected based upon the SSCs ability to impact risk. Inspection activities included, but were not limited to, witnessing or reviewing the integration of testing activities, applicability of acceptance criteria, test equipment calibration and control, procedural use and compliance, control of temporary modifications or jumpers required for test performance, documentation of test data, system restoration, and evaluation of test data. Also, the inspectors verified that maintenance and PMT activities adequately ensured that the equipment met the licensing basis, TS, and UFSAR design requirements.

The inspectors selected the following PMT activities for review for a total of three samples:

- Preventive Work Order (PWO) 1136876, Replace Capacitors C1, C2, & C4 in Average Power Range Monitor 'E' & Flow Unit 'A';
- PWO 1134393, Inspect, Lube, Repair as Required, Breaker 1A301; and
- CWO A75009, Repair Diesel Fire Pump Engine Coolant Jacket Leaks as Required-Glycol Contaminated with Fuel Oil.

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

.1 Forced Outage for Reactor Scram and Trip of the Main Turbine

a. Inspection Scope

The inspectors observed shutdown activities for the forced outage to investigate and repair a malfunction in the Main Turbine Electrohydraulic Control system speed control circuit logic, which began on November 6, 2006, for a total of one sample. The inspectors monitored the licensee's cooldown process and ensured that TS were followed during the transition into hot and cold shutdown. Outage configuration management was also monitored on a daily basis by verifying that the licensee maintained appropriate defense in depth to address all shutdown safety functions and satisfy TS requirements.

Proper operation of the decay heat removal system was reviewed during multiple reactor building and control room tours and observations. The licensee restarted the reactor on November 8, 2006. The documents listed in the Attachment were used to accomplish the objectives of the inspection procedure.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed surveillance test activities. Inspection procedure objectives were accomplished as indicated by the documents listed in the Attachment to this inspection report. Surveillance testing activities were reviewed to assess operational readiness and ensure that risk-significant SSCs were capable of performing their intended safety function. Surveillance activities were selected based upon risk significance and the potential risk impact from an unidentified deficiency or performance degradation that a SSC could impose on the unit if the condition were left unresolved. Inspection activities included, but were not limited to, a review for preconditioning, integration of testing activities, applicability of acceptance criteria, test equipment calibration and control, procedural use, control of temporary modifications or jumpers required for test performance, documentation of test data, TS applicability, impact of testing relative to Performance Indicator (PI) reporting, and evaluation of test data.

The inspectors selected the following surveillance testing activities for review for a total of four samples:

- Surveillance Test Procedure (STP) 3.5.1-02, Low Pressure Coolant Injection (LPCI) System Operability Tests (routine);
- STP 3.5.3-02, RCIC System Operability Test (inservice test);
- STP 3.8.7-01, LPCI Swing Bus AC and DC Undervoltage Transfer Test (routine); and
- STP 3.1.7-01, Standby Liquid Control Pump Operability Test (inservice test).

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed temporary plant modifications. The documents listed in the Attachment were used to accomplish the objectives of the inspection procedure. The temporary modification was reviewed to assess the modification's impact on the safety function of the associated systems. Inspection activities included, but were not limited to, a review of design documents, safety screening documents, UFSAR, and applicable TSs to determine that the temporary modification was consistent with modification documents, drawings, and procedures. Inspectors also reviewed the post-installation test results to confirm that tests were satisfactory and the actual impact of the temporary modification on the permanent system and interfacing systems were adequately verified.

The inspectors selected the following temporary modification for review for a total of one sample:

- Temporary Modification 06-010, Bypass V32-178 [Three-way Valve] on 'A' SBDG By Installing Direct Line from the Crankcase to the Pressure Switches.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors identified exposure significant work areas within radiation areas, high radiation areas (HRAs), and airborne areas of the turbine and reactor buildings. The selected work packages and radiation work permits (RWPs) were reviewed to determine if radiological controls, including surveys, postings, air sampling data and barricades, were acceptable. The RWPs selected and reviewed included but were not limited to:

RWP 18; Condensate Demin Septa Change Out / Minor Repairs, Support Work (D Demin), Revision 17

RWP 33; Management, Planning, Engineering Inquires (Main Steam Tunnel Engineering Preps), Revision 14

RWP 52; Routine Work Steam Jet Air Ejector (SJAЕ Steam Trap ST-1365), Revision 15

RWP 200; Fuel Pool Clean-Up Project; Various Revisions

RWP 201; Fuel Pool Clean-Up; Various Revisions

RWP 40210; S1/S2 ISI/FAC and Support Work for Refuel Outage; Various Revisions

This review represented one sample.

The inspectors reviewed selected RWPs and associated radiological controls used to access these and other radiologically significant areas and evaluated the work control instructions and control barriers that were specified in order to determine if the controls and requirements provided adequate worker protection. Site TS requirements for HRAs and locked high radiation areas were used as standards for the necessary barriers. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. The inspectors attended pre-job briefings to determine if instructions to workers emphasized the

actions required when their electronic dosimeters noticeably malfunctioned or alarmed. This review represented one sample.

The inspectors reviewed job planning records and interviewed licensee representatives to determine if there were airborne radioactivity areas in the plant with a potential for individual worker internal exposures to exceed 50 millirem committed effective dose equivalent. Barrier integrity and engineering controls performance, such as high efficiency particulate filtration ventilation system operation and use of respiratory protection, were evaluated for worker protection. Work areas having a history of, or the potential for, airborne transuranic isotopes were reviewed to determine if the licensee had considered the potential for transuranic isotopes and provided appropriate worker protection. This review represented one sample.

The adequacy of the licensee's internal dose assessment process for internal exposures exceeding 50 millirem committed effective dose equivalent was assessed to determine if affected personnel were properly monitored utilizing calibrated equipment and that the data was analyzed and internal exposures were properly assessed in accordance with licensee procedures. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Job-In-Progress Reviews

a. Inspection Scope

The inspectors evaluated selected jobs performed in radiation areas, potential airborne radioactivity areas, and HRAs for observation of work activities that presented the greatest radiological risk to workers and included areas where radiological gradients were present. This included steam trap repairs in the SJAE room, Condensate Demin 'D' vessel repairs, and engineering planning in the main steam tunnel.

The inspectors reviewed radiological job requirements including RWP and work procedure requirements and attended as-low-as-is-reasonably-achievable (ALARA) job briefings. Job performance was observed with respect to these requirements to determine if radiological conditions in the work areas were adequately communicated to workers through pre-job briefings and radiological condition postings. This review represented one sample.

The inspectors also reviewed the adequacy of radiological controls including required radiation, contamination and airborne surveys for system breaches and entry into HRAs. Radiation protection job coverage, including direct visual surveillance by radiation protection technicians along with the remote monitoring and teledosimetry systems and contamination control processes, was reviewed to determine if workers were adequately protected from radiological exposure. This review represented one sample.

Work in high radiation areas having significant dose rate gradients was reviewed to evaluate the application of dosimetry to effectively monitor exposure to personnel, and to determine if licensee controls were adequate. This review represented one sample.

b. Findings

No findings of significance were identified.

.3 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated radiation protection work requirements. The inspectors also evaluated whether workers were aware of the significant radiological conditions in their workplace, the RWP controls and limits in place, and that their performance had accounted for the level of radiological hazards present. This review represented one sample.

Radiological problem reports, which found that the cause of an event resulted from radiation worker errors, were reviewed to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. This review represented one sample.

b. Findings

No findings of significance were identified.

.4 Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors observed and evaluated Radiation Protection (RP) technician performance with respect to RP work requirements. This was done to evaluate whether the technicians were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities. This review represented one sample.

Radiological problem reports, which found that the cause of an event was RP technician error, were reviewed to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. This review represented one sample.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning And Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors determined site specific trends in collective exposures based on plant historical exposure and source term data. The inspectors reviewed procedures associated with maintaining occupational exposures ALARA and assessed those processes used to estimate and track work activity exposures. These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the licensee's assumptions and basis for its collective outage exposure estimate and evaluated the methodology and practices for projecting work activity specific exposures. This included evaluating both dose rate and time/labor estimates for reasonable accuracy compared to historical station specific and industry data.

The inspectors reviewed the licensee's process for adjusting outage exposure estimates when unexpected changes in scope, emergent work, or other unanticipated problems were encountered, which significantly impacted worker exposures. This included determining that adjustments to estimated exposure (intended dose) were based on sound radiation protection and ALARA principles, and were not adjusted to account for failures to plan or control the work. The frequency of these adjustments was also reviewed. These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The licensee's corrective action and self-assessment program was also reviewed to determine if repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution had been addressed. These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator Verification (71151)

Cornerstones: Mitigating Systems and Occupational and Public Radiation Safety

.1 Reactor Safety Strategic Area

a. Inspection Scope

The inspectors reviewed the licensee's PI submittals. Performance Indicator guidance and definitions contained in Nuclear Energy Institute (NEI) Document 99-02, Revision 4, "Regulatory Assessment Performance Indicator Guideline," were used to verify the accuracy of the PI data. The documents listed in the Attachment were used to accomplish the objectives of the inspection procedure. The inspectors' review included, but was not limited to, conditions and data from logs, Licensee Event Reports (LERs), condition reports, and calculations for each PI specified.

The following PI was reviewed for a total of one sample:

- Safety System Functional Failures, for the period of October 2004 through September 2006.

b. Findings

No findings of significance were identified.

.2 Radiation Safety Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's PI submittals for the periods listed below. The inspectors used PI definitions and guidance contained in Revision 4 of NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. The following PIs were reviewed:

- Occupational Exposure Control Effectiveness:

The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported during the previous 4 quarters. The inspectors compared the licensee's PI data with the condition report database, reviewed radiological restricted area exit electronic dosimetry transaction records, and conducted walkdowns of accessible locked high radiation area entrances to verify the adequacy of controls in place for these areas. Data collection

and analysis methods for PIs were discussed with licensee representatives to determine if there were any unaccounted for occurrences in the Occupational Radiation Safety PI as defined in Revision 4 of NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline." This review represented one inspection sample.

- Radiological Environmental TS/Offsite Dose Calculation Manual Radiological Effluent Occurrences:

The inspectors reviewed data associated with the Radiological Environmental TS/Offsite Dose Calculation Manual PI to determine if the indicator was accurately assessed and reported. This review included the licensee's condition report database for the previous 4 quarters, to identify any potential occurrences such as unmonitored, uncontrolled or improperly calculated effluent releases that may have impacted offsite dose. The inspectors also selectively reviewed gaseous and liquid effluent release data and the results of associated offsite dose calculations and quarterly PI verification records generated over the previous 4 quarters. Data collection and analyses methods for PIs were discussed with licensee representatives to determine if the process was implemented consistent with industry guidance in Revision 4 of NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline." This review represented one inspection sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

For inspections performed and documented in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Minor issues entered into the corrective action program as a result of the inspectors' observations are included in the attached list of documents reviewed.

b. Assessment and Observations

No findings of significance were identified.

.2 Review of Items Entered into the Corrective Action Program

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed screening of all items entered into the licensee's corrective action program. This was accomplished by reviewing the description of each new CAP and attending daily management review committee meetings. This inspection activity does not count as an annual sample.

.3 Annual Sample - Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, the inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue, for a total of one sample. The inspectors' review was focused on repetitive equipment and corrective maintenance issues but also considered the results of daily inspector CAP item screening discussed in Section 4OA2. The review also included issues documented outside the normal corrective action program in system health reports, corrective maintenance work orders, component and program status reports, site monthly key performance indicators, Nuclear Oversight assessments, site self-assessments, Department Roll-up Meeting results, and maintenance rule assessments. The inspectors' review nominally considered the 6 month period of July through December 2006, although some examples expanded beyond those dates when the scope of the trend warranted. The inspectors compared and contrasted their results with the results contained in the licensee's latest assessments. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy. The inspectors also evaluated the licensee's trending CAPs against the requirements of the licensee's Corrective Action Program as specified in ACP 114.8, "Action Request Trending," and the trending requirements specified in ACP 114.5, "Action Request System," and 10 CFR 50, Appendix B, Revision 5. Additional documents reviewed are listed in the attachment. This activity counts as one annual sample. Specific documents reviewed are listed in the Attachment.

b. Assessment and Observations

During the 2nd quarter 2006, the licensee's nuclear oversight group noted in CAP 042561, written June 5, 2006, that CAP trending required to be performed in accordance with the ACP 114.5, "Action Request System," had not been completed for 46 percent of the CAPs reviewed in the May 2006 timeframe. ACP 114.5 requires that "At the first opportunity, upon completion of the evaluation activity, the CAP Liaison (or appropriate person) finalize the applicable trend coding in the parent CAP record."

Based on the previously expressed concern that trending efforts across the site may not have been reliable, the inspectors evaluated the licensee's completed corrective actions to better process, complete, and accurately trend data. The inspectors also verified that

trend data was being entered into the licensee's corrective action program and reviewed for adverse condition issues identified by the licensee.

Additionally the inspectors identified an increasing trend in the number of minor human performance issues occurring across several departments and the licensee entered this issue into their corrective action program as CAP 044287, and performed a condition evaluation, (CE) 004295, to assess recent issues for common cause. The results of the evaluation were presented to site personnel during departmental human performance roll up meeting during the 4th quarter 2006. This performance deficiency was not more than minor, as the inspectors did not find any additional trends that were not already identified by the licensee. The inspectors plan to continue inspection activities of the licensee's efforts to improve human performance levels by reviewing the cumulative effect of their corrective actions.

.4 Annual Sample - Selected Issue Follow-up: Review of "Root Cause Analysis of the Events Contributing to the Unexpected Increase in Core Flow to >49.0 Mlb/hr During Control Rod Sequence Exchange" (Root Cause Evaluation (RCE)-1057)

a. Inspection Scope

The inspectors evaluated the licensee's RCE of the events contributing to the plant operators unexpectedly exceeding the core flow limit while performing a rod sequence exchange. The inspectors reviewed the completed product for compliance with the licensee's administrative control procedures, specifically to assess proper extent of condition review, causal factor determination, and development of corrective actions to prevent recurrence. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. This counts as one annual sample.

b. Assessment and Observations

The inspectors reviewed the conclusions of the evaluation, including the two root causes identified that led to the event: (1) Inadequate procedural guidance existed for the operators and reactor engineers to ensure the limit of 49.0×10^6 lb/hr core flow was observed, (2) Failure to effectively use proper operator fundamentals in monitoring plant indications, precisely controlling plant evolutions, teamwork, system knowledge, and event response. The seven causal factors identified in the RCE as contributors to the event were also reviewed. The inspectors determined that the RCE adequately identified the causes that led to core flow limit being exceeded during the rod sequence exchange.

The inspectors also reviewed the corrective actions that were implemented to prevent recurrence. The corrective actions include revising various procedures to better annotate and emphasize the rated core flow limit of 49.0×10^6 lb/hr, revising procedures to provide direction to the operators on critical parameter monitoring during power changes, and designing and developing a program to reinforce operator fundamentals. The inspectors did identify that the RCE did identify that there was a lack of procedural guidance for operators if the plant was operated over the core flow limit. This

information was passed on the Operations Manager, and a CAP was initiated to evaluate the need for corrective actions.

The issue was reviewed by the inspectors who determined that this finding was more than minor because the plant was operated above the core flow limit stated in the operating procedures and the Updated Safety Analysis Report. This finding affects the Barrier Integrity Cornerstone and was evaluated as having a very low safety significance (Green) using IMC 0609, Appendix A, Attachment 1, "Significance Determination of Reactor Inspection Findings for At-Power Situations," since the finding only affects the fuel cladding. This licensee-identified finding involved a violation of TS 5.4.1, which requires procedures be established for power operation and process monitoring. The enforcement aspects of the violation are discussed in Section 4OA7.2.

4OA3 Event Follow-up (71153)

.1 Review of Personnel Performance During Non-Routine Planned Power Uprate Testing

a. Inspection Scope

The inspectors reviewed personnel performance during non-routine planned power uprate testing from 1860 MW thermal to 1880 MW thermal. A review of special test procedures, expert panel meetings, and briefings were performed by the inspectors. The inspectors also observed the operators performing special testing of the main turbine electrohydraulic control system pressure regulators at the increased power level of 1880 MW thermal. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Review of Personnel Performance During a Reactor Scram and Trip of the Main Turbine

a. Inspection Scope

The inspectors reviewed personnel performance following an unplanned reactor scram and resulting trip of the main turbine on reverse power due to a failure in the electrohydraulic control system speed control logic which resulted in the turbine stop valves going shut during testing of the turbine overspeed trip circuit. The inspectors observed the operators performing plant manipulations to restore the Recirculation Pumps to service to return to two loop operations and commence plant cooldown. All safety systems responded as expected. A review of the operator logs, associated procedures, briefings, and contingency plans were observed or evaluated by the inspectors. The inspectors observed and reviewed records of operator performance during these evolutions. Reviews included, but were not limited to, operator logs, pre-job briefings, instrument recorder data, and procedures. The documents listed in the Attachment were used by the inspectors to accomplish the objectives of the inspection procedure. This review represented one sample.

b. Findings

No findings of significance were identified.

.3 (Closed) LER 50-331/2006-004-00: "Containment Atmosphere Dilution System Condition Prohibited by TSs"

On September 7, 2006, with the plant operating at approximately 97 percent reactor power in Mode 1, the licensee identified that the administrative controls for isolation of a primary containment penetration flow path with one inoperable primary containment isolation valve had failed, which resulted in the plant being in a condition prohibited by TS. The associated TS limiting conditions for operations (LCOs) were not properly exited and re-entered, and subsequently the required Completion Times for the LCOs were exceeded. Specifically, during testing of the Containment Atmosphere Dilution (CAD) North Torus inboard isolation valve, SV-4334A, per STP 3.6.1.3-02, "PCIS and American Society of Mechanical Engineers Valve Functional Test" on August 19, 2006, the isolation valve failed to fully open. SV-4334A was declared inoperable, TS LCO 3.6.1.3 Condition A was entered, and manual valve V-43-112, 'A' CAD Torus Spray Isolation, was closed and tagged with a configuration control tag to comply with required action statement A.1 to isolate the affected penetration flow path within 4 hours. On August 31, 2006, a post maintenance Local Leak Rate Test was performed on SV-4334A, and the manual isolation valve V-43-112 was incorrectly locked open and verified locked open during the local leak rate test restoration valve line-up. Although SV-4334A was closed, the primary containment isolation valve was still inoperable and TS LCO 3.6.1.3 Condition A.1 was still applicable. This condition existed until September 7, 2006, when operators discovered V-43-112 locked open during performance of the final post maintenance testing. The testing was halted, V-43-112 was closed, and appropriate notifications were made. The failure of the licensee's administrative controls resulted in the primary containment penetration flow path not being properly isolated and continuously under administrative control for a period of approximately 7 days, without the associated TS LCOs being entered, resulting in the required LCO Completion Times for plant shutdown and cooldown being exceeded.

The licensee evaluated this condition to be of very low safety significance since the line is a small diameter pipe (less than or equal to a 2-inch diameter) and the Level II probabilistic risk assessment model demonstrates that "Inability to isolate any single pipe of this size does not influence the course of an accident or radionuclide release to a degree that requires explicit consideration." Additionally, SV-4334A was not disassembled during the time that V-43-112 was locked open, and SV-4334B, the outboard isolation valve, was still operable, the line was still capable of being isolated. Corrective actions taken by the licensee included restoring compliance with the TS by closing V-43-112, performing an RCE which will be presented as a case study to all Operations and Leadership Team personnel, performing an extent of condition review to identify similarly susceptible valves, conducting flow testing of identified components to verify the valves were operable, and entering corrective action documents in the corrective action program to track procedural improvements.

The LER was reviewed by the inspectors who determined that this finding was more than minor because the TS limits were exceeded when the LCOs were not entered and

the allowable outage times were not met. This finding affects the Barrier Integrity Cornerstone and was evaluated as having a very low safety significance (Green) using IMC 0609, Appendix A, Attachment 1, "Significance Determination of Reactor Inspection Findings for At-Power Situations," since the finding only degrades Containment Barriers and does not represent an actual open pathway in the physical integrity of reactor containment. This licensee-identified finding involved a violation of TS 3.6.1.3, Primary Containment Isolation Valves. The enforcement aspects of the violation are discussed in Section 4OA7.3. This LER is closed.

4OA5 Other Activities

.1 Implementation of Temporary Instruction (TI) 2515/169 - Mitigating Systems Performance Index (MSPI) Verification

a. Inspection Scope

The objective of TI 2515/169, "Mitigating Systems Performance Index Verification," was to verify that licensees have correctly implemented the MSPI guidance for reporting unavailability and unreliability of the monitored safety systems. Prior to the April 1, 2006, implementation of MSPI, a team of NRC staff and contractors involved in the development of the index conducted an audit of the licensees' bases documents. On a sampling basis, the team selected key aspects of the index to be inspected to ensure that the licensees followed the MSPI guidelines. The key aspects included: (1) identification of the correct boundaries; (2) selection of the appropriate components; (3) establishment of baseline unavailability and unreliability information; and (4) resolution of concerns with respect to the individual licensee's probabilistic risk assessments. The purpose of this TI was to validate the unavailability and unreliability input data and to verify accuracy of the first reporting results for the 2nd Quarter 2006.

The performance of this TI by the inspectors represented a single inspection sample.

b. Issues

- (1) For the sample selected, did the licensee accurately document the baseline planned unavailability hours for the MSPI systems?

No issues were identified.

- (2) For the sample selected, did the licensee accurately document the actual unavailability hours for the MSPI systems?

No issues were identified.

- (3) For the sample selected, did the licensee accurately document the actual unreliability information for each MSPI monitored component?

No issues were identified.

- (4) Did the inspector identify significant errors in the reported data, which resulted in a change to the indicated index color? Describe the actual condition and corrective actions taken by the licensee, including the date when the revised PI information was submitted to the NRC.

No issues were identified.

- (5) Did the inspector identify significant discrepancies in the basis document which resulted in: (1) a change to the system boundary; (2) an addition of a monitored component; or (3) a change in the reported index color? Describe the actual condition and corrective actions taken by the licensee, including, the date of when the bases document was revised.

No issues were identified.

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item (URI) 05000331/2006007-07(DRS): Potential Design Deficiency Concerning Cable Separation.

During the component design basis inspection, from March 7 through April 21, 2006, inspectors identified an unresolved item concerning a potential design issue with respect to flooding of structures housing Division 1 and 2 cables. Specifically, in June 2004, the licensee found about 4 feet of water in a manhole (1MH111/2MH209) along the cable run to the intake structure. The manhole configuration consisted of a concrete compartment with a central masonry block fire barrier wall (not impervious to water) separating the cable trays of Division I and Division II. The team was concerned that a common mode failure could occur between divisions due to non-functioning manhole sump pumps. Although the central masonry block fire barrier wall separated the Divisional cables, it was not designed to prevent flooding of both compartments. In addition, as observed in May 2004 and April 2006, it was possible to have a non-functioning sump pump without notice.

During this inspection, the inspectors reviewed CE 004015 on the cable separation and flooding issue. The inspectors reviewed the original purchase orders for the cables and compared them to the manufacturer's qualification standards for cables intended for submerged or direct burial operation. The inspectors agreed with the licensee's conclusion that the cables were qualified for the application where the manholes could be flooded. Additionally, the inspectors found that the degradation that the licensee had experienced on low-voltage cabling was a slow process that was monitored by the licensee's ground detection equipment and that the degraded cables had still been capable of performing their safety-related function. The licensee has not experienced any failure of a medium voltage cable due to water immersion.

The inspectors reviewed the licensee's evaluation against Information Notice 2002-12, Submerged Safety-Related Electrical Cables; NEMA [National Electrical Manufacturers Association] Standards Publication No. WC 7-1988, Cross-Linked-Thermosetting-

Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy; NEMA Standards Publication No. WC 8-1988, Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy; and industry documents on the Effects of Moisture on the Life of Power Plant Cables. The inspectors concluded that the masonry block fire block was not required to prevent the flooding of both compartments. In addition, because the cables were qualified for submerged conditions, a common mode failure would not be likely. This URI 05000331/2006007-07(DRS) is closed.

b. Findings

No findings of significance were identified.

.3 (Closed) Unresolved Item (URI) 05000331/2004006-03(DRS): Station Blackout Coping Analysis.

This issue was opened to allow further NRC staff review to determine of the licensee's analysis and justification supporting the station blackout coping period following the extended power uprate. Staff in the NRC's Office of Nuclear Reactor Regulation performed an extensive review of the revised station blackout analysis and concluded that the analysis was acceptable for the increased power levels. This URI 05000331/2004006-03(DRS) is closed.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. G. Van Middlesworth and other members of licensee management on January 11, 2006. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exits were conducted for:

Radiation Protection inspection with Mr. Dean Curtland and other members of your staff on November 15, 2006.

Annual Operator Requalification Program Examination Result Review with Mr. M. Walter and training staff on November 30, 2006, via telephone.

.3 Follow Up Exit Meeting

A follow up exit meeting concerning URI 05000331/2004006-03 was conducted with Mr. Steve Catron on January 23, 2007, via telephone.

40A7 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 Non-Cited Violations.

Cornerstone: Occupational Radiation Safety

- .1 Technical Specification 5.4.1 requires that written procedures be established and implemented for activities provided in Regulatory Guide 1.33 Revision 2. Procedures specified in Regulatory Guide 1.33, Section 7.e.7 include radiation control procedures. Licensee procedure ACP 1411.18 step 3.3 states that 'Radiation Workers shall wear their assigned Thermoluminescent Dosimeter (TLD) within any posted Radiologically Controlled Area (RCA) and licensee procedure ACP 1411.27 step 3.6 under general responsibilities, require personnel to 'Wear TLD, electronic dosimeter and/or self-reading dosimeter in a Radiologically Controlled Area.' Contrary to these requirements, on multiple occasions from February through October 2006, individuals entered the RCA without wearing their own assigned TLDs. These incidents were documented in the licensee's corrective action program and corrective actions were taken to correct each incident. Additionally, programmatic corrective actions were taken to improve the RCA log-in process. These issues represented a finding 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 to the workers, nor was the licensee's ability to assess worker dose compromised. The licensee documented the issue in their corrective action program as CAP 045482.

Cornerstone: Barrier Integrity

- .2 Technical Specification 5.4.1 requires that written procedures be established and implemented for activities provided in Regulatory Guide 1.33 Revision 2. Procedures specified in Regulatory Guide 1.33, Section 2.g, include procedures for power operation and process monitoring. Licensee procedure Integrated Plant Operating Instruction (IPOI) 3, "Power Operations from 35 percent to 100 percent Rated Power," step 2.10 states "do not exceed 49×10^6 lb/hr core flow as calculated by process computer routine OFFICIAL case or as indicated by Reactor Jet Pump Total Flow." Contrary to this requirement, the licensee discovered that on October 21, 2006, operations personnel exceeded the core flow limit during a normally scheduled control rod sequence exchange. This incident was documented in the licensee's corrective action program and corrective actions have been implemented to prevent recurrence. This issue represented a finding of very low safety significance because it did not have any negative consequences on the fuel barrier. The licensee documented the issue in their corrective action program as CAP 044976.

Cornerstone: Barrier Integrity

- .3 Technical Specification 3.6.1.3, Condition A, for penetration flow paths with two primary containment isolation valves, requires that, when one or more penetration flow paths with one primary containment isolation valve inoperable while in Modes 1, 2, and 3, the affected penetration flow path be isolated by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured within 4 hours of discovery, except for main steam line AND within 8 hours for main steam line. A TS Required Actions note allows that penetration flow paths may be unisolated intermittently under administrative controls. Condition F requires that, when the required actions and associated Completion Times of Condition A are not met in Mode 1, 2, and 3, that the plant shall be placed in Mode 3 within 12 hours AND be placed in Mode 4 within 36 hours. Contrary to these requirements, the licensee discovered on September 7, 2006, that a failure of the licensee's administrative controls resulted in the primary containment penetration flow path not being properly isolated and continuously under administrative control for a period of approximately 7 days, which exceeded the required Completion Times for both Condition A and Condition F. Since the finding did not represent an actual open pathway in the physical integrity of reactor containment, this issue is of the very low safety significance. The licensee documented the issue in their corrective action program as CAP 044066.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

G. Van Middlesworth, Site Vice President
J. Bjorseth, Site Director
D. Curtland, Plant Manager
S. Catron, Licensing Manager
S. Haller, Site Engineering Director
B. Kindred, Security Manager
J. Morris, Training Manager
D. Blair, Operations Manager
G. Pry, Maintenance Manager
J. Windschill, Chemistry & Radiation Protection Manager
P. Sullivan, Emergency Preparedness Manager

Nuclear Regulatory Commission

Rick Ennis, Project Manager, NRR
Karl Feintuck, Project Manager, NRR
Bruce Burgess, Chief, Reactor Projects Branch 2

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000331/2006005-01	FIN	Crew Performance on the Dynamic Scenario Portion of the 2006 Facility-Administered Annual Requalification Examination Operating Test (Section 1R11)
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Closed

05000331/2006004-00	LER	Containment Atmosphere Dilution System Condition Prohibited by TSs (Section 4OA3)
05000331/2006007-07	URI	Potential Design Deficiency Concerning Cable Separation (Section 4AO5)
05000331/2004006-03	URI	Station Blackout Coping Analysis (Section 4AO5)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather

IPOI 6; Weather Impacted Operations; Revision 38
IPOI 6; Weather Impacted Operations; Revision 37
IPOI 6; Weather Impacted Operations; Revision 36
Procedure Work Request 35333 to revise procedure for IPOI 6; Weather Impacted Operations; Revision 37
Operating Instruction (OI) 710A1; Intake Structure HVAC System Electrical Lineup; Revision 2
OI 710A2; Intake Structure HVAC System Valve Lineup; Revision 1
OI 711A1; Pumphouse HVAC Electrical Lineup; Revision 1
OI 711A2; Pumphouse HVAC Valve Lineup; Revision 1
OI 711A3; Pumphouse HVAC Control Panel Lineup; Revision 1
OI 729.1; Administration Building HVAC System; Revision 15
OI 734; Reactor Building HVAC system; Revision 47
CE 004462 Specifications for Seasonal Readiness and Implementation; dated November 2, 2006
CAP 045128; Specifications for Seasonal Readiness and Implementation; dated October 31, 2006
CAP 044971; 1Y1310 Circuit 7 found tripped; dated October 21, 2006
CWO A74921; Repair Pumphouse Sodium Sulfite Solution Tank Room Heat Trace from Circuit 7 on 1Y1310; October 24, 2006
CWO A75822; Repair Pumphouse 'A' Circ Water Pump Area Unit Heater; November 13, 2006
CWO A75812; Repair Intake Structure North MCC and Pump Room Unit Heater, Motor Needs Replacement; October 26, 2006
CWO A75823; Repair Pumphouse North Service Water Pump Room Unit Heater; November 16, 2006
PWO 1137570; Convert Main Intake Coils to Winter Mode of Operation/Glycol Fill/ Control Building Chillers Flow Balancing; October 12, 2006
Equipment-Specific Maintenance Procedures HTEXCH-P295-01; H.K. Porter Main Intake Cooling Coils; Revision 17
OI 985A2; Freeze Protection Electrical Lineup; Revision 5

1R04 Equipment Alignment

OI 324A4; SBDG 1G-21 System Valve Lineup and Checklist; Revision 3
OI 324A10; SBDG Standby/Readiness Condition Checklist; Revision 3
OI 324A8; SBDG 1G-21 Control Panel Lineup; Revision 0
OI 324A2; SBDG 1G-21 Electrical Lineup; Revision 1
OI 150A1; RCIC System Electrical Lineup; Revision 0
OI 150A2; RCIC System Valve Lineup and Checklist; Revision 9
OI 150A4; RCIC System Control Panel Lineup; Revision 1

1R05 Fire Protection

ACP 1412.2; Control of Combustibles; Revision 29
ACP 1412.4; Impairments to Fire Protection Systems; Revision 44
AFP 06; Reactor Building RHR Valve Room Elevation 757'-6"; Revision 24
AFP 16; Condensate Pump Room Area Elevation 734'-0"; Revision 25
AFP 24; Control Building 1-A4 and 1-A3 Essential Switchgear Rooms; Revision 28
AFP 23; Control Building 1D-2, 1D-4, 1D-1 Battery Rooms and Battery Corridor; Revision 24
AFP 17; Turbine Building Condenser Bay, Heater Bay, and Steam Tunnel; Revision 24
AFP 21; Turbine Building North Turbine Operating Floor; Revision 24
AFP 22; Turbine Building South Turbine Operating Floor Elevation 780'-0"; Revision 25
AFP 28; Emergency Service Water/Residual Heat Removal Service Water Pump Rooms and Main Pump Room; Revision 29
AFP 29; Fire Pump and Fire Pump Day Tank Rooms; Revision 27
AFP 30; Safety Related Piping Area; Revision 25

1R11 Licensed Operator Requalification Program

Simulator Exercise Guide 2006F-01 PM; First Segment PM, Second Segment HSD [Hot ShutDown] Weight Boron and Reflood of the RPV, then CSD [Cold ShutDown] Weight Boron and a RPV Cooldown; Revision 0
Emergency Operating Procedure 1; RPV Control; Revision 14
Emergency Operating Procedure 2; Primary Containment Control; Revision 13
ATWS; ATWS-RPV Control; Revision 15
Emergency Action Level Table 1; Revision 7
ACP 110.1; Conduct of Operations; Revision 4
ACP 101.01; Procedure Use and Adherence; Revision 39
ACP 101.2; Verification Process and Self / Peer Checking Practices; Revision 5
Rod Insertion Procedure (RIP) 101.1; RPS Trip Test Switches; Revision 2
RIP 101.2; RPS Fuse Removal; Revision 3
RIP 102.1; Repeated Manual Scram; Revision 4
Duane Arnold Licensed Operator Requalification Program Results
CAP 045106; Copies of LOR 2006 Biennial Written Exam Found on Printer in Instructor Area; dated October 30, 2006
CAP 044379; LOR Simulator Examination Failures; dated September 22, 2006
ACE 001652; LOR Simulator Examination Failure; dated September 26, 2006

1R12 Maintenance Effectiveness

Start Up System (SUS) 50.00; "Performance Criteria Basis Document for the RCIC System," Revision 2
Maintenance Rule Overview Module, Module 0; Revision 3
Maintenance Rule Program Performance Criteria Development, Module 3; Revision 3
CAP 045165; RCIC Oil Filter High D/P on RCIC Start; dated November 1, 2006
CAP 044772; RCIC Turbine Over Speed Test Trip not Performed Since March 2000; dated October 11, 2006
CAP 044296; MWO 1136907 - FIC2509 - RCIC Flow Controller - Removed from Schedule for Week 44; dated September 18, 2006
DAEC System Checklist/Health Report for SUS 50.00 RCIC; dated September 19, 2006
PWO 1123314; Perform RCIC Turbine Overspeed Test; dated January 1, 2006

DAEC System Monitoring and Reporting Tool; System Report for SUS 50.00 RCIC; dated November 22, 2006

1R13 Maintenance Risk Assessments and Emergent Work Control

DAEC Online Schedule, Week 9640; September 30, 2006
Maintenance Risk Evaluation for Week 40; September 30, 2006
DAEC Online Schedule, Week 9643; October 21, 2006
Maintenance Risk Evaluation for Week 43; October 21, 2006
Work Order 1134393; Inspection of Standby Transformer 1X4 Feeder to 1A3 Breaker
DAEC Online Schedule, Week 9644; October 28, 2006
Maintenance Risk Evaluation for Week 44; October 28, 2006
DAEC Online Schedule, Week 9650; December 7, 2006
Maintenance Risk Evaluation for Week 50; December 7, 2006
Maintenance Risk Evaluation for Week 50; Revision 1; December 12, 2006
Maintenance Risk Evaluation for Week 51; December 14, 2006
DAEC Online Schedule, Week 9651; December 14, 2006

1R15 Operability Evaluations

CAP 044066; 'A' SBDG Tripped on High Crankcase Pressure; dated October 3, 2006
ACE 001655; 'A' SBDG Tripped on High Crankcase Pressure; dated October 4, 2006
CAP 044663; 'A' SBDG Load Fluctuations; dated October 5, 2006
CAP 044664; SBDG Normal Starting Air Solenoid Not Tested During Fast Starts; dated October 5, 2006
CAP 045243; STP 3.8.1-06 Standby LOP Start Note; dated November 5, 2006
OPR 000344; STP 3.8.1-06 Standby LOP Start Note; dated November 7, 2006
CAP 045358; HPCI Pump Suction High Alarm Activated While Cycling MO2022; dated November 10, 2006
OPR 000345; HPCI Pump Suction High Alarm Activated While Cycling MO2022; dated November 13, 2006
CAP 045510; No Electronic Log Entry Was Found for Receiving OPR 000345; dated November 18, 2006
CE 004533; HPCI Pump Suction High Alarm Activated While Cycling MO2022; dated November 15, 2006
CAP 045459; Unexpected Alarm 1C05B (D-4) Reactor Vessel High Pressure Alarm; dated November 15, 2006
CAP 045550; Reactor Vessel High Pressure Alarm (AC05B, D-4) Received; dated November 21, 2006
CAP 025824; Received Unexpected Reactor High Pressure Alarm; dated February 26, 2003
CAP 046054; Multiple Unexpected Half Scrams from PS-4550; dated December 20, 2006
CWO A70709; TIF #1: Determine Source of High Pressure Scram Alarm and Calibrate
CWO A70709; TIF #2: Attempt to Optimize the Settings of PS4550 and Verify Repeatability
CWO A70709; TIF #3: Check Set Points and Contact for Continuity of PS4550
CAP 045550; Reactor Vessel High Pressure Alarm (1C05B, D-4) Received; dated November 21, 2006
CAP 038725; 'A' Side Half Scram during Surveillance Test Procedure; dated November 3, 2005

1R19 Post-Maintenance Testing

PWO 1136876; Replace Capacitors C1, C2, & C4 in Average Power Range Monitor 'E' & Flow Unit 'A'; dated October 10, 2006

PWO 1134393, Inspect, Lube, Repair as Required, Breaker 1A301; dated October 23, 2006
Equipment-Specific Maintenance Procedures CKTBKR-G080-02; GE 4160 Volt Breaker;
Revision 26

CWO A75009, Repair Diesel Fire Pump Engine Coolant Jacket Leaks as Required-Glycol Contaminated with Fuel Oil; dated November 21, 2006

CAP 045517; 1P049 Glycol Coolant Possibly Polluted with Oil or Circ Water; dated November 19, 2006

CE 004550; 1P049 Glycol Coolant Possibly Polluted with Oil or Circ Water; dated November 21, 2006

1R20 Outage Activities

IPOI 4; Integrated Plant Operating Instruction for Shutdown; Revision 78

IPOI 8; Integrated Plant Operating Instruction for Outage and Refueling Operations;
Revision 42

IPOI 2; Integrated Plant Operating Instructions for Startup; Revision 89

OI 149A7; RHR System Shutdown Cooling Tag Checklist; Revision 4

CAP 045289; During TIF for A74355 2nd EHC Pump Start on turbine Front Standard Trip;
dated November 7, 2006

Troubleshooting Instruction Form for Work Order A74355; Resetting and Tripping of
Main Turbine

Troubleshooting Log for Work Order A74355; dated November 6, 2006

1R22 Surveillance Testing

STP NS490003; RHR System Leakage Inspection Walkdown; Revision 8

STP 3.5.1-02; LPCI System Operability Tests; Revision 20

CAP 045165; RCIC Oil Filter High D/P on RCIC Start

CAP 045162; Multiple Annunciator Alarms During RCIC Run

STP 3.5.3-02; RCIC System Operability Test; Revision 20

CAP 045532; Unplanned LPCI 7-day LCO; dated November 20, 2006

CWO A75010; Replace 1B3401 with Staged/Pre-Certified Warehouse Spare 480 Volt Breaker;
dated November 20, 2006

STP 3.8.7-01; LPCI Swing Bus AC and DC Undervoltage Transfer Test; Revision 7

STP 3.1.7-01; Standby Liquid Control Pump Operability Test; Revision 17

CAP 046083; NRC Resident Feedback on Standby Liquid Control Testing

ACP 101.2; Verification Process and Self/Peer checking Practices; Revision 5

1R23 Temporary Plan Modifications

ACP 103.6; DAEC Implementing Procedure for Fleet Modification Process; Revision 20

CAP 044066; 'A' SBDG Tripped on High Crankcase Pressure; dated October 3, 2006

ACE 001655; 'A' SBDG Tripped on High Crankcase Pressure; dated October 4, 2006

Temporary Modification 06-010; V32-178 [Three-way Valve] on 'A' SBDG By Installing Direct
Line from the Crankcase to the Pressure Switches; dated October 5, 2006

CWO A75495; Install Tubing Directly from the Crankcase to the Pressure Switches; dated
October 5, 2006

2OS1 Access Control to Radiologically Significant Areas

ACP 1407.2; Material Control in the Spent Fuel Pool and Cask Pool; Revision 15
ACP 1411.13; Control of Access to High Radiation Areas and Above; Revision 19
ACP 1411.18; Personnel Dosimetry; Revision 24
ACP 1411.27; Rules for Conduct of Work in Radiologically Controlled Areas; Revision 20
CAP 039543; Incorrect TLD Used to Access RCA on Multiple Shifts; dated February 02, 2006
CAP 040247; Need to Determine if Penetration from TIP machine Room to TIP Shield Room is Accessible; dated February 07, 2006
CAP 040390; Dose Rates Increase on Reactor Building 2nd Floor During RWCU System Shutdown; dated February 15, 2006
CAP 041889; Swing Arm for the HRA on the Refuel Floor was Sticking Open; dated April 28, 2006
CAP 042690; Radiation Area Discovered in the Turbine Building Basement; dated June 12, 2006
CE 0003205; Security Dose for Week 44 Exceeds Goal; dated November 08, 2006
CAP 043108; Individual Entered the Power Block with Someone Else's TLD; dated July 07, 2006
CAP 043260; Reducing Errors Entering RCA with Wrong TLD; dated July 19, 2006
CAP 043748; Worker Wore Wrong TLD into RCA; dated August 19, 2006
CAP 044494; Person Entered the RCA with Another Person's TLD Badge; dated September 27, 2006
CAP 045023; A Contract Worker Took Wrong TLD into Power Block; dated October 25, 2006
CAP 045028; Chemistry Technician Took Wrong TLD into the Plant; dated October 25, 2006
RWP 18; Condensate Demin Septa Change Out / Minor Repairs, Support Work (D Demin), Revision 17
RWP 33; Management, Planning, Engineering Inquires (Main Steam Tunnel Engineering Preps) Revision 14
RWP 52; Routine Work (SJAE Steam Trap ST-1365), Revision 15
RWP 200; Fuel Pool Clean-Up Project; Various Revisions
RWP 201; Fuel Pool Clean-Up; Various Revisions
RWP 40210; S1/S2 ISI/FAC and Support Work for Refuel Outage; Various Revisions
HPP 3101.05; Administration of Radiation Work Permits; Revision 29
HPP 3104.01; Control of Access to High Radiation Areas and Above; Revision 32
HPP 3104.06; Control of Radiography Activities; Revision 12
HPP 3104.07; Diving Operations within Radiological Areas; Revision 15
HPP 3105.02; Exposure Evaluation, Investigation and Reporting; Revision 17
HPP 3111.15; Start-Up Instructions for Health Physics; Revision 3
HPP 3111.16; Respond to Plant Scram; Revision 2

2OS2 ALARA Planning and Controls

Procedures Listed Above and:

Forced Outage Schedule; dated November 06, 2006
HPP 3102.02; ALARA Job Planning; Revision 21
HPP 3102.03; Radiation Protection Job Planning; Revision 10
HPP 3104.10; Control of Drywell Access During Fuel Movement; Revision 5
Outage Report DAEC RFO-19; dated July 2005

Refueling Procedure 403; Performance of Fuel Handling Activities; Revision 26

40A1 Performance Indicator Verification

CAP Database Listing for Selected Keyword Searches for the period July 2005 through - September 12, 2006

ACP 1402.4; NRC & WANO Performance Indicator Reporting; Revision 7

HPP 3105.02; Exposure Evaluation, Investigation and Reporting; Revision 17

HPP 3111.41; MGPAC Admin Station User's Guide; Revision 2

NAP-206; NRC Performance Indicators; Revision 0

Monthly Data Elements for RETS/ODCM Radiological Effluent Reports; July 2005 through June 2006

Various Dosimetry Egress Transactions, Personal Contamination Reports, and Selected Intake Dose Assessments for the period July 2005 through September 12, 2006

Nuclear Energy Institute 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 4

Memo; DAEC 3rd Quarter 2006 PI Summary; October 16, 2006

Memo; DAEC 2nd Quarter 2006 PI Summary; July 13, 2006

Memo; DAEC 1st Quarter 2006 PI Summary; April 11, 2006

Memo; DAEC 4th Quarter 2005 PI Summary; February 2, 2006

Memo; DAEC 3rd Quarter 2005 PI Summary; October 13, 2005

Memo; DAEC 2nd Quarter 2005 PI Summary; July 6, 2005

Memo; DAEC 1st Quarter 2005 PI Summary; April 19, 2005

Memo; DAEC 4th Quarter 2004 PI Summary; January 21, 2005

ACP 1402.4; NRC & WANO Performance Indicators Reporting; Revision 7

40A2 Identification and Resolution of Problems

ACP 114.4, Corrective Action Program, Revision 21

ACP 114.5, Action Request System, Revision 52

PDA-06-002; FPL Duane Arnold Nuclear Oversight Quality Report; dated June 7, 2006

DAEC Root Cause Evaluation Manual; Revision 9

DAEC CAP Trend Code Manual; Revision 4

DAEC Common Cause Evaluation Manual; Revision 2

CAP 044287; HU Near Misses; dated September 17, 2006 (NRC Identified)

CE 004295; HU Near Misses; dated September 19, 2006

DAEC 3Q06 Human Performance Rollup Report; dated October 18, 2006

RCE 001057; Root Cause Analysis of the Events Contributing to the Unexpected Increase in Core Flow > 49.0 Mlb/hr During Control Rod Sequence Exchange

CAP 045912; Lack of Procedural Guidance when Operating above Core Flow Limit of 49 Mlb/hr; dated December 14, 2006

IPOI 3; Integrated Plant Operating Instruction for Power Operations (35 percent to 100 percent Rated Power); Revision 86

OI 831.4; Operating Instruction for Plant Process Computer (PPC); Revision 47

OI 856.1; Operating Instruction for Reactor Manual Control System; Revision 31

CAP 044976; Flow Exceeded 49 Mlb/hr; dated October 22, 2006

40A3 Event Follow-up

spTP 210; Pressure Regulator Dynamic Tuning; Revision 1

spTP 211; Power Ascension test to Greater than 1840 MW thermal; Revision 2

Engineering Documentation Package for Extended Power Uprate Phase IIIa: Power Ascension from 1840 MW thermal; Revision 0
CAP 045249; CB0220 Breaker Failure Relay Trip; dated November 6, 2006
EN #42966; Reactor Plant Event Notification Worksheet; DAEC Reactor Scram; dated November 6, 2006
RCE 001055; Root Cause Analysis of the Events Contributing to the CAD System Condition Prohibited by TSs; dated October 10, 2006
LER 2006-004-00; Containment Atmosphere Dilution System Condition Prohibited by TSs; November 6, 2006

40A5 Other Activities

Consolidated Data Entry (CDE) 3.0 MSPI Derivation Report; MSPI Emergency AC Power System Unavailability Index (UAI); October 2006
CDE 3.0 MSPI Derivation Report; MSPI Emergency AC Power System Unreliability Index (URI); October 2006
CDE 3.0 MSPI Derivation Report; HPCI System Unavailability Index; October 2006
CDE 3.0 MSPI Derivation Report; MSPI HPCI System Unreliability Index; October 2006
CDE 3.0 MSPI Derivation Report; Heat Removal System Unavailability Index; October 2006
CDE 3.0 MSPI Derivation Report; MSPI Heat Removal System Unreliability Index; October 2006
CDE 3.0 MSPI Derivation Report; Residual Heat Removal System Unavailability Index; October 2006
CDE 3.0 MSPI Derivation Report; MSPI Residual Heat Removal System Unreliability Index; October 2006
CDE 3.0 MSPI Derivation Report; Cooling Water System Unavailability Index; October 2006
CDE 3.0 MSPI Derivation Report; MSPI Cooling Water System Unreliability Index; October 2006
Maintenance Rule Database System Parameter Information for HPCI System
Maintenance Rule Database System Parameter Information for 'A' Emergency Diesel Generator System
Maintenance Rule Database System Parameter Information for 'B' Emergency Diesel Generator System
Maintenance Rule Database System Parameter Information for Reactor Core Isolation System
Maintenance Rule Database System Parameter Information for 'A' Torus Cooling System
Maintenance Rule Database System Parameter Information for 'B' Torus Cooling System
Maintenance Rule Database System Parameter Information for 'A' RHRSW System
Maintenance Rule Database System Parameter Information for 'B' RHRSW System
Maintenance Rule Database System Parameter Information for 'A' ESW System
Maintenance Rule Database System Parameter Information for 'B' ESW System
CAP 038871; 'A' EDG Overspeed Trip; dated November 11, 2005
CAP 025715; RCIC Failure to Meet Required Flow During STP 3.5.3-02; dated February 19, 2003
CAP 043403; Incorrect Values contained in INPO's MSPI Database; dated July 28, 2006
CAP 027109; Seal Water Line to 1P216 (HPCI Pump) is Cracked at Threaded Connection; dated April 20, 2003
CAP 043442; 1S090A A/C RHRSW Pump Strainer; dated July 31, 2006

40A7 Licensee-Identified Violations

CAP 044066; Condition Prohibited by TSs; dated September 7, 2006

CAP 044976; Flow Exceeded 49.0×10^6 lb/hr; dated October 22, 2006

CAP 045482; NRC Finding - Workers Entering RCA with Wrong TLD's; dated November 17, 2006

LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
ACP	Administrative Control Procedure
AFP	Area Fire Plan
ALARA	As-Low-As-Reasonably-Achievable
ATWS	Anticipated Transient Without Scram
CAD	Containment Atmosphere Dilution
CAP	Corrective Action Process
CE	Condition Evaluation
CDE	Consolidated Data Entry
CFR	Code of Federal Regulation
CWO	Corrective Work Order
DAEC	Duane Arnold Energy Center
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
HPCI	High Pressure Coolant Injection
HRA	High Radiation Area
HPP	Health Physics Procedure
HVAC	Heating, Ventilation, Air-Conditioning
IMC	Inspection Manual Chapter
IPOI	Integrated Plant Operating Instruction
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LOR	License Operator Requalification
LPCI	Low Pressure Coolant Injection
MSPI	Mitigating Systems Performance Index
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OI	Operating Instruction
OOS	Out-of-service
OPR	Operability
PI	Performance Indicator
PMT	Post-Maintenance Testing
PRA	Probabilistic Risk Assessment
PCIV	Primary Containment Isolation Valve
PWO	Preventative Work Order
RCA	Radiologically Controlled Area
RCE	Root Cause Evaluation
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RIP	Rod Insertion Procedure
RP	Radiation Protection
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel

LIST OF ACRONYMS USED

RWP	Radiation Work Permit
SBDG	Standby Diesel Generator
SDP	Significance Determination Process
SJAE	Steam Jet Air Ejector
SSC	Structures, Systems, Components
STP	Surveillance Test Procedure
SUS	Start Up System
TIF	Temporary Instruction Form
TLD	Thermoluminescent Dosimeter
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item