



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

February 6, 2009

Mr. Richard L. Anderson
Vice President
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER INTEGRATED INSPECTION REPORT
05000331/2008005

Dear Mr. Anderson:

On December 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Duane Arnold Energy Center. The enclosed report documents the inspection results, which were discussed on January 15, 2009, 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, two NRC-identified findings of very low safety significance were identified. The findings involved violations of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your CAP, the NRC is treating the issues as Non-Cited Violations (NCVs) in accordance with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of this NCV, 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), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

Docket No. 50-331; 72-032
License No. DPR-49

Enclosure: Inspection Report 05000331/2008005
w/Attachment: Supplemental Information

cc w/encl: M. Nazar, Senior Vice President and
Chief Nuclear Officer
J. Stall, Executive Vice President, Nuclear and
Chief Nuclear Officer
M. Ross, Managing Attorney
A. Khanpour, Vice President, Nuclear Engineering
D. Curtland, Plant Manager
S. Catron, Manager, Regulatory Affairs
M. Mashhadi, Senior Attorney
T. Jones, Vice President, Nuclear Operations,
Midwest Region
P. Wells, Acting Vice President, Nuclear,
Training and Performance Improvement
R. Hughes, Director, Licensing and Performance Improvement
D. McGhee, Iowa Dept. of Public Health
Chairman, Linn County, Board of Supervisors
Chief Radiological Emergency Preparedness Section,
Dept. Of Homeland Security
M. Rasmusson, State Liaison Officer

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D. McGhee, Iowa Dept. of Public Health
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Letter to R. Anderson from K. Riemer dated February 6, 2009

SUBJECT: DUANE ARNOLD ENERGY CENTER INTEGRATED INSPECTION REPORT
05000331/2008005

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Tammy Tomczak
ROPreports@nrc.gov

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-331 and 72-032
License No: DPR-49

Report No: 05000331/2008005

Licensee: FPL Energy Duane Arnold, LLC

Facility: Duane Arnold Energy Center

Location: Palo, IA

Dates: October 1 through December 31, 2008

Inspectors: R. Orlikowski, Senior Resident Inspector
R. Baker, Resident Inspector
D. McNeil, Senior Operations Specialist
D. Reeser, Operations Specialist
R. Winter, Reactor Inspector
R. Russell, Emergency Preparedness Inspector
T. Go, Health Physicist
J. Tapp, Health Physicist
J. Neurauter, Senior Reactor Inspector

Observers: None

Approved by: K. Riemer, Chief
Branch 2
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000331/2008005; 10/01/2008 – 12/31/2008; Duane Arnold Energy Center; Component Design Bases Inspection.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Based on the results of this inspection, two NRC-identified findings of very low safety significance (Green and Severity Level IV) were identified. The two findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because the issues were entered into your Corrective Action Program (CAP), the NRC is treating the issues as NCVs, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspector for the failure of the High Pressure Coolant Injection (HPCI) vacuum breaker piping configuration to be in conformance with the piping design analysis of record. The licensee entered this issue into its CAP and was able to demonstrate the vacuum breaker piping to be operable during design basis accident conditions.

The finding was determined to be more than minor because the finding was similar to IMC 0612, Appendix E, Example 3a. Specifically, to restore conformance of the HPCI vacuum breaker piping to the piping design basis analysis of record, a modification to the existing piping configuration was necessary. The inspector determined the finding was of very low safety significance because it was a design deficiency that did not result in actual loss of safety function. The inspector determined there was no cross-cutting aspect associated with this finding. (Section 1R21.1.b.1)

- Severity Level IV. A finding of very low safety significance and associated NCV of 10 CFR Part 50.59, "Changes, Tests, and Experiments," was identified by the inspector for the licensee's failure to provide a documented basis that a change in the method of evaluation for small bore torus attached piping systems as defined in the Plant Unique Analysis Report (PUAR) for torus attached piping did not require prior NRC approval.

Because the issue affected the NRC's ability to perform its regulatory function, this issue was evaluated using the traditional enforcement process. The finding was determined to be more than minor because the inspector could not reasonably determine that the change would not have ultimately required NRC prior approval. The finding was determined to be of very low safety significance by the NRC's significance determination process because it was a design deficiency that did not result in actual loss of safety function. This finding had a cross-cutting aspect in the area of Human Performance, Decision Making, because the licensee failed to use conservative assumptions in

decision making to demonstrate that a proposed action is safe to proceed, in that, the licensee did neither verify the validity of their justification to not reevaluate the HPCI steam exhaust vacuum breaker piping attached to the modified HPCI steam exhaust piping nor identify adverse consequences due to changes in the HPCI steam exhaust piping resonant frequency content [H.1(b)]. (Section 1R21.1.b.2)

B. Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

Summary of Plant Status

Duane Arnold Energy Center (DAEC) 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.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment to this report. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Cathodic Freeze Protection System;
- Reactor Building Main Intake Coils Heating, Ventilation, and Air-conditioning (HVAC) System; and
- Auxiliary Boiler to Main Heat Loop Heating System.

This inspection activity constituted one winter seasonal readiness preparations sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- 'A' Standby Diesel Generator (SBDG) with the 'B' SBDG Inoperable due to a Failed Surveillance Test;
- Reactor Core Isolation Cooling (RCIC) with HPCI Out-of-Service (OOS) for Emergent Maintenance; and
- The 250 VDC Power Distribution System with the 1D44 Battery Charger OOS for a Capacity Test.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These inspection activities constituted three partial system walkdown samples as defined in IP 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete system alignment inspection of the Emergency Service Water (ESW) system, during the week of November 23, 2008, to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment

cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

This inspection activity constituted one complete system walkdown sample as defined in IP 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Area Fire Plan (AFP) 4, 5, & 6, Reactor Building North Control Rod Drive (CRD) Module Area & CRD Repair Room; South CRD Module Area Off-Gas Recombiner Room & Railroad Airlock; and Residual Heat Removal (RHR) Valve Room, Elevation 757' 6";
- AFP 10, 11, & 12, Reactor Building Main Exhaust Fan Room, Heating Hot Water Pump Room, & Plant Air Supply Fan Room; Laydown Area; and Decay Tank & Condensate Phase Separator Room, Elevations 812' 0" and 833' 6";
- AFP 28, 29, & 30, Pump House ESW RHRSW [Residual Heat Removal Service Water] Pump Rooms & Main Pump Room; Fire Pump & Fire Pump Day Tank Rooms; and Safety Related Piping Areas, Elevations 747' 6", 757' 6", & 761' 0"; and
- AFP 74 & 79, Main Switchyard; and Independent Spent Fuel Storage Facility.

The inspectors reviewed areas 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 out of service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was

within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These inspection activities constituted four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On October 15, 2008, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection activity constituted one quarterly licensed operator regualification program sample as defined in IP 71111.11.

b. Findings

No findings of significance were identified.

.2 Facility Operating History (71111.11B)

a. Inspection Scope

The inspectors reviewed the plant's operating history from October 2006 through September 2008 to identify operating experience that was expected to be addressed by

the Licensed Operator Requalification Training (LORT) program. The inspectors verified that the identified operating experience had been addressed by the facility licensee in accordance with the station's approved Systems Approach to Training (SAT) program to satisfy the requirements of 10 CFR 55.59(c). The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.3 Licensee Requalification Examinations (71111.11B)

a. Inspection Scope

The inspectors performed an inspection of the licensee's LORT test/examination program for compliance with the station's SAT program which would satisfy the requirements of 10 CFR 55.59(c)(4). The reviewed operating examination material consisted of six operating tests, each containing approximately two dynamic simulator scenarios and approximately six job performance measures. The written examinations reviewed consisted of six written examinations, each including a Part A, Plant and Control Systems, and Part B, Administrative Controls/Procedure Limits. Each examination contained approximately 35 questions. The inspectors reviewed the annual requalification operating test and biennial written examination material to evaluate general quality, construction, and difficulty level. The inspectors assessed the level of examination material duplication from week-to-week during the current year operating test. The examiners assessed the amount of written examination material duplication from week-to-week for the written examination administered in 2008. The inspectors reviewed the methodology for developing the examinations, including the LORT program 2-year sample plan, probabilistic risk assessment insights, previously identified operator performance deficiencies, and plant modifications. The inspectors reviewed Corrective Action Process (CAP) document CAP 061743, "TDAP [Training Department Administrative Procedure] 1835 Requires Clarifications," for excessive question use and overlap between weekly written examinations. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.4 Licensee Administration of Requalification Examinations (71111.11B)

a. Inspection Scope

The inspectors observed the administration of a requalification operating test to assess the licensee's effectiveness in conducting the test to ensure compliance with 10 CFR 55.59(c)(4). The inspectors evaluated the performance of one operating crew in parallel with the facility evaluators during two dynamic simulator scenarios and evaluated various licensed crew members concurrently with facility evaluators during the administration of several job performance measures. The inspectors assessed the facility evaluators' ability to determine adequate crew and individual performance using objective, measurable standards. The inspectors observed the training staff personnel

administer the operating test, including conducting pre-examination briefings, evaluations of operator performance, and individual and crew evaluations upon completion of the operating test. The inspectors evaluated the ability of the simulator to support the examinations. A specific evaluation of simulator performance was conducted and documented in the section below titled, "Conformance with Simulator Requirements Specified in 10 CFR 55.46." The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.5 Examination Security (71111.11B)

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. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.6 Licensee Training Feedback System (71111.11B)

a. Inspection Scope

The inspectors assessed the methods and effectiveness of the licensee's processes for revising and maintaining its LORT Program up to date, including the use of feedback from plant events and industry experience information. The inspectors reviewed the licensee's quality assurance oversight activities, including licensee training department self-assessment reports. The inspectors evaluated the licensee's ability to assess the effectiveness of its LORT program and their ability to implement appropriate corrective actions. This evaluation was performed to verify compliance with 10 CFR 55.59(c) and the licensee's SAT program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.7 Licensee Remedial Training Program (71111.11B)

a. Inspection Scope

The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the previous biennial requalification examinations and the training from the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans. This evaluation was performed in accordance with 10 CFR 55.59(c) and with respect to the licensee's SAT program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.8 Conformance With Operator License Conditions (71111.11B)

a. Inspection Scope

The inspectors reviewed the facility and individual operator licensees' conformance with the requirements of 10 CFR Part 55. The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53(e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators and which control room positions were granted watch-standing credit for maintaining active operator licenses. The inspectors reviewed the facility licensee's LORT program to assess compliance with the requalification program requirements as described by 10 CFR 55.59(c). Additionally, medical records for twelve licensed operators were reviewed for compliance with 10 CFR 55.53(l). The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.9 Conformance With Simulator Requirements Specified in 10 CFR 55.46 (71111.11B)

a. Inspection Scope

The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, "Simulation Facilities." The inspectors also reviewed a sample of simulator performance test records (i.e., transient tests, malfunction tests, steady state tests, and core performance tests), simulator discrepancies, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy process to ensure that simulator fidelity was maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics. The

inspectors conducted interviews with members of the licensee's simulator staff about the configuration control process and completed the IP 71111.11, Appendix C, checklist to evaluate whether or not the licensee's plant-referenced simulator was operating adequately as required by 10 CFR 55.46(c) and (d). The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.10 Annual Operating Test Results (71111.11B)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the biennial written examination, the individual Job Performance Measure operating tests, and the simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee from September 2008 through November 2008 as part of the licensee's operator licensing requalification cycle. These results were compared to the thresholds established in IMC 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- RCIC System;
- 'A' & 'B' Control Building Chillers; and
- 'A' & 'B' SBDGs.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;

- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSC)/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These inspection activities constituted three quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

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 and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- 'A' SBDG OOS due to replacing the Tube Bundles in the Three Service Water Heat Exchangers during Work Week 9840;
- Standby Liquid Control (SBLC) system OOS during VT-2 Visual Inspections during Work Week 9844;
- 'B' SBDG OOS due to Trip during Surveillance Testing during Work Week 9845;
- Emergent Work to Repair a Stem Packing Steam Leak on HPCI Turbine Steam Supply Valve during Work Week 9846; and
- Planned Maintenance on the 'A' ECCS Corner Room HVAC Unit for Cooler Coil Replacement during Work Week 9850.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

These inspection activities constituted five samples as defined in IP 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- 'A' & 'B' SBDG Service Water Heat Exchanger Channel Head Bolting Issues;
- 'B' SBDG Fuel Racks found in the 'Max Fuel' while Secured and in Standby Readiness;
- 'B' Control Building Chillers Degrading Low Oil Pressure Condition; and
- No. 1 Turbine Bypass Valve Position Indication Irregularities which Resulted in the Main Turbine Bypass System being Declared Inoperable.

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

These inspection activities constituted four samples as defined in IP 71111.15-05.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following temporary modification (TM):

- Leak Sealant Injection of Valve V07-0038, 'B' Reactor Feed Pump Discharge Line High Point Vent, TM 08-006.

The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis, the

UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations, engineering, and training personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance.

This inspection activity constituted one temporary modification samples as defined in IP 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following post-maintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- 'B' RHRSW Pump following motor temperature element replacement;
- 'B' SBDG Following Repair of Engine Overspeed Switch and Relays; and
- Non-Essential Switchgear Room Cooler, 1VAC020, following replacement and leak repair of the internal cooling coil.

These activities were selected based upon the SSC's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion), and test documentation was properly evaluated. The inspectors evaluated the activities against TS, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

These inspection activities constituted three post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

1R21 Component Design Bases Inspection (71111.21)

.1 (Closed) Violation (VIO) 05000331/2005010-01: Failure to Demonstrate Adequacy of Design Assumption for Torus Attached Piping

a. Inspection Scope

The inspector reviewed licensee corrective actions pertaining to VIO 05000331/2005010-01 that resulted from an unresolved item (URI) identified during the 2004 engineering inspection. Specifically, a design change that modified the HPCI turbine exhaust subsystem was not subject to the design control measures commensurate with those applied to the original design, and the licensee did not implement any measures to verify the adequacy of the design assumption which differed from that applied to the original design.

The inspector reviewed licensee documentation that included a reanalysis of the 1996 modification to the HPCI subsystem, ECP 1575, which allowed valve V22-0016 to be relocated approximately 50 feet closer to the torus, commensurate with DAEC's plant unique design and licensing bases specific to torus attached piping systems.

Specific documents reviewed during the inspection are listed in the Attachment to this report.

This inspection did not constitute an inspection sample.

b. Findings

(1) HPCI Steam Exhaust Vacuum Breaker Piping Configuration Not in Conformance with Piping Design Basis Analysis of Record

Introduction: A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspector for the licensee's HPCI vacuum breaker piping configuration found to not be in conformance with the piping design analysis of record.

Description: The inspector reviewed design calculations for the HPCI steam exhaust piping system to verify conformance with the original design and licensing bases specific to torus attached piping systems and the related piping design code. As a direct result to an NRC inspector question whether the HPCI steam exhaust piping analysis had used proper stress intensification factors at small bore piping branch locations, the licensee determined that the HPCI vacuum breaker branch connection had not been modified in accordance with the HPCI vacuum breaker design basis analysis of record (performed in 1980's). The as-found branch connection was a 2-inch nominal pipe size half-coupling; the analysis of record was based on this branch connection modified to a 3-inch nominal pipe size weld-o-let fitting.

The failure to modify the HPCI vacuum breaker branch connection adversely affected the calculated vacuum breaker piping stress. The licensee entered this nonconformance into its CAP as CAP 059861, CAP 059892, and CAP 060140. The licensee's operability recommendation, OPR 385, demonstrated this nonconforming vacuum breaker piping configuration to be operable during design basis accident conditions.

Analysis: The inspector determined that the licensee's failure to install a modification to the HPCI vacuum breaker piping consistent with the analyzed piping configuration was a performance deficiency.

The finding was determined to be more than minor because the finding was similar to IMC 0612, Appendix E, Example 3a. Specifically, to restore conformance of the HPCI vacuum breaker piping to the design basis analysis of record, a modification to the existing piping configuration is necessary. Therefore, this performance deficiency also impacted the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, SDP Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Barrier Integrity Cornerstone. Specifically, since all four questions under the Containment Barrier column were answered "no," the finding was determined to be Green, of very low safety significance, because it did not represent an actual open pathway in the physical integrity of reactor containment.

The inspector did not identify a cross-cutting aspect associated with this finding because the concern is related to a design control issue from the 1980's and not indicative of current licensee performance.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, as of the 1980's to December 18, 2008, the licensee failed to assure that the design basis was correctly translated into drawings and instructions. Specifically, the licensee failed to install a modification to the HPCI vacuum breaker piping consistent with the piping design basis analysis of record. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CAP 059861, CAP 059892, and CAP 060140, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000331/2008005-01).

(2) 10 CFR 50.59 Safety Evaluation Not Performed for Change in Method of Evaluation

Introduction: A finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50.59, "Changes, Tests, and Experiments," was identified by the inspector. Specifically, the licensee utilized a method of evaluation different than defined in their PUAR, IOW-40-199-6, Volume 6, "Torus Attached Piping and Suppression Chamber Penetrations Analyses," Revision 0, without determining whether

the change would require prior NRC approval. The PUAR was incorporated by reference into the UFSAR.

Description: The inspector reviewed design calculations for the HPCI steam exhaust piping system to verify conformance with the original design and licensing bases specific to torus attached piping systems and the related piping design code. Consistent with the original design basis analysis, the small bore HPCI vacuum breaker branch piping was not included in the large bore HPCI steam exhaust piping evaluation.

As indicated in paragraph 6-3.4.1.b of the PUAR, for small bore piping (SBP) lines branching off large bore piping (LBP) lines, Mark I containment (torus) loads were input at the attachment points of the SBP system to the LBP system utilizing the multiple response spectrum method (MRSN), and maximum displacements for each event were input as anchor movements.

Table 6-3.1-2 of the PUAR identified the HPCI vacuum breaker as SBP branching off the LBP with an expansion loop. As indicated paragraph 6-3.4.1.d of the PUAR, the expansion loops have been designed so that they have resonant frequencies outside the critical frequency range of the input motion.

The inspector requested the licensee's evaluation of the effect of the modification to the HPCI steam exhaust piping system on the small bore HPCI vacuum breaker branch piping. The licensee's position was that no re-evaluation of Mark I loading in SBP for the effect of a modification to LBP was needed if: 1) the SBP design analysis of record evaluated Mark I loads using MRSN; 2) the location of the SBP attachment to the LBP has not changed; and 3) no modification to the SBP analysis of record configuration. The licensee's position was based on their judgment that the MRSN used for the decoupled SBP was shown to produce conservative results in cases where SBP systems were coupled to the LBP as a combined evaluation.

The inspector could not reasonably conclude that the licensee's criteria used to exclude re-evaluation of the HPCI vacuum breaker piping was conservative compared to the method of evaluation as described in their PUAR. Specifically, the licensee did neither verify the validity of their justification to not reevaluate the HPCI steam exhaust vacuum breaker piping attached to the modified HPCI steam exhaust piping nor identify adverse consequences due to changes in the HPCI steam exhaust piping resonant frequency content.

The inspector also determined that the licensee had not performed a written evaluation which provided a basis for the determination that this change did not require a license amendment.

Title 10 CFR 50.59(a)(1) defines a change as a modification or addition to the facility that affects an evaluation that demonstrates that the intended function will be accomplished. The inspector noted that Section 4.2.1.1, "Screening of Changes to the Facility as Described in the UFSAR," of Nuclear Energy Institute (NEI) 96-07, Revision 1, provided the following guidance: "Changes are 'screened in' (i.e., require a 10 CFR 50.59 evaluation) if they adversely affect an SSC design function." Furthermore, the inspector noted that Example 5 of Section 4.3.2, "Does the Activity Result in More Than a Minimal Increase in the Likelihood of Occurrence of a Malfunction of an SSC Important to Safety," of NEI 96-07, provided guidance for cases that would require prior NRC

approval. Since the licensee did not demonstrate that the expansion loop resonant frequencies would remain outside the critical frequency range of the revised input motion, there was no assurance that resulting HPCI vacuum breaker piping stress would not exceed design basis limits. As such, the inspector considered the change to be adverse and concluded that a 10 CFR 50.59 safety evaluation was required.

The licensee entered this nonconformance into its CAP as CAP 062425. The inspector confirmed that this issue was limited to the HPCI vacuum breaker line. The inspector also noted that the licensee's actions to correct the piping configuration nonconformance described in Section 1R21.1.b(1), CAP 059861, CAP 059892, and CAP 060140, are applicable to this issue as the licensee will reevaluate the HPCI vacuum breaker line. The licensee's operability recommendation, OPR 000385, identified sufficient analysis conservatism to demonstrate operability of the HPCI vacuum breaker piping during design basis accident conditions.

Analysis: The inspectors determined that utilizing a method of evaluation different than defined in the PUAR without determining whether the change would require prior NRC approval was a performance deficiency.

Because violations of 10 CFR 50.59 are considered to be violations that potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the SDP. However, if possible, the underlying technical issue is evaluated under the SDP to determine the severity of the violation. In this case, the finding was determined to be more than minor because the finding was similar to NRC Enforcement Policy, Supplement 1, Example D.5. In addition, this performance deficiency also impacted the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the Barrier Integrity Cornerstone. Specifically, since all four questions under the Containment Barrier column were answered "no," the finding was determined to be Green, of very low safety significance, because it did not represent an actual open pathway in the physical integrity of reactor containment.

This finding has a cross-cutting aspect in the area of human performance, decision making, because the licensee did not use conservative assumptions in decision making to demonstrate that a proposed action is safe in order to proceed. Specifically, the licensee did neither verify the validity of their justification to not reevaluate the HPCI steam exhaust vacuum breaker piping attached to the modified HPCI steam exhaust piping nor identify adverse consequences due to changes in the HPCI steam exhaust piping resonant frequency content [H.1(b)].

Enforcement: Title 10 CFR 50.59(d)(1) states, in part, that the licensee shall maintain records of changes in the facility, of changes in procedures, and of tests and experiments as described in the UFSAR. These records must include a written evaluation, which provides a basis for the determination that the change, tests, or experiments does not require a license amendment. Contrary to the above, as of December 18, 2008, the licensee made changes pursuant to 10 CFR 50.59(c) to the

facility as described in the UFSAR and had not performed a written evaluation which provided the bases for determining that the changes did not require a license amendment. Specifically, the licensee changed the facility without a determination that the change did not result in more than a minimal increase in the likelihood of occurrence of a malfunction of the HPCI vacuum breaker system that is important to safety and previously evaluated in the UFSAR. Because this violation was of very low safety significance, was not repetitive, and was entered into the licensee's CAP as CAP 062425, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000331/2008005-02).

Based on the above discussion, VIO 05000331/2005010-01 is closed.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- Surveillance Test Procedure (STP) 3.5.1-13, HPCI System Water Fill Test (routine);
- STP 3.1.7-01 & NS530001, SBLC Pump Operability Test, and SBLC System Leakage Inspection (inservice testing);
- STP 3.4.5-04, Functional Test of Equipment and Floor Drain Sump Flow Timers (RCS leakage); and
- STP 3.3.8.2-01B, RPS [Reactor Protection System] B MG Set EPA [Electrical Protection Assembly] Channel Calibration (routine).

The inspectors observed in plant activities and reviewed procedures and associated records to determine whether: any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as-left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the UFSAR, procedures, and applicable commitments; measuring and test equipment calibration was current; test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied; test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used; test data and results were accurate, complete, within limits, and valid; test equipment was removed after testing; where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers Code, and reference values were consistent with the system design basis; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual

conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of its safety functions; and all problems identified during the testing were appropriately documented and dispositioned in the CAP. Documents reviewed are listed in the Attachment to this report.

These inspection activities constituted two routine surveillance testing samples, one inservice testing sample, and one reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors completed a screening review of revisions made to the licensee's emergency plan since the last plan review to determine whether the changes identified in those revisions may have reduced the effectiveness of the licensee's emergency plan. The screening review of these revisions does not constitute approval of the changes and, as such, the changes are subject to future NRC inspection to ensure the emergency plan continues to meet NRC regulations. Documents reviewed are listed in the Attachment to this report.

This emergency action level and emergency plan changes inspection activity constituted one sample as defined in IP 71114.04-05.

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 reviewed radiation work permits (RWPs) for airborne radioactivity areas to verify barrier integrity and engineering controls performance (e.g., high-efficiency particulate air ventilation system operation) and to determine if there was a potential for individual worker internal exposures in excess of 50 millirem committed effective dose equivalent. There were no airborne radioactivity work areas during the inspection period.

Work areas having a history of, or the potential for, airborne transuranics were evaluated to verify that the licensee had considered the potential for transuranic isotopes and had provided appropriate worker protection.

This inspection constitutes one complete sample as defined in IP 71121.01-05.

The inspectors assessed the adequacy of the licensee's internal dose assessment process for internal exposures in excess of 50 millirem committed effective dose equivalent. There were no internal exposures greater than 50 millirem committed effective dose equivalent.

This inspection activity constituted one complete sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified.

.2 Job-In-Progress Reviews

a. Inspection Scope

The inspectors reviewed radiological work in high radiation work areas having significant dose rate gradients to evaluate whether the licensee adequately monitored exposure to personnel and to assess the adequacy of licensee controls. These work areas involved areas where the dose rate gradients were severe; thereby increasing the necessity of providing multiple dosimeters or enhanced job controls.

This inspection activity constituted one complete sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Reasonably-Achievable Planning And Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed procedures associated with maintaining occupational exposures as-low-as-is-reasonably-achievable (ALARA) and processes used to estimate and track work activity specific exposures.

This inspection activity constituted one required sample as defined in IP 71121.02-05.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements for the following four activities in order to verify that the licensee had established procedures and engineering and work controls that were based on sound radiation protection principles in order to achieve occupational exposures that were ALARA:

- Isolate and Unisolate 'A-Demin' at Steam Jet Ejector Room;
- Remove and Replace Reactor Building High Roof and Remove Screws from Refuel Floor Ceiling;
- Trouble Shoot CV-1058-O, During Down Power Job Coverage in Condenser Bay; and
- Adjust CV-1569 Valve in the Heater Bay.

The inspectors also determined if the licensee had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

This inspection activity constituted one required sample as defined in IP 71121.02-05.

b. Findings

No findings of significance were identified.

.3 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to evaluate the historical trends and the current status of tracked plant source terms. The inspectors determined if the licensee was making allowances and had developing contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry.

This inspection activity constituted one required sample as defined in IP 71121.02-05.

b. Findings

No findings of significance were identified.

.4 Radiation Worker Performance

a. Inspection Scope

Radiation worker and radiation protection technician performance was observed during work activities being performed in radiation areas, airborne radioactivity areas, and high radiation areas that presented the greatest radiological risk to workers. The inspectors evaluated whether workers demonstrated the ALARA philosophy by being familiar with

the scope of the work activity and tools to be used, by utilizing ALARA low dose waiting areas, and by complying with work activity controls. Also, radiation worker training and skill levels were reviewed to determine if they were sufficient relative to the radiological hazards and the work involved.

This inspection activity constituted one required sample as defined in IP 71121.02-05.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the third quarter 2008 Performance Indicators (PIs) for any obvious inconsistencies prior to its public release in accordance with IMC 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

Cornerstone: Mitigating Systems

.2 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures PI for the period from the fourth quarter 2007 through the third quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," Revision 2 definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC Integrated Inspection Reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection activity constituted one safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Residual Heat Removal System PI for the period from the fourth quarter 2007 through the third quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection activity constituted one MSPI residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.4 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems PI for the period from the fourth quarter 2007 through the third quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of October 2007 through September 2008 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection activity constituted one MSPI cooling water system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Items Entered Into the CAP

a. Inspection Scope

As part of the various baseline inspection procedures discussed 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 licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the attached List of Documents Reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily CAP Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six month period of July 1, 2008 through December 31, 2008, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This review constituted a single semi-annual trend inspection sample as defined in IP 71152-05.

b. Assessment and Observations

The inspectors performed a focused review of an identified potential trend for missing fasteners located on electrical panels, junction boxes, and transmitter covers located throughout the plant. On July 30, 2008, an NRC inspector identified a missing bolt and several thread engagement issues on the 'A' Standby Filter Unit. This observation was passed on to station personnel and the licensee generated CAP 059181 to document the deficiencies. An evaluation of the deficiency did not identify any operability concerns, and work request cards were generated to replace the missing bolt.

As the inspectors toured the plant during routine plant status inspections, several junction boxes were identified with missing fasteners. Some of the junction boxes were labeled as Environmentally Qualified (EQ). Again the deficiencies were passed on to station personnel and CAP 059207 was generated to document the deficiencies. A walkdown of the junction boxes and further evaluation by the station EQ engineer determined that the missing fasteners did not impact the function of the EQ components, and the evaluation was documented in CAP 059234.

In August the licensee generated CAP 059418 to document a recent trend in fastener and bolting issues. CAP 059418 listed seven other CAPs that all documented issues related to loose or missing fasteners. Condition Evaluation (CE) 006616 was performed and the CE concluded that a common cause of the seven CAPs could not be determined because of the different types of bolting and fastener conditions for each deficiency.

The inspectors identified additional missing fasteners on electrical junction boxes located in the reactor building on September 18 and November 13, and for both instances the licensee generated a CAP and evaluated the affected equipment for operability or functionality. On November 14 the licensee generated CAP 061741, "Failure to Address Adverse Trend in NRC Identified Issues." This CAP requested an Apparent Cause Evaluation (ACE) be performed to identify and correct the site's failure to identify station issues and address them. As of the end of the inspection period, this ACE had not yet been completed.

The inspectors reviewed the station's evaluations and operability determinations for the missing fasteners and no findings of significance were identified.

.4 Selected Issue Follow-Up Inspection: Root Cause Evaluation 1078, 'B' Emergency Diesel Generator (EDG) Output Breaker Trip

a. Inspection Scope

The inspectors chose to review the licensee's Root Cause Evaluation (RCE) associated with the November 2, 2008, trip of the 'B' EDG output breaker during a routine surveillance test.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Observations

Introduction: A URI was identified regarding the trip of the 'B' EDG Output Breaker during performance of a routine surveillance test on November 2, 2008. This item will be resolved pending review of the licensee's final RCE.

Description: Operators received a spurious 'B' EDG overspeed alarm on February 13, 2008. The engine overspeed alarm occurred while the engine was shutdown and was coincident with an operator performing the shiftly overspeed trip lever reset check. Subsequently, spurious 'B' EDG overspeed alarms were received on February 21, March 17, 19, 22, and 24, 2008.

Initial troubleshooting efforts by engineering personnel determined that the spurious overspeed alarms were the result of degraded capacitors on the annunciator alarm circuit cards. Several Corrective Work Orders (CWOs) were generated to replace the suspect alarm circuit cards. On March 25, maintenance personnel replaced one of the suspect annunciator alarm cards. The remaining CWOs could not be worked because the licensee did not have spare annunciator cards in stock. Post-maintenance inspections of the removed card identified a bad capacitor on the card. The licensee continued to monitor the 'B' EDG following the maintenance. No additional spurious overspeed alarms were documented until June 26, 2008.

Further troubleshooting efforts by the licensee continued to focus on the potential degraded annunciator alarm cards. On July 14, 2008, maintenance personnel replaced the annunciator alarm card that had been previously replaced in March. Analysis of the removed annunciator card did not identify any degraded capacitors. Engineering personnel continued to believe that the issue was due to degraded capacitors that were

in the remaining annunciator alarm cards, and several CAPs written for additional spurious overspeed alarms received in July, August, and September, were closed to the open CWOs to replace the remaining annunciator alarm cards once replacement parts were received.

While performing a TS required surveillance run of the 'B' EDG on November 2, 2008, operators received an engine overspeed alarm. The EDG continued to run at its rated speed and carry an electrical load. The initial overspeed alarm cleared, and then multiple overspeed alarms were received over the next several minutes. After approximately 30 to 50 overspeed alarms were received and cleared, the output breaker unexpectedly tripped open. The 'B' EDG never reached an actual overspeed condition and the engine continued to run unloaded after the breaker tripped open. Operations personnel declared the 'B' EDG inoperable, shut down the EDG, and aborted the surveillance test.

The licensee entered their failure investigation process to troubleshoot, identify, and repair the cause of the 'B' EDG output breaker tripping open. On November 5, 2008, the 'B' EDG was repaired and the EDG was declared operable. RCE 1078 was initiated to determine the root cause of the 'B' EDG output breaker trip. Revision 0 of RCE 1078 was completed on December 12, 2008. After review by the site's Management Review Committee, the licensee proceeded to revise RCE 1078 to incorporate management's comments. As of the end of the inspection period, the licensee had not yet approved revision 1 to RCE 1078. Therefore, this issue is being tracked as a URI (URI 05000331/2008005-03) pending inspector review of the final approved revision of RCE 1078.

4OA5 Other Activities

.1 Implementation of Temporary Instruction (TI) 2515/176, "Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing"

a. Inspection Scope

The objective of TI 2515/176 was to gather information to assess the adequacy of nuclear power plant emergency diesel generator endurance and margin testing as prescribed in plant-specific TSs. The inspectors reviewed the licensee's TS, procedures, and calculations and interviewed licensee personnel to complete the TI. The information gathered for this TI was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation on December 17, 2008. This TI is complete at DAEC; however, this TI 2515/176 will not expire until August 31, 2009. Additional information may be required after review by the Office of Nuclear Reactor Regulation.

b. Findings

No findings of significance were identified.

.2 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.3 Operation of an Independent Spent Fuel Storage Installation (ISFSI) at Operating Plants (60855.1)

a. Inspection Scope

The inspectors conducted a routine inspection of the DAEC ISFSI program to verify compliance with the Certificate of Compliance (CoC), TSs, and associated procedures. Specifically, the inspectors observed and reviewed surveillance activities and historical data, performed a walkdown of the ISFSI storage pad, and reviewed relevant CAP documents, 10 CFR 72.48 screenings and evaluations, environmental and radiological reports, and emergency action level (EAL) procedures.

The inspectors observed an Operations employee perform the required TS surveillance activity to visually verify the horizontal storage module (HSM) vent screens were clear of debris, and verified this activity was being performed in accordance with STP 3.0.0-01, "Instrument Checks." The inspectors observed that Operations was meeting the surveillance requirement but performed the surveillance from the vehicle by driving next to the ISFSI fence. The requirement did not specify how to perform the visual inspection of the vent screens, as long as it could be verified that the vent screens are free of debris. The inspectors questioned the licensee as to why the ISFSI storage pad was not entered to perform the surveillance. The licensee wrote CAP 062404, which recommended a procedural requirement for weekly inspection of the ISFSI storage pad and electrical building. In addition, the inspectors performed a walkdown of the ISFSI and associated electrical building to verify no combustibles were in the ISFSI, ISFSI Access Area, or in the electrical building. The inspectors observed there was no obvious degradation of the HSMs and the ISFSI and electrical building were generally clean and in good order.

The inspectors reviewed a selection of past TS surveillance records since the last inspection in April 2005. The inspectors reviewed data from February 2008, April 2007, May 2006, and December 2005. Data reviewed included both the TS required HSM vent screen visual inspection sign offs and HSM temperature monitoring data. The inspectors reviewed Operating Instruction (OI) 581, "Horizontal Storage Module Temperature Monitoring" and noted step (4), which states, in part, that "the following are

some investigative Action Steps for HSM temperature greater than 275°F.” One of the options is step (4)c., which, in part, states the licensee can perform “Independent verification of HSM Temperature with alternate temperature measuring equipment...” The inspectors questioned the licensee on what alternate measuring equipment and method would be used. The licensee did not have a method proceduralized and CAP 062407 was written to revise OI 581 to include an alternate method.

The inspectors reviewed CAPs relevant to ISFSI dating back to the last inspection in April 2005. No deficiencies were identified in either the actions taken or the timeliness in the documents reviewed. A list of CAPs reviewed can be found in the attached List of Documents Reviewed section. In addition the inspectors reviewed the 2005, 2006, and 2007 Annual Radiological Environmental Operating Reports to verify 10 CFR 72.104 dose limits were not being exceeded and monitoring equipment is capable of performing the required measurements. The inspectors also reviewed semi-annual radiation surveys from June 2005 through October 2008 of the ISFSI to verify there were no significant changes in dose rates in the area.

The inspectors reviewed 10 CFR 72.48 screening and evaluation documents to verify any changes made were reviewed appropriately. All changes screened or evaluated were conservative or administrative in nature. In addition, the inspectors reviewed the EAL basis document for the ISFSI and associated abnormal operating procedures to verify actions to be taken for the ISFSI during a design basis scenario were included. Also, in the unlikely event that a HSM must be removed from service, the procedures to transfer the dry shielded canister from the ISFSI to the refuel floor to be defueled were reviewed to verify they could be performed.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 15, 2009, the inspectors presented the inspection results to the Site Vice President, R. Anderson, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Access control to radiologically significant areas and ALARA planning and control under the Occupational Radiation Safety Cornerstone with Mr. Dieckmann, Operation Manager on October 24, 2008;
- TI 2515/176 results were discussed, via telephone, with Licensing Engineer, Mr. R. Murrell, and other members of the licensee's staff on December 1, 2008;
- The licensed operator requalification training program biennial inspection results with the Station Training Manager, J. Morris, on December 5, 2008;

- The results of the licensed operator requalification training program inspection with C. Hansen, Instructor, on December 17, 2008;
- The annual review of emergency action level and emergency plan changes with the Station Licensing Manager, Mr. S. Catron, via telephone on December 29, 2008;
- Operation of an ISFSI at Operating Plants was discussed with Site Vice President, Mr. R. Anderson, and other members of licensee management on December 18, 2008; and
- The inspector presented the results of the inspection review of licensee corrective actions pertaining to VIO 05000331/2005010-01 to Site Engineering Director, Mr. J. Cadogan, and other members of the licensee's staff via telephone on December 18, 2008.

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

R. Anderson, Site Vice President
D. Curtland, Plant Manager
B. Eckes, NOS Manager
S. Catron, Licensing Manager
J. Cadogan, Engineering Director
B. Kindred, Security Manager
J. Morris, Training Manager
C. Dieckmann, Operations Manager
G. Rushworth, Assistant Operations Manager
R. Harter, Operations Support Manager
R. Porter, Chemistry & Radiation Protection Manager
M. Davis, Emergency Preparedness Manager
G. Ellis, Program Owner, Fire Protection
M. Lingenfelter, Design Engineering Manager
S. Huebsch, System Engineering Supervisor
J. Swales, Design Engineering Supervisor
K. Kleinheinz, Maintenance Manager
J. Kuehl, Program Engineering Supervisor
D. Albrecht, Radwaste Supervisor
G. Park, ISI Program Owner
F. Dohmen, NDE Level III
B. Klotz, Program Engineering Supervisor
J. Probst, Site Maintenance Rule Coordinator
N. McKenney, General Supervisor Radiation Protection
S. Funk, CHP, REMP Program Manager, Sr. Health Physics Coordinator
D. Johnson, Radwaste Operator/Chem Tech, Radiation Environmental Technician
C. Bauer, LOR Supervisor
C. Hansen, Exam Writer
C. Harberts, Refuel Floor Project Manager

Nuclear Regulatory Commission

K. Feintuck, Project Manager, NRR
K. Riemer, Chief, Reactor Projects Branch 2

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000331/2008005-01	NCV	HPCI Steam Exhaust Vacuum Breaker Piping Configuration Not in Conformance with Piping Design Basis Analysis of Record (1R21.1.b(1))
05000331/2008005-02	NCV	10 CFR 50.59 Safety Evaluation Not Performed for Change in Method of Evaluation (1R21.1.b(2))
05000331/2008005-03	URI	Root Cause Evaluation 1078, 'B' EDG Output Breaker Trip (4OA2.4)

Closed

05000331/2008005-01	NCV	HPCI Steam Exhaust Vacuum Breaker Piping Configuration Not in Conformance with Piping Design Basis Analysis of Record (1R21.1.b(1))
05000331/2008005-02	NCV	10 CFR 50.59 Safety Evaluation Not Performed for Change in Method of Evaluation (1R21.1.b(2))
05000331/2005010-01	VIO	Failure to Demonstrate Adequacy of Design Assumption for Torus Attached Piping (1R21.1)

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 or 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.

Section 1R01

Integrated Plant Operating Instruction 6; Weather Impacted Operations; Revision 47
System Description 727; Auxiliary Heating Boiler and Main Loop; Revision 6
System Description 733; Reactor, Turbine, Radwaste Building HVAC Systems; Revision 5
System Description 985; Cathodic and Freeze Protection; Revision 3
Duane Arnold Daily Quality Summary; Winter Readiness; dated November 4, 2008
CAP 061095; Condition Not Adverse to Quality (NCAQ) – Temp Job Trailers Not Secured for Wind in Accordance with SHALL Requirement
CAP 061489; NCAQ – There Is No Process to Check the Condition of Heat Trace Tape Preventative Work Order (PWO) 1143592; Perform Survey of Cathodic Protection System, Including an ON/OFF Survey
Pre-Planned Task Z05957; Inspect Cathodic Protection System
CWO A85652; Repair Open Circuit in Heat Tape (1L162 CKT 68)
PWO 1142988; Drain & Fill Systems with Glycol for Winter Operation (Main Plant Intake Cooling Coils)
PWO 1144685; Run the Auxiliary Boiler per OI 727 for One Week Supplying Heat to the Heat Loop
PWO 1145748; Install a Bypass Switch to Prevent the Low Temperature Bypass of the Main Intake Coils When the Coils Are Lined Up for Summer Operations per ECP [Engineering Change Package] 1860
CAP 060301; NCAQ – Testing Unsuccessful for ECP 1860 Well Water Isolation Bypass
CAP 061094; NCAQ – Winter Readiness Work on T1 Transformer Will Not Be Done

Section 1R04

OI 324A1; SBDG 1G-31 System Electrical Lineup; Revision 2
OI 324A7; SBDG 1G-31 System Control Panel Lineup; Revision 3
OI 324A10; SBDG Standby/Readiness Condition Checklist; Revision 8
CAP 061526; Condition Adverse to Quality (CAQ) – One 1G31 Turbocharger Discharge Flange Bolt was Found Missing
CAP 061728; CAQ – Discrepancies identified during Inplant Walkdown
OI 150A4; RCIC System Control Panel Lineup; Revision 3
OI 150A2; RCIC System Valve Lineup and Checklist; Revision 11
OI 150A1; RCIC System Electrical Lineup; Revision 2
OI 388A1; 250 VDC Power Distribution System Electrical Lineup; Revision 1
OI 388A2; 250 VDC Power Distribution System 1D40 Normal Power Operation Electrical Lineup; Revision 1
OI 388A3; 250 VDC Power Distribution System 1D41 Normal Power Operation Electrical Lineup; Revision 1
OI 388A4; 250 VDC Power Distribution System 1D42 Normal Power Operation Electrical Lineup; Revision 1
STP 3.8.4-09B; 1D44 250 VDC Battery Charger Capacity Test; Revision 0

OI 388; 250 VDC Power Distribution System; Revision 27
OI 454; Emergency Service Water System; Revision 57
OI 454 QRC [Quick Response Card] 1; ESW Rapid Start; Revision 4
OI 454A1; ESW System Electrical Lineup; Revision 2
OI 454A2; 'A' ESW System Valve Lineup and Checklist; Revision 9
OI 454A4; 'B' ESW System Valve Lineup and Checklist; Revision 10
OI 454A6; ESW System Control Panel Lineup; Revision 2
BECH-M113; RHR Service Water & Emergency Service Water Systems; Revision 64
BECH-M146; Service Water System Pump House; Revision 82
PWO 1141516; Replace Packing as Required in 1P099B, 'B' ESW Pump
PWO 1141517; Replace Packing as Required in 1P099A, 'A' ESW Pump
CAP 055303; CAQ – 1P099B ESW Pump Packing
CAP 060621; NCAQ – 1P099A-'A' ESW Pump Packing Lantern Rings Cannot be Removed

Section 1R05

FHA-400; Fire Hazards Analysis; Revision 9
Administrative Control Procedure (ACP) 1412.2; Control of Combustibles; Revision 34
AFP 04; Reactor Building North CRD [Control Rod Drive] Module Area, CRD Repair and CRD Cable Rooms; Revision 28
AFP 05; South CRD Module Area and Offgas Recombiner Rooms and Railroad Airlock; Revision 26
AFP 06; Reactor Building RHR Valve Room Elevation 757'-6"; Revision 24
AFP 28; Pump House ESW/RHRSW Pump Rooms and Main Pump Room; Revision 29
AFP 29; Pump House Fire Pump and Fire Pump Day Tank Rooms; Revision 27
AFP 30; Pump House Safety Related Piping Area; Revision 26
AFP 74; Switchyard; Revision 4
AFP 79; Spent Fuel Storage Facility; Revision 1
AFP 10; Main Exhaust Fan Room, Heating Hot Water Pump Room and the Plant Air Supply Fan Room; Revision 24
AFP 11; Reactor Building Laydown Area – Elevation 833'-6"; Revision 24
AFP 12; Reactor Building Decay Tank and Condensate Phase Separator Rooms; Revision 24

Section 1R11

Evaluation Scenario Guide 106; Revision 0
Evaluation Scenario Guide 107; Revision 0
ACP 110.1; Conduct of Operations; Revision 17
EAL 01; EAL Matrix – Hot Modes; Revision 7
CAP 061743; NCAQ - TDAP 1835 Requires Clarifications; dated November 14, 2008
NAP-408; License Maintenance and Activation Program; Revisions 7 and 8
ACP 1410.1; Operations Working Standards; Revision 64
ODI-009; Nuclear Station Plant Operator, Reactor Operator, Senior Reactor Operator, and Shift Technical Advisor Qualification Requirements; Revision 30
OP-032; Quarterly Personnel Watchstanding Verification Report; 1st, 2nd, 3rd, and 4th quarters 2007, 1st, 2nd, and 3rd quarters 2008
TDAP 1801.4; Simulator Configuration Management; Revision 8
Six Biennial Written Examinations - Reactor Operator Series
Six Biennial Written Examinations - Senior Reactor Operator Series
Six Operating Tests (approximately 12 Dynamic Simulator Scenarios); various dates
Licensed Operator Requalification Training Program Cycle Lesson Plans; various dates

Simulator Performances Tests (Steady State, Transient, and Malfunction tests); various dates
Two-Year Requalification Training Program Sample Plan; no date
Operator Training Feedback Forms (multiple); dated from September 2006 – August 2008
Licensed Operator Remedial Training Programs (multiple); September 2006 – August 2008
Medical Examination Reports for 12 Operators; multiple dates

Section1R12

DAEC Maintenance Rule Program Module 0; Overview; Revision 3
DAEC Performance Criteria Basis Document; RCIC SUS 50.00; Revision 2
DAEC System Checklist/Health Report for SUS 50.00 RCIC; dated November 17, 2008
System Monitoring and Reporting Tool System Report; dated November 17, 2008
CAP 060106; NCAQ – NRC GL 2008-1
CAP 060278; NCAQ – Missed Opportunity to Communicate RCIC LCO [Limiting Condition for Operation] to the Organization
CAP 060283; NCAQ – HPCI Operability Questioned During Performance of CWO A77986
CAP 060357; NCAQ – NRC GL 2008-1
CAP 061191; CAQ – RCIC Suction Tee Operable But Degraded (OBD) Resolution Date
CAP 061410; NCAQ – The HPCI & RCIC Room Cooling Units Were Not Restarted Following Maintenance
CAP 061619; NCAQ – RCIC Protected System Found Not Posted Properly
CAP 061752; NCAQ – Operability Determination Was Not in CAP in Reasonable Amount of Time
CAP 062152; CAQ – Unplanned LCO Entry, 'A' Chiller Inoperable due to Stuck 3-way Valve
CWO A80363; Remove the Electro-Hydraulic Operator to Send off for Repair and Reinstall the Operator when Received Back from the Vendor
System Checklist/Health Report for Control Building Heating, Ventilation, and Air Conditioning
CWO A85215; Replace 8CR and 9CR Relays in Control Building Chiller
CWO A85220; Remove Valve 1VCH001A. Inspect and Clean as Necessary.
CWO A85558; Troubleshoot/Repair 'A' Chiller Hot Gas Bypass Valve Feature
CWO A83144; Troubleshoot/Repair 'A' Chiller Hot Gas Bypass Valve Feature
OPR 379; A Control Building Chiller 1VCH001A
ACE 1877; The 'A' Chiller, 1VCH001A, Would not load and provide Cooling
CAP 061237; CAQ – 'B' Chiller Oil Pressure Continues to Degrade
OPR 390; CAQ – 1VCH001A Slow Compressor Loading
CAP 061276; NCAQ – Initial Estimates for Set-up and Evacuation for 'B' Control Building Chiller not Correct
CAP 061288; CAQ – 'A' Control Building Chiller Unloaded at Low Load During RCIC Run
CAP 061308; CAQ – 'B' Control Building Chiller – First Attempt to Evacuate not Attained
CAP 061310; NCAQ – Request Change to Technical Specification Bases 3.7.5 for B.1 and B.2
CAP 061237; CAQ – 'B' Chiller Oil Pressure Continues to Degrade
DAEC Performance Criteria Basis Document; Emergency Diesel Generators SUS 23.00, 24.01, 24.02, 24.03; Revision 4
DAEC System Checklist/Health Report for SUS 23.00 SBDGs; dated December 3, 2008
System Monitoring and Reporting Tool System Report; dated December 3, 2008
CAP 058717; NCAQ – PWO 1140919 for SUS 24.03 Not Performed as Scheduled
CAP 058946; CAQ – B SBDG Overspeed Trip Alarm during Shiftly Reset Check
CAP 060159; CAQ – Both SBDG Lube Oil Auto Makeup Tanks Low
CAP 060597; NCAQ – B SBDG Work Order Scheduled Concurrently with A SBDG
LCO/Unavailability
CAP 061470; CAQ – B SBDG Breaker Trip Required Backing out of STP 3.8.1-05B

CAP 061513; NCAQ – Question on LCO 3.8.1 Condition B Required Action B.3
CAP 061593; NCAQ – B SBDG Loaded Above 1500 KW with No Procedural Guidance
CAP 061614; NCAQ – Operations OIs as a Repository for All Information
CAP 061670; NCAQ – B SBDG Failure Investigation Process Improvement Items
CAP 062328; CAQ – EGB-13P Governor/Actuator Storage

Section 1R13

CAP 061738; NCAQ – On-call Person and Callout for HPCI LCO Went Unanswered
CAP 061725; CAQ – Bolt Missing from Hanger (next to MO-2202)
CAP 061739; CAQ – Leakage Coming from the Valve Stem of HV-2201, HPCI Turbine Stop Valve
CAP 061714; NCAQ – Fan Sheave Procured for 1VEF060 under A82837 Incorrect Size
STP 3.3.6.1-11; Reactor Lo Lo Water Level (ATWS-RPT/ARI Trip/RWCU Isolation) and Lo Lo Water Level (Main Steam Line Isolation Trip) Channel Functional Test; Revision 9
CWO A80297; MO Packing Leak Unchanged After Verifying Torque and Stroking per 1145715
CAP 061640; NCAQ – No CAP was written when Packing Leak on MO-2202 was Documented in September 2008
CAP 061672; NCAQ – Evaluation of MO-2202 Diagnostic Test Requirement
CAP 061626; CAQ – MO-2202 Packing Leak Degrading
CAP 061499; NCAQ – ‘B’ SBDG Issue while Performing A80272
CWO A80272; Output Breaker 1A411 Tripped Open while SBDG Running for STP 3.8.1-05B. This was Preceded by many (30-60) Overspeed Trip Alarms 1C08B (B-1) without a Diesel Engine Trip.
CAP 061511; CAQ – Anomalies Noted with ‘B’ SBDG Engine Overspeed Switch ZC3236B
CAP 061513; NCAQ – Question on LCO 3.8.1 Condition B Required Action B.3
Maintenance Risk Evaluations for Work Week 9840; Revisions 0 and 1
DAEC On-line Schedule for Work Week 40
Maintenance Risk Evaluations for Work Week 9844; Revisions 0, 1, 2, 3, and 4
DAEC On-line Schedule for Work Week 44
Maintenance Risk Evaluations for Work Week 9845; Revisions 0, 1, 2, 3, and 4
DAEC On-line Schedule for Work Week 45
Maintenance Risk Evaluations for Work Week 9846; Revisions 0, 1, 2, 3, and 4
DAEC On-line Schedule for Work Week 46
Maintenance Risk Evaluations for Work Week 9850; Revisions 0, 1, 2, 3, and 4
DAEC On-line Schedule for Work Week 50

Section 1R15

ACP 102.17; Pre/Post-Job Briefs and Infrequently Performed Tests and Evolutions; Revision 39
EN-AA-203-1001; Operability Determinations / Functionality Assessments; Revision 1
LI-AA-01; Regulatory Margin Corrective Action Strategy; Revision 1
CAP 057435; CAQ – EDG Scavenging Air to Lube Oil Heat Exchanger Bolting Thread Engagement
CE 006404; CAQ – EDG Scavenging Air to Lube Oil Heat Exchanger Bolting Thread Engagement
OBD 000306; CAQ - EDG Scavenging Air to Lube Oil Heat Exchanger Bolting Thread Engagement
CWO A85478; Replace Heavy Hex Nuts with Standard Hex A194-2H Nuts on Bolts and Studs That Do Not Have Full Engagement

CAP 060657; CAQ – Bolted Joint between 1E053A1 and 1E053A2 Doesn't Have Full Thread Engagement
 OBD 000309; CAQ – Bolted Joint between 1E053A1 and 1E053A2 Doesn't Have Full Thread Engagement
 CAP 060707; NCAQ – Failed Barriers and Missed Opportunities during 1G31 HX Reassembly
 CAP 060684; CAQ – B EDG (1G21) Is at Fuel Rack Position 8 with the Engine Secured (Should Be 0)
 OPR 000386; CAQ – B EDG (1G21) Is at Fuel Rack Position 8 with the Engine Secured (Should Be 0)
 CWO A83906; SBDG 1G21 Governor Fuel Rack Position
 CAP 060916; CAQ – 1VCH001B Emergent Adjustments Needed
 CAP 060939; CAQ – 1VCH001B Emergent Adjustments Needed
 OPR 000388; CAQ – 1VCH001B Emergent Adjustments Needed
 CAP 061115; CAQ – B Chiller (1VCH001B) Tripped with No Alarm in the Control Room
 CAP 061237; CAQ – B Chiller Oil Pressure Continues to Degrade
 CAP 058999; CAQ – Control Building Chiller-1VCH001B-Low Oil Level, Low Combined Pressure
 OPR 000382; CAQ – Control Building Chiller-1VCH001B-Low Oil Level, Low Combined Pressure
 CAP 062128; NCAQ – Possible Degraded Performance of ZI-9017, Turbine Bypass Valve #1 Position
 CAP 062175; CAQ – Main Turbine Bypass Valve BV1 Position Feedback Signal is Intermittent
 CAP 062185; CAQ – Lessons Learned from Turbine Bypass INOP-MCPR Penalty
 STP 3.7.7-03; MCPR Limit Verification; Revision 8
 Reactor Engineering Department Procedure 13; 3D Monicore Operations; Revision 3
 CAP 062246; NCAQ – BV1 False Open Signal-Need to Restore Reliability and Implement Bridge Strategy
 CAP 062287; CAQ – Discrepancy Identified with TS Bases 3.7.7

Section 1R18

FP-E-MOD-03; Temporary Modifications; Revision 3
 TM-08-006; Temporary Modification for Leak Sealant Injection of V07-0038, 'B' RFP [Reactor Feed Pump] Discharge Line High Point Vent
 CWO A83463; Perform Body to Bonnet Leak Injection of V07-0038
 CWO A83892; Replace Valve V07-0038 Per Approved Weld Procedure
 CAP 058132; NCAQ – Body to Bonnet Leak on Feedwater High Point Vent, V07-0038
 CAP 062136; NCAQ – Body to Bonnet Leak on v07-0038, Inboard Isolation Valve of 'B' RFP High Point Vent

Section 1R19

STP NS160002; RHR Service Water Operability Test; Revision 19
 CWO A92198; Temperature Element Replacement on 1P-22B, B RHRSW Pump
 CAP 054353; CAQ – TE-4930B for 1P-22B Motor Broken
 OI 324; Standby Diesel Generator System; Revision 89
 WO A80272; Replace Components (EOS [Engine Overspeed Switch], EOR [Engine Overspeed Relay], SDR [Shutdown Relay], wiring as directed)
 CAP 061516; CAQ – 1G021 'B' SBDG Turbocharger Missing One Bolt and One Loose Bolt on Suction Flange
 CAP 061520; CAQ – One 1G21 Turbocharger Discharge Flange Bolt Missing

CWO A81966; Replace the Cooling Coil in the 1A1/1A2 HVAC Unit
CAP 061608; NCAQ – New 1VAC020 Room Cooler Has a Leak
CAP 061963; CAQ – Pressure Testing of New Coils Needs to be Done Before Installation

Section 1R21

ACE 001470; NRC Violation – Inspection report 2005-010; dated July 1, 2005
Calculation CAL-M07-013; 1/32nd Torus Model Information; Revision 0; dated July 9, 2007
Calculation CAL-M07-014; 1/32nd Torus Model CMM Development; Revision 0; dated July 9, 2007
Calculation CAL-M07-015; Evaluation of Torus Attached Piping @ Penetration N-214 Due to Mark I Loading; Revision 0; dated July 9, 2007
Calculation CAL-M07-016; Evaluation of Torus Penetration N-214; Revision 0; dated July 9, 2007
CAP 036954; CAQ NRC Violation – Inspection Report 2005-010; dated June 29, 2005
BECH-M122; P&ID, High Pressure Coolant Injection, Steam Side; Revision 56
ISO-HLE-006-01; HPCI Turbine Steam Exhaust; Revision 1
ISO-HLE-006-02; HPCI Turbine Steam Exhaust; Revision 1

Section 1R22

ACP 102.17; Pre/Post-Job Briefs and Infrequently Performed Tests and Evolutions; Revision 39
CAP 060459; CAQ – HPCI Pressure between MO2213 & V23-0081 Rises to >1,000 Psig After Venting
STP 3.5.1-13; HPCI System Water Fill Test; Revision 5
CWO A92531; Obtain Minimum & Maximum Pressures for HPCI High Pressure Keep Fill System from PI2308 during HPCI System Venting
CAP 060691; CAQ – STP 3.5.1-13 Steps 7.1 and 7.2 Cannot be performed as Written
STP 3.1.7-01; SBLC Pump Operability Test; Revision 26
STP NS530001; SBLC System Leakage Inspection; Revision 8
CAP 061421; NCAQ – Crystalline Residue on 1H-1426 Flange
CWO A85664; Remove Crystallized Sodium Pentaborate from 1H-1426 Flange to Preclude Rusting
CAP 061842; CAQ – STP 3.4.5-04 Was Not Scheduled in WPI for the August 2008 Performance
CWO A83692; Replace the Drywell Equipment Sump Timing Relay
STP 3.4.5-04; Functional Test of Equipment and Floor Drain Sump Flow Timers; Revision 7
Surveillance Work Order 013610; Perform STP 3.4.5-04 – Functional Test of Equipment and Floor Drain Sump Flow Timers
STP 3.3.8.2-01; RPS MG Set and Alternate Power Source EPA Channel Calibration; Revision 6
STP 3.3.8.2-01B; RPS B MG Set EPA Channel Calibration; Revision 1
Surveillance Work Order 015201; Perform STP 3.3.8.2-01 – RPS MG Set and Alternate Power Source EPA Channel Calibration 'B'

Section 1EP4

DAEC Plan Section C, Emergency Response Support and Resources; Revisions 23 and 24
DAEC Plan Section F, Emergency Communications; Revisions 24, 25, and 26
DAEC Plan Section G, Public Education and Information; Revision 22
DAEC Plan Section J, Protective Response; Revision 23
DAEC Plan Section K, Radiological Exposure Control; Revision 22

DAEC Plan Appendices 1, 2, 4, 5

10 CFR 50.54(q) Review Evaluation, PWR: 38105; DAEC Plan 'F' Emergency Communications; Revision 24

10 CFR 50.54(q) Review Evaluation DAEC E-Plan; Appendix 2; Letters of Agreement; Revision 24

10 CFR 50.54(q) Review Evaluation, Emergency Plan Implementing Procedure 1.2, Notifications; Revision 39

Section 2OS1

08-500; Radiation Work Permit; Locked High Radiation Area - Planning Walk-downs and Repairs at Reduced Reactor Power Levels; to Trouble Shoot CV 1058 Valves; dated September 10, 2008

08-71; Radiation Work Permit for Radiation Area/Neutron Area at the Refuel Floor Roof; dated July 7, 2008

08-213; Radiation Work Permit; Isolate and Unisolate Demineralizers in the Steam Jet Air Ejector Room; Revision 04

08-25; Radiation Work Permit; Process Radwaste, Condensate and Fuel Pool Resin; Set Up and Make/Brake Connections; Transfer Resin to High Integrity Cask; Take Resin Samples in the Radwaste Sample Hood; Revision 00

08-100; Radiation Work Permit; GL-2008-01, Inspection of HPCI Discharge Piping for High Point Areas for Potential Gas Accumulation Points; Revision 01

08-100; Radiation Work Permit; Inspect HPCI Suction Piping for Potential Gas Accumulation at Torus Basement Areas; dated July 31, 2008

08-600; Radiation Work Permit; Adjust 'O' Ring on CV-1569; in Heater Bay; dated May 23, 2008
HP-55; Radiological Work Screening Forms; Revision 16

CAP 057756; NCAQ – Dose Reduction by Reordering Steps in SAMP 708; dated May 21, 2008

CAP 058476; NCAQ – Main Steam Line High Radiation Monitor Alarms During HPCI Operation Test; dated June 23, 2008

CAP 058843; NCAQ – Eliminate the Operation Key Lockers; dated July 11, 2008

CAP 058380; NCAQ – Fire Brigade Leader Key Ring for Locked High Rad Key; dated June 17, 2008

CAP 057990; NCAQ – Potential Exist for Security to Have Unmonitored Access to Locked High Radiation Area and Above per OE; dated May 29, 2008

CAP 059782; NCAQ – Miscommunication During Closure Verification of CV-1058; dated August 25, 2008

ACP 1411.13; Control of Locked High Radiation Areas and Above; Revision 22

ACP 1411.5; DAEC Shielding Program; Revision 17

Section 2OS2

HP-601PE; ALARA-In Progress Evaluation; Revision 21

CAP 058043; NCAQ – Use of Warehouse second Floor Would be Counterproductive to Rad Dose Goals; dated May 30, 2008

Rad Engineering Calculation; Evaluation of Personnel Dose in Office Areas Within the DAEC Restricted Area; dated August 11, 2000

DAEC Five Year ALARA Plan 2007-2011; dated 2007

CAP 053470; NCAQ – October Radiation Protection Oversight Committee Quarterly Meeting was Not Attended by Four Group; dated October 26, 2007

CAP 059782; NCAQ – Miscommunication During Closure Verification of CV-1058, Caused 7 Millirem; dated August 25, 2008

CAP 053623; NCAQ – GAP Exists Relative to Actual and Desired RWP Planning Effectiveness; dated November 2, 2007
CAP 055796; NCAQ – ALARA Conflict With Concurrent Verification; dated February 25, 2008
CAP 057986; NCAQ – HPP 3111.24; Posting Guidance Could Lead to a Posting Error; dated May 25, 2008
Duane Arnold Energy Center 5-Year ALARA Plan
ACP 1411.1; The ALARA Emphasis Program; Revision 14
HPP 3102.02; ALARA Job Planning; Revision 24
ACP 1411.2; Conduct of Radiation Protection; Revision 5
Craft Dose Estimated Report; From October 20–October 27, 2008

Section 4OA1

NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 5
NRC PI Data Calculation, Review and Approval Report for Safety System Functional Failures; Report Quarter No. 4 Year 2007; dated January 10, 2008
NRC PI Data Calculation, Review and Approval Report for Safety System Functional Failures; Report Quarter No. 1 Year 2008; dated April 8, 2008
NRC PI Data Calculation, Review and Approval Report for Safety System Functional Failures; Report Quarter No. 2 Year 2008; dated July 15, 2008
NRC PI Data Calculation, Review and Approval Report for Safety System Functional Failures; Report Quarter No. 3 Year 2008; dated October 14, 2008
Licensee Event Report 2007-09-00; Loss of Essential Bus Resulted In A Loss of Safety Function
Licensee Event Report 2007-10-00; Safety System Functional Failure of Alternate Preferred Offsite Power Source
NRC PI Data Calculation, Review and Approval Report for MSPI Cooling Water System 2, ESX; Report Quarter No. 4 Year 2007; dated January 10, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Cooling Water System 2, ESX; Report Quarter No. 1 Year 2008; dated April 10, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Cooling Water System 2, ESX; Report Quarter No. 2 Year 2008; dated August 11, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Cooling Water System 2, ESX; Report Quarter No. 3 Year 2008; dated October 9, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHR; Report Quarter No. 4 Year 2007; dated January 11, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHR; Report Quarter No. 1 Year 2008; dated April 10, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHR; Report Quarter No. 2 Year 2008; dated August 11, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHR; Report Quarter No. 3 Year 2008; dated October 9, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHRSW; Report Quarter No. 4 Year 2007; dated January 11, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHRSW; Report Quarter No. 1 Year 2008; dated April 10, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHRSW; Report Quarter No. 2 Year 2008; dated August 11, 2008
NRC PI Data Calculation, Review and Approval Report for MSPI Heat Removal System 1, RHRSW; Report Quarter No. 3 Year 2008; dated October 9, 2008
Duane Arnold Energy Center MSPI Basis Document; Revision 2

Section 4OA2

RCE 1078I 'B' EDG Output Breaker Trip; Revision 1
Exelon Power Labs Report FPL-21535; Perform Failure Analysis of Relays, Switches, and Annunciator Cards Associated with the Emergency Diesel Generator
CAP 047748; B SBDG Logic not Operating as Expected
CAP 061469; SCAQ [Significant Condition Adverse to Quality] – B SBDG Output Breaker 1A411 Trip Open during STP 3.8.1-05B
ACP 109.3; Troubleshooting Process; Revision 1
MD 026; Troubleshooting guidelines; Revision 16
CWO A94166; The Conduit Support is not Engaged Allowing the Conduit to Pull on the ZC [Engine Overspeed Switch]. Also the Conduit Vertically up to the Speed Switch is Loose. These were identified during the Root Cause Walkdown.
CWO A80272; Output Breaker 1A411 Tripped Open while SBDG Running for STP 3.8.1-05B. This was Preceded by many (~30-60) Overspeed Trip Alarms 1C08B (B-1) Without a Diesel Engine Trip
CAP 059587; CAQ – 'B' SBDG Annunciator 1C08B (B-1) 'B' Diesel Gen 1G-21 Overspeed Trip Activated
CAP 059181; CAQ – Evaluation of Structural Bolting for B Standby Filter Unit
CAP 059207; CAQ – Various Junction Boxes and Transmitter Covers Missing Fasteners
CAP 061799; NCAQ – Missing Fasteners Found During Plant Walkdowns
CAP 059418; CAQ – Recent Trend in Bolting Issues
CAP 059234; CAQ – No EQ Operability Issues for CAP 059207
CAP 061741; CAQ – Failure to Address Trend in NRC Identified Issues
CAP 061728; CAQ – Discrepancies Identified During In-plant Walkdown
CAP 061755; CAQ – Missing Fasteners Identified During In-plant Walkdown
CAP 061526; CAQ – One 1G31 Turbocharger Discharge Flange Bolt was found Missing
CAP 059388; CAQ – SECR Pipe Supports Appear to have Missing Bolts
ACP 102.9; Environmental Qualification Program; Revision 16
ACP 1202.9; Environmental Qualification Program Implementation; Revision 8
CD 5.11; Equipment Environmental Qualification Standard; Revision 0
Calculation M071-011; A Seismic Analysis of Filter Air System Control Building Standby Fresh Air Filter IV-SFU-30A and 30B; dated April 29, 1972

Section 4OA5

STP 3.8.1-06A; A Standby Diesel Generator Operability Test (Fast Start); Revision 0
STP 3.8.1-06B; B Standby Diesel Generator Operability Test (Fast Start); Revision 0
CAL-E02-003; Single Standby Diesel Generator Static Loading for a Loss of Coolant Accident Plus a Loss of Offsite Power; Revision 2
CAP 062404; NCAQ – Performance of NSPEO rounds in the ISFSI
CAP 062407; NCAQ – Temperature monitoring of HSMs with normal methods unavailable
CAP 060705; NCAQ-Unauthorized combustible material and poor housekeeping in the ISFSI areas
CAP 060857; NCAQ-10CFR72.212 evaluation for ISFSI is not clear on inspection requirement
CAP 048518; Loss of ISFSI HSM temperature indications
CAP 060853; CAQ – Several issues identified with ISFSI personnel monitoring and rad surveys
CAP 060859; NCAQ- ISFSI pad walkdown identified some material condition issues
CAP 061486; NCAQ – ISFSI HSM Screens Buckled

CAP 061909; NCAQ – Fire Brigade truck is 50' short of 2 ½" hose
 CAP 050999; CAQ – NRC position on Adoption of revision of dry cask CoC
 CAP 054851; CAQ – NRC position on adoption of CoC Amendments, Part 72 RIS 2007-26 draft
 Screening Number 72-176; Modify Daily Check of HSM Temperature
 Screening Number 72-177; Add Requirements to inspect the site for missile hazards
 Screening Number 72-178; Remove time requirement of 4 to 12 hrs after shift 2 for the 2nd set of
 HSM temperature checks
 Screening Number 72-190; Revision to DFS-801
 Screening Number 72-191; FSAR Change Request 06-025 for minimum cover of 6 feet of water
 above fuel assembly
 Screening Number 72-197; Reconciliation of Amendment 8 to the CoC
 Screening Number 72-202; Software Work Request 8223, PPC DCASKZ Software Application
 Modification
 7248SCRN028364; Software Work Request 8359, New Error Checking for Parsing Data and
 Error Logging Enhancement
 7248SCRN032934; Revision to Procedure OI 999, Reactor Building Crane
 OI 581; Horizontal Storage Module Temperature Monitoring; Revision 1
 Abnormal Operating Procedure AOP 901; Earthquake; Revision 17
 ACP 118.0; Conduct of the Duane Arnold Energy Center On-Site Dry Spent Fuel Storage
 Program; Revision 6
 EBD-E; ISFSI Abnormal Events Category; Revision 1
 EBD-H; Hazards & Other Conditions Affecting Plant Safety; Revision 9
 DFS 304; Loaded Dry Shielded Canister/Transfer Cask from ISFSI to Refueling Floor
 Operations; Revision 7
 DFS 301; Loaded Dry Shielded Canister/Transfer Cask from Refueling Floor to ISFSI
 Operations; Revision 8
 DFS 401; Dry Shielded Canister Lid Removal Operations; Revision 5
 DFS 402; Transfer Cask/Dry Shielded Canister Fuel Unloading Operations; Revision 2
 DFS 203; Dry Shielded Canister Sealing Operations; Revision 12
 NG-06-0354; 2005 Annual Radiological Environmental Operating Report; dated April 28, 2006
 NG-07-0322; 2006 Annual Radiological Environmental Operating Report; dated April 27, 2007
 NG-08-0345; 2007 Annual Radioactive Material Release Report and Annual Radiological
 Environmental Operating Report; dated April 29, 2008
 Survey #05-1290; ISFSI Pad Semi-annual survey; dated June 28, 2005
 Survey #05-2077; ISFSI Routine; dated November 23, 2005
 Survey #06-958; ISFSI Routine; dated June 23, 2006
 Survey #06-1747; ISFSI Pad Semi Annual Neutron + Beta/Gamma Survey; dated
 November 27, 2006
 Survey #07-1457; ISFSI Pad Routine – SA Neutron + Beta/Gamma Survey; dated
 June 19, 2007
 Survey #07-2286; ISFSI Pad Routine Survey – SA Neutron/Beta Gamma; dated
 December 6, 2007
 Survey #08-885; ISFSI Pad Semi-Annual Routine Survey; dated June 28, 2008
 Survey #08-1369; ISFSI Pad Routine Survey Semi Annual Neutron Beta/Gamma; dated
 October 9, 2008

LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
ACP	Administrative Control Procedure
AFP	Area Fire Plan
ALARA	As-Low-As-Is-Reasonably-Achievable
CAP	Corrective Action Program
CAQ	Condition Adverse to Quality
CE	Condition Evaluation
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
CRD	Control Rod Drive
CWO	Corrective Work Order
DAEC	Duane Arnold Energy Center
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EPA	Electrical Protection Assembly
EQ	Environmentally Qualified
ESW	Emergency Service Water
HPCI	High Pressure Coolant Injection
HSM	Horizontal Storage Module
HVAC	Heating, Ventilation, and Air Conditioning
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
LBP	Large Bore Piping
LORT	Licensed Operator Requalification Training
MRSM	Multiple Response Spectrum Method
MSPI	Mitigating Systems Performance Index
NCAQ	Condition Not Adverse to Quality
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
NUREG	NRC Technical Report Designation
OBD	Operable But Degraded
OI	Operating Instruction
OOS	Out-of-service
OPR	Operability Recommendation
PI	Performance Indicator
PUAR	Plant Unique Analysis Report
PWO	Preventative Work Order
RCE	Root Cause Evaluation
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RPS	Reactor Protection Assembly
RWP	Radiation Work Permit
SAT	Systems Approach to Training
SBDG	Standby Diesel Generator
SBLC	Standby Liquid Control

SBP	Small Bore Piping
SDP	Significance Determination Process
SSC	Structures, Systems, or Components
STP	Surveillance Test Procedure
TDAP	Training Department Administrative Procedure
TI	Temporary Instruction
TM	Temporary Modification
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VIO	Violation