April 23, 2004

Mr. Mark Peifer
Site Vice-President
Duane Arnold Energy Center
Nuclear Management Company, LLC
3277 DAEC Road
Palo, IA 52324

SUBJECT: DUANE ARNOLD ENERGY CENTER
NRC INTEGRATED INSPECTION REPORT 05000331/2004002

Dear Mr. Peifer:

On March 31, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Duane Arnold Energy Center. The enclosed integrated inspection report documents the inspection findings which were discussed on April 5, 2004, with Mr. J. Bjorseth 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 and one self-revealed findings of very low safety significance, two of which involved violations of NRC requirements, were identified. However, because these violations were of very low safety significance and because the issues were entered into the licensee's corrective action program, the NRC is treating these findings as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy. Additionally, licensee identified violations are listed in Section 4OA7 of this report.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4351; 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.

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Sincerely,

/RA by Geoffrey Wright Acting for/

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

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

Enclosure: Inspection Report 05000331/2004002
w/Attachment: Supplemental Information

cc w/encl: E. Protsch, Executive Vice President -
Energy Delivery, Alliant;
President, IES Utilities, Inc.
C. Anderson, Senior Vice President, Group Operations
J. Cowan, Executive Vice President and Chief Nuclear Officer
J. Bjorseth, Plant Manager
S. Catron, Manager, Regulatory Affairs
J. Rogoff, Vice President, Counsel, & Secretary
B. Lacy, Nuclear Asset Manager
Chairman, Linn County Board of Supervisors
Chairperson, Iowa Utilities Board
The Honorable Charles W. Larson, Jr.
Iowa State Senator
D. McGhee - Department of Public Health

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-331
License No:	DPR-49
Report No:	05000331/2004002
Licensee:	Alliant, IES Utilities Inc.
Facility:	Duane Arnold Energy Center
Location:	3277 DAEC Road Palo, Iowa 52324-9785
Dates:	January 1, 2004 through March 31, 2004
Inspectors:	G. Wilson, Senior Resident Inspector S. Caudill, Resident Inspector J. House, Senior Radiation Specialist M. Mitchell, Radiation Specialist D. Nelson, Radiation Specialist T. Ploski, Senior Emergency Preparedness Inspector
Approved by:	B. Burgess, Chief Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000331/2004002; 01/01/04-03/31/04; Duane Arnold Energy Center; Heat Sink Performance, Operability Evaluations, and Event Follow-up.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections on radiation protection. The inspection was conducted by Region III inspectors and the resident inspectors. Three Green findings associated with two Non-Cited Violations (NCVs) were identified. 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 3, dated July 2000.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. A finding of very low safety significance was identified through a self-revealing event when the licensee failed to ensure that the 'E' condensate demineralizer was properly reassembled following a septum replacement. The improperly assembled demineralizer resulted in a resin intrusion, which caused an increase in reactor water conductivity, and a subsequent reactor scram. The licensee repaired the 'E' condensate demineralizer.

  The finding was more than minor, since it had an actual impact on safety and resulted in a reactor scram. This finding was determined to be of very low safety significance, since it did not impact any mitigating systems capability. No violation of NRC requirements occurred. (Section 4AO3)

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was identified by the inspectors when the licensee failed to provide appropriate quantitative or qualitative acceptance criteria for determining that important activities were satisfactorily accomplished for the Generic Letter (GL) 89-13 heat exchanger inspections on the emergency diesel generators (EDGs). The licensee has revised their inspection procedures to include adequate acceptance criteria and documentation.

  The finding was more than minor because it potentially affected the licensee's ability to ensure that the safety-related heat exchangers on the EDGs would be available, reliable, and capable of responding to initiating events to prevent undesirable consequences. The finding was of very low safety significance because the as-found and as-left conditions of the heat exchangers did not reveal any actual concerns with the operability of the EDGs. An NCV of 10 CFR 50, Appendix B, Criterion V, was identified for the failure to have

adequate acceptance criteria and documentation for the EDGs heat exchanger inspections. (Section 1R07)

- Green. A finding of very low safety significance was identified by the inspectors when the licensee failed to ensure proper design control was maintained when the residual heat removal service water (RHRSW)/emergency service water (ESW) pit level indicating switches (LIS) 4935A and LIS4935B were downgraded to non safety-related components. When the LISs were downgraded, safety-related and non safety-related circuits were cross connected without appropriate isolation devices. The licensee rededicated the LISs as safety-related components.

  The finding was more than minor because it potentially affected the availability and reliability of the river water system to make-up to the RHRSW/ESW pit in response to specific initiating events that would result in undesirable consequences. The finding was of very low safety significance because there is a safety-related hand switch that could be used to open the make-up valves. An NCV of 10 CFR 50, Appendix B, Criterion III, was identified for the failure to maintain design control when the RHRSW/ESW pit LISs were downgraded. (Section 1R15)

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

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

REPORT DETAILS

Summary of Plant Status

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

- On January 2, 2004, power was returned to 100 percent from 50 percent capacity after completing maintenance, which began on December 31, 2003, to replace the 'B' reactor feed pump's lubricating oil heat exchanger.

1. REACTOR SAFETY

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

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

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

- 'B' Control Rod Drive (CRD) System with the 'A' CRD System Out-Of-Service (OOS) for maintenance during the week ending January 17, 2004;
- 'B' Residual Heat Removal (RHR) System with portions of the 'A' RHR System OOS for maintenance during the week ending January 31, 2004;
- High Pressure Coolant Injection (HPCI) System with Reactor Core Isolation Cooling (RCIC) OOS for maintenance during the week ending February 21, 2004; and
- RCIC with HPCI OOS for maintenance during the week ending March 13, 2004.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

During the week ending January 10, 2004, the inspectors performed a complete system alignment inspection of the Residual Heat Removal Service Water (RHRSW) system for a total of one sample. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspection consisted of the following activities:

- a review of plant procedures including selected Abnormal Operating Procedures (AOPs) and Emergency Operating Procedures (EOPs), drawings, and the Updated Final Safety Analysis Report (UFSAR) to identify proper system alignment;
- a review of outstanding or completed temporary and permanent modifications to the system;
- a review of control room operator log entries from January 10, 2003, through January 5, 2004, to identify potential system issues; and
- electrical and mechanical walkdowns of the system to verify proper alignment, component accessibility, availability, and current condition.

The inspectors also reviewed selected issues documented in Corrective Action Plans (CAPs) to determine if they had been properly addressed in the licensee's corrective action program. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Zone Inspections

a. Inspection Scope

The inspectors walked down nine risk-significant fire areas to assess fire protection requirements. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. 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 OOS, degraded or inoperable fire protection equipment, systems or features. 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, the potential to impact equipment which could initiate or mitigate a plant transient, or the impact on the plant's ability to respond to a security event. The inspection activities included, but were not limited to, the control of transient combustibles and ignition sources, fire detection equipment, manual suppression capabilities, passive suppression capabilities, automatic suppression capabilities, compensatory measures, and barriers to fire propagation.

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

During the week ending February 21, 2004:

- Area Fire Plan (AFP) 1, North Corner Rooms;
- AFP 2, South Corner Rooms;
- AFP 18, North Turbine Building Ground;
- AFP 19, South Turbine Building Ground;
- AFP 21, North Turbine Operating Deck; and
- AFP 22, South Turbine Operating Deck.

During the week ending February 28, 2004:

- AFP 12, Reactor Building Decay Tank;
- AFP 26, Control Building; and
- AFP 27, Control Building Heating, Ventilation and Air-Conditioning.

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Observation

a. Inspection Scope

On January 14, 2004, the inspectors conducted an annual observation of the licensee's fire brigade response activities during a drill which simulated a fire in the Cable Spreading Room. The inspectors evaluated the readiness of personnel to fight fires by verifying that protective clothing/turnout gear was properly donned; self-contained breathing apparatus equipment was properly worn and used; fire hose lines were capable of reaching all necessary fire hazard locations, the lines were laid out without flow constrictions, the hoses were simulated being charged with water, and the nozzles were pattern (flow stream) tested prior to entering the fire area; the fire area was entered in a controlled manner; sufficient fire fighting equipment was brought to the scene by the fire brigade; the fire brigade leader's directions were thorough, clear, and effective; communications with plant operators and between fire brigade members were efficient and effective; the fire brigade checked for fire victims and for fire propagation into other plant areas; effective smoke removal operations were simulated; fire fighting pre-plan strategies were used; and the drill scenario was followed and the drill objectives met. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors performed an annual review of the flood protection barriers and procedures for coping with internal flooding in the HPCI Room for a total of one sample. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspection focused on verifying that flood mitigation plans and equipment were consistent with design requirements and risk analysis assumptions. The inspection activities included, but were not limited to, a review and/or walkdown to assess design measures, seals, drain systems, contingency equipment condition and availability of temporary equipment and barriers, performance and surveillance tests, procedural adequacy, and compensatory measures. The inspection was conducted during the week ending January 24, 2004.

b. Findings

No findings of significance were identified.

1RO7 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors performed an annual review of the licensee's inspection and testing of the 'A' and 'B' emergency diesel generator (EDG) heat exchangers for a total of two samples. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspection focused on potential deficiencies that could mask the ability to detect degraded performance, identification of any common cause issues that had the potential to increase risk, and ensuring that the licensee was adequately addressing problems that could result in initiating events that would increase risk. The inspection activities included, but were not limited to, a review of the licensee's observations as compared against acceptance criteria, the correlation of scheduled testing and the frequency of testing, and the impact of instrument inaccuracies on test results. The inspectors also verified that test acceptance criteria considered differences between test conditions, design conditions, and testing criteria. The inspection was conducted during the week ending February 28, 2004.

b. Findings

Introduction

The inspectors identified a finding of very low safety significance (Green) and an associated Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," relating to the failure to provide appropriate quantitative or qualitative acceptance criteria for Generic Letter (GL) 89-13 heat exchanger inspections in the procedure for inspecting the EDG heat exchangers.

Description

During the week of February 28, 2004, the inspectors reviewed preventive work orders (PWOs) for the periodic inspections of the 'A' and 'B' EDGs' jacket water, lubricating oil, and scavenging air heat exchangers. The inspectors noted that the work instructions lacked explicit inspection acceptance criteria, and the data sheets only contained the word "sat" for the as-found condition. Without detailed as-found information, previous comparison results, or explicit acceptance criteria, the inspectors could not identify what was being used to validate the cleaning and inspection frequencies associated with GL 89-13 heat exchanger inspections. The failure to have appropriate criteria or documentation for heat exchanger cleanliness had the potential to impact plant safety by affecting the ability of the associated mitigating system to perform its intended function. The inspectors questioned licensee management, the system engineer, and the program engineer regarding the work order documentation and acceptance criteria. All acknowledged that the work orders contained neither detailed as-found documentation nor explicit acceptance criteria. As a result of the inspectors' questioning, the licensee has revised the EDG heat exchanger inspection procedures to provide explicit acceptance criteria and a thorough written assessment of the as-found condition of the heat exchangers. The inspectors concluded that the as-found documentation and the acceptance criteria lacked sufficient detail for an adequate assessment of heat exchanger performance. The inspectors determined that, although the procedure did not contain adequate acceptance criteria and documentation of the as-found condition, the as-left conditions did not reveal any actual concerns with the operability of the heat exchangers. Therefore, this finding was determined to be of very low safety significance.

Analysis

The inspectors determined that the failure to have adequate acceptance criteria for the GL 89-13 heat exchanger inspections was a performance deficiency. Since a performance deficiency existed, the inspectors reviewed this issue against the guidance contained in Appendix B, "Issue Screening," of Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports." In particular, the inspectors compared this finding to the findings identified in Appendix E, "Examples of Minor Issues," of IMC 0612 to determine whether the finding was minor. Following that review, the inspectors concluded that the guidance in Appendix E was not applicable for the specific finding. The inspectors determined that the finding was more than minor because the failure to ensure proper heat exchanger performance has the potential to impact safety and effects the equipment performance attribute of the Mitigating Systems cornerstone. In

this case, the finding potentially affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

As a result, the inspectors reviewed this issue in accordance with IMC 0609, Attachment A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," using the Mitigating Systems worksheet. Since the failure to have adequate acceptance criteria for the EDG heat exchanger inspections did not result in a loss of function per GL 91-18, did not represent the actual loss of a safety function, did not exceed the Technical Specification (TS) Allowed Outage Time (AOT), did not represent an actual loss of safety function for a non-TS train, and was not risk-significant due to seismic, fire, flooding or severe weather concerns, it screened as Green.

Enforcement

10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that instructions, procedures or drawings include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, on or before February 28, 2004, the licensee failed to have adequate acceptance criteria and documentation for visual inspections of the EDG heat exchangers, which are Appendix B systems. Specifically, the licensee did not provide proper criteria for determining whether heat exchanger performance would remain satisfactory until the next inspection. The licensee has since revised the relevant procedures to include more thorough acceptance criteria and documentation. Because of the finding's very low safety significance and because it was entered into the corrective action program, the NRC is treating this issue as an NCV (NCV 5000331/2004002-01), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. This issue was entered into the licensee's corrective action program as CAP 30954.

Corrective actions included the development of detailed cleanliness criteria and thorough documentation for the as-found condition of the EDG heat exchanger inspections.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

During the week ending January 17, 2004, the inspectors observed a training crew performance on Simulator Exercise Guide (SEG) 2004C1-01 for a total of one sample. The scenario included a loss of uninterruptible power supply and an Anticipated Transient Without Scram (ATWS). The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspection assessed the licensee's effectiveness in evaluating the requalification program, ensuring that licensed individuals operate the facility safely and within the conditions of their license, and evaluated licensed operator mastery of high-risk operator actions. The inspection activities included, but were not limited to, a review of high risk activities, emergency plan performance, incorporation of lessons learned, clarity and formality of communications, task prioritization, timeliness of actions, alarm response actions,

control board operations, procedural adequacy and implementation, supervisory oversight, group dynamics, interpretations of technical specifications, simulator fidelity, and licensee critique of performance.

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

- Administrative Control Procedure (ACP) 110.1, "Conduct of Operations," Revision 1;
- ACP 101.01, "Procedure Use and Adherence," Revision 24; and
- ACP 101.2, "Verification Process and SELF/PEER Checking Practices," Revision 5.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

The inspectors performed the following maintenance effectiveness reviews for a total of three samples:

- a function-oriented review of the Control Rod Drive (CRD) system because it was designated as risk-significant under the Maintenance Rule, during the week ending January 31, 2004;
- a function-oriented review of the Standby Liquid Control (SBLC) system because it was designated as risk-significant under the Maintenance Rule, during the week ending February 7, 2004; and
- a function-oriented review of the Instrument Air system because it was designated as risk-significant under the Maintenance Rule, during the week ending March 20, 2004.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk, scheduling, and configuration control. The inspectors also evaluated the performance of maintenance associated with planned and emergent work activities to determine if they were adequately managed. In particular, the inspectors reviewed the program for conducting maintenance risk safety assessments and to ensure that the planning, assessment and management of on-line risk was adequate. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspectors also reviewed that actions to address increased on-line risk during these periods, such as establishing compensatory actions, minimizing the duration of the activity, obtaining appropriate management approval, and informing appropriate plant staff, were accomplished when on-line risk was increased due to maintenance on risk-significant structures, systems, and components (SSCs).

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

- The inspectors reviewed the maintenance risk assessment for work planned during the weeks of January 17, January 31, February 14, February 21, March 13, March 20, and March 27, 2004.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions and Events (71111.14)

.1 Control Rod Sequence Exchange

a. Inspection Scope

During the week of February 28, 2004, the inspectors observed portions of the licensee's planned power reduction and various surveillance test procedures. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspectors observed operator performance in the control room during portions of both the power reduction and subsequent power escalation. In addition, the inspectors observed the performance of area inspections associated with the steam lines and the surveillance testing associated with the main steam isolation valves and main turbine control system.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed five of the licensee's operability evaluations of degraded or non-conforming systems. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspectors reviewed operability evaluations affecting mitigating systems or barrier integrity to ensure that operability was properly justified and that the component or system remained available. The inspection activities included, but were not limited to, a review of the technical adequacy of the evaluation against the TS's, UFSAR, and other design information; determined whether compensatory measures, if needed, were taken; and determined whether the evaluations were consistent with the requirements of ACP-114.5, "Action Request System."

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

- Operability Evaluation (OPR) 000252, "Reactor Core Isolation Cooling," during the week ending January 31, 2004;
- OPR 000251, "Control Rods," during the week ending January 31, 2004;
- OPR 000254, "River Water Supply (RWS) System," during the week ending February 14, 2004;
- OPR 000253, "Intermediate Range Monitor (IRM)," during the week ending February 21, 2004; and
- OPR 000255, "RHRSW 1P022A-M Upper Thrust Motor Bearing was Observed to be 2/3 Below Indicated Stand," during the week ending February 28, 2004.

b. Findings

Introduction

The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the failure to ensure proper design control was maintained when the RHRSW/Emergency Service Water (ESW) pit Level-Indicating Switches (LISs) were downgraded to non safety-related components, thereby cross connecting a safety-related and a non safety-related circuit without the required isolation point.

Description

During the week ending February 14, 2004, the inspectors identified that the licensee failed to ensure proper design control was maintained, when RHRSW/ESW pit LIS4935A and LIS4935B were downgraded from safety-related to non safety-related components. The LISs cause solenoid valves (SV) 4934 and SV4935 in the RWS to de-energize when the level in the RHRSW/ESW pits drops to approximately 20 feet.

When the SVs de-energize, the RWS make-up control valve (CV) 4914 and CV4915 go to the fail-safe open position, thereby providing a make-up water flow path from the RWS to the RHRSW/ESW pits. The RWS make-up CVs are safety-related components.

Electrical design requirements in the Institute of Electrical and Electronic Engineers (IEEE) 308 standards require isolation points between safety-related and non safety-related circuits. IEEE 308 states that an electrical isolation point will be provided to maintain the independence of Class 1E circuits and equipment so that the safety functions required during and following any design basis event can be accomplished. This is especially important during a failure in the non safety-related circuit so that the integrity of the safety-related circuit is maintained.

The safety-related circuit of the RWS make-up CVs was cross-connected to the non safety-related circuit of the LISs, when the LISs were downgraded without the required isolation point as described in the IEEE 308. The failure to provide an isolation point in accordance with IEEE 308 standards, when the LISs were downgraded was an example of inadequate design control. The inspectors determined that although design control was not maintained when LISs were downgraded, there was a safety-related hand switch that will cause the RWS make-up CVs to open. Therefore, this finding was determined to be of very low safety significance.

Analysis

The inspectors determined that the failure to ensure proper design control was maintained, when the LISs were downgraded, is a performance deficiency. Since a performance deficiency existed, the inspectors reviewed this issue against the guidance contained in Appendix B, “Issue Screening,” of IMC 0612, “Power Reactor Inspection Reports.” The inspectors compared this finding to the example findings in Appendix E, “Examples of Minor Issues,” of IMC 0612 to determine whether the finding was more than minor. Following that review, the inspectors concluded that the guidance in Appendix E was not applicable for the specific finding. The inspectors determined that the finding was more than minor because the failure to ensure proper design control in RWS make-up CVs has the potential to impact safety and affects the equipment performance attribute of the Mitigating Systems cornerstone. The finding potentially affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

As a result, the inspectors reviewed this issue in accordance with IMC 0609, Attachment A, “Significance Determination of Reactor Findings for At-Power Situation,” using the worksheet for the Mitigating Systems cornerstone. Since the finding did not result in a loss of function per GL 91-18, the finding screened as Green.

Enforcement

10 CFR 50, Appendix B, Criterion III, “Design Control,” requires, in part, that design changes, including field changes, are subject to the design control measures commensurate with the original design. When the LISs were downgraded in 1992 to non safety-related components, the non safety-related circuits of the LISs and the

safety-related circuits of the RWS make-up CVs were cross-connected. Design specifications standards in IEEE 308 require an isolation point between safety-related and non safety-related circuits to ensure that the safety-related circuit is independent and can perform its safety function. The failure to provide the required isolation point potentially impacted the reliability and capability of the RWS, which is an Appendix B system, to provide make-up water to the RHRSW/ESW pits. The failure to provide the required isolation point is an example where the requirements of 10 CFR 50, Appendix B, Criterion III, were not met and was a violation; however, because of its very low safety significance and because it was entered into the corrective action program, the NRC is treating this issue as an NCV 5000331/2004002-02, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. This issue was entered into the licensee's corrective action program as CAP030637.

Corrective actions taken included the rededication of the LISs as safety-related components.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed two operator workarounds (OWAs). The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspectors verified that the selected OWA did not impact the functionality of a mitigating system. The inspection activities included, but were not limited to, a review of the selected OWAs to determine if the functional capability of the system or human reliability in responding to an initiating event was affected, including a review of the impact of the OWAs on the operator's ability to execute EOPs.

The inspectors reviewed the following OWAs for a total of two samples:

- CAP030184, "Pressure Safety Valve 4401 Temperature Trends from Temperature Elements 4401 and 4401A," during the week ending March 6, 2004; and
- OWA 04-004, "Control Building Chiller Reliability," during the week ending March 27, 2004.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed one permanent plant modification. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspectors focused on verification that the design basis, licensing basis, and performance capability of related SSCs were not degraded by the installation of the modification. The inspectors also verified that the modifications did not place the plant

in an unsafe configuration. The inspection activities included, but were not limited to, a review of the design adequacy of the modification by performing a review, or partial review, of the modification's impact on plant electrical requirements, material requirements and replacement components, response time, control signals, equipment protection, operation, failure modes, and other related process requirements.

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

- Work Order 1126796, to Modify Control Circuit for TS7538C Such That SV7539A Will Open Automatically at 105F and Circuit Operation Will Match Original Design, during the week of January 31, 2004.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

The inspectors selected the following post-maintenance testing activities for review for a total of nine samples:

- Corrective Work Order (CWO) A63690 on the 'A' Control Building Chiller during the week ending January 30, 2004;
- CWO A65764 on the RCIC system during the week ending February 21, 2004;
- CWO 11291159 on the 'A' General Service Water (GSW) Pump during the week ending February 28, 2004;
- PWO 1125621 on the 'A' SBLC Pump, during the week ending March 6, 2004;
- CWO A60005 on the HPCI Pump Mechanical Seals during the week ending March 13, 2004;
- CWO A63477 on the HPCI Seal Water system during the week ending March 13, 2004;
- CWO A67214 on the Diesel Fire Pump during the week ending March 20, 2004;

- PWO 1126361 on the 'B' Core Spray Pump during the week ending March 27, 2004; and
- CWO 1126683 on the HPCI Room Cooling Unit during the week ending March 27, 2004.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

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

- Surveillance Test Procedure (STP) 3.3.5.1-04, Functional Test of Reactor Vessel Shroud Level - Low Instrumentation, during the week ending January 24, 2004;
- STP 3.8.4-06, Battery Charger Capacity Test, during the week ending February 7, 2004;
- STP 3.7.4-02, Main Control Room Ventilation Standby Filter Unit Test, during the week ending February 7, 2004;
- STP 3.7.2-01, RWS Simulated Automatic Actuation Test, during the week ending February 7, 2004;
- STP 3.8.1-04, 'A' Standby Diesel Generators Operability Test, during the week ending February 14, 2004;
- STP 3.5.1-04, Low Pressure Coolant Injection (LPCI) Simulated Automatic Actuation Test, during the week ending February 14, 2004;
- STP 3.3.6.1-14, Reactor Water Cleanup Isolation Logic, during the week ending March 6, 2004;
- STP 3.8.1-06, 'B' Standby Diesel Generators Operability Test (Fast Start), during the week ending March 20, 2004; and
- STP NS540002, ESW Operability Test, during the week ending March 20, 2004.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

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

The inspectors selected the following temporary modifications for review for a total of two samples:

- Temporary Modification 04-014, "Valve V38-0052 Will Be Open for Maintenance and this Valve is Connected to a Vent Which Vents Through Secondary Containment," during the week ending February 28, 2004; and
- Temporary Modification 04-21, "Pressurize the Core Spray System with Demin Water per OI 151, Section 9.2," during the week ending March 27, 2004.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

In February 2004, the licensee submitted revisions to portions of the Emergency Plan. The inspectors reviewed the following revisions to determine if changes identified in these revisions reduced the Plan's effectiveness, pending on-site inspection of the implementation of these changes:

- Revision 26 to Section B; and
- Revision 21 to Sections C, I, N, and Appendix 2.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On January 14, 2004, the inspectors observed an Emergency Preparedness (EP) drill for a total of one sample. The drill simulated a failure of the breaker for the 'B' ESW pump, resulting in a fire in the 1A4 Essential Switchgear Room. The drill also simulated a reactor recirculation system leak and an ATWS. The inspectors evaluated the licensee's drill conduct and the adequacy of the post-drill performance critique to identify weaknesses and deficiencies. The inspectors used the documents listed in the Attachment to accomplish the objectives of the inspection procedure. The inspectors selected exercises that the licensee had scheduled as providing input to the Drill/Exercise PI. The inspection activities included, but were not limited to, the classification of events, notifications to off-site agencies, protective action recommendation development, and drill critiques. Observations were compared with the licensee's observations and corrective action program entries. The inspectors verified that there were no discrepancies between observed performance and reported PI statistics.

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 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's occupational exposure control cornerstone PI to determine whether or not the conditions surrounding the PI had been evaluated, and identified problems had been entered into the corrective action program for resolution. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit (RWP) Reviews

a. Inspection Scope

The inspectors reviewed licensee controls and surveys in the following three radiologically significant work areas within radiation areas, high radiation areas and airborne radioactivity areas in the plant, and reviewed work packages which included associated licensee controls and surveys of these areas to determine if radiological controls including surveys, postings and barricades were acceptable:

- Build and Move Scaffold for MO2723 Inspect and Lube;
- Control Valve (CV) 3754 Operator Work; and
- Vent HPCI Suction.

The inspectors reviewed the RWPs and work packages used to access these three areas and other high radiation work areas to identify the work control instructions and control barriers that had been specified. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. Workers were interviewed to verify that they were aware of the actions required when their electronic dosimeters noticeably malfunctioned or alarmed.

The inspectors walked down and surveyed (using an NRC survey meter) one of these three areas to verify that the prescribed RWP, procedure, and engineering controls were in place, that licensee surveys and postings were complete and accurate, and that air samplers were properly located. This review represented three samples.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, Licensee Event Reports (LERs), and Special Reports related to the access control program to verify that identified problems were entered into the corrective action program for resolution.

The inspectors reviewed 15 CAPs related to access controls and high radiation area radiological incidents (non-PIs identified by the licensee in high radiation areas <1R/hr). Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

1. Initial problem identification, characterization, and tracking;
2. Disposition of operability/reportability issues;
3. Evaluation of safety significance/risk and priority for resolution;
4. Identification of repetitive problems;
5. Identification of contributing causes;

6. Identification and implementation of effective corrective actions;
7. Resolution of NCVs tracked in the corrective action system; and
8. Implementation/consideration of risk significant operational experience feedback.

The inspectors evaluated the licensee's process for problem identification, characterization, prioritization, and verified that problems were entered into the corrective action program and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies.

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures >100 millirem total effective dose equivalent (or >5 rem shallow dose equivalent or >1.5 rem lens dose equivalent), were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure. This review represented four samples.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews

a. Inspection Scope

The inspectors observed the following two jobs that were being performed in radiation areas, airborne radioactivity areas, or high radiation areas for observation of work activities that presented the greatest radiological risk to workers:

- CV 3754 Operator Work; and
- Vent HPCI Suction.

The inspectors reviewed radiological job requirements for these two activities including RWP requirements and work procedure requirements.

Job performance was observed with respect to these requirements to verify that radiological conditions in the work area were adequately communicated to workers through pre-job briefings and postings. The inspectors also verified the adequacy of radiological controls including required radiation, contamination, and airborne surveys for system breaches; radiation protection job coverage which included audio and visual surveillance for remote job coverage; and contamination controls.

Radiological work in high radiation work areas having significant dose rate gradients was reviewed to evaluate the application of dosimetry to effectively monitor exposure to personnel and to verify that licensee controls were adequate. These work areas involved areas where the dose rate gradients were severe (diving activities and the

Reactor Water Clean-Up (RWCU) Heat Exchanger Room) which increased the necessity of providing multiple dosimeters and/or enhanced job controls. This review represented three samples.

b. Findings

No findings of significance were identified.

.5 High Risk Significant, High Dose Rate High Radiation Area (HRA) and Very High Radiation Area (VHRA) Controls

a. Inspection Scope

The inspectors held discussions with the Radiation Protection Manager concerning high dose rate/high radiation area and very high radiation area controls and procedures, including procedural changes that had occurred since the last inspection, in order to verify that any procedure modifications did not substantially reduce the effectiveness and level of worker protection.

The inspectors conducted plant walkdowns to verify the posting and locking of entrances to high dose rate HRAs and VHRAs. This review represented two samples.

b. Findings

No findings of significance were identified

.6 Radiation Worker Performance

a. Inspection Scope

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

The inspectors reviewed radiological problem reports which found that the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. These problems, along with planned and taken corrective actions were discussed with the Radiation Protection Manager. This review represented two samples.

b. Findings

No findings of significance were identified.

.7 Radiation Protection Technician (RPT) Proficiency

a. Inspection Scope

During job performance observations, the inspectors evaluated RPT performance with respect to radiation protection work requirements and evaluated whether they were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed eleven radiological CAPs associated with RPT errors, to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. This review represented two samples.

b. Findings

No findings of significance were identified.

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective exposure history, current exposure trends, ongoing and planned activities in order to assess current performance and exposure challenges. This included determining the plant's current 3-year rolling average for collective exposure in order to help establish resource allocations and to provide a perspective of significance for any resulting inspection finding assessment. The inspectors determined site specific trends in collective exposures and source-term measurements. The inspectors reviewed procedures associated with maintaining occupational exposures ALARA and processes used to estimate and track work activity specific exposures. This review represented three samples.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors evaluated the licensee's list of work activities ranked by estimated exposure that were in progress and reviewed the following five work activities of highest exposure significance:

- V23-0009 Replace Stem and Disc;
- Build and Move Scaffold for MO2723 Inspect and Lube;
- CV 3754 Operator Work;
- Replace 1P211B Core Spray Pump Seal; and

- Vent HPCI Suction.

For these five activities, the inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements 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. This also involved determining that the licensee had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors compared the results achieved including dose rate reductions and person-rem used with the intended dose established in the licensee's ALARA planning for these five work activities. Reasons for inconsistencies between intended and actual work activity doses were reviewed. This review represented three samples.

b. Findings

No findings of significance were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the assumptions and bases for the current annual collective exposure estimate including procedures, in order to evaluate the licensee's methodology for estimating work activity-specific exposures and the intended dose outcome. Dose rate and man-hour estimates were evaluated for reasonable accuracy.

The licensee's process for adjusting exposure estimates or re-planning work, when unexpected changes in scope, emergent work or higher than anticipated radiation levels were encountered, was evaluated. This included determining that adjustments to estimated exposure (intended dose) were based on sound radiation protection and ALARA principles and not adjusted to account for failures to control the work. The frequency of these adjustments was reviewed to evaluate the adequacy of the original ALARA planning process.

The licensee's exposure tracking system was evaluated to determine whether the level of exposure tracking detail, exposure report timeliness, and exposure report distribution was sufficient to support control of collective exposures. RWPs were reviewed to determine if they covered too many work activities to allow work activity specific exposure trends to be detected and controlled. During the conduct of exposure significant work, the inspectors evaluated if licensee management was aware of the exposure status of the work and would intervene if exposure trends increased beyond exposure estimates. This review represented two samples.

b. Findings

No findings of significance were identified.

.4 Job Site Inspections and ALARA Control

a. Inspection Scope

The inspectors observed the following five jobs that were being performed in radiation areas, airborne radioactivity areas, or HRAs for observation of work activities that presented the greatest radiological risk to workers:

- V23-0009 Replace Stem and Disc;
- Build and Move Scaffold for MO2723 Inspect and Lube;
- CV 3754 Operator Work;
- Replace 1P211B Core Spray Pump Seal; and
- Vent HPCI Suction.

The licensee's use of ALARA controls for these work activities was evaluated using the following:

The licensee's use of engineering controls to achieve dose reductions was evaluated to verify that procedures and controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided for and that the dose expended to install/remove the shielding did not exceed the dose reduction benefits afforded by the shielding. This review represented one sample.

b. Findings

No findings of significance were identified.

.5 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to determine the historical trends and current status of tracked plant source terms and determined that 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 review represented one sample.

b. Findings

No findings of significance were identified.

.6 Radiation Worker Performance

a. Inspection Scope

Radiation worker and RPT performance was observed during work activities being performed in radiation areas, airborne radioactivity areas, and HRAs that presented the greatest radiological risk to workers. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice by being familiar with the work activity scope and tools to be used, by utilizing ALARA low dose waiting areas and that work activity controls were being complied with. 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 review represented one sample.

b. Findings

No findings of significance were identified.

.7 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments and audits related to the ALARA program since the last inspection to determine if the overall audit program's scope and frequency for all applicable areas under the Occupational Exposure Cornerstone met the requirements of 10 CFR 20.1101(c).

The licensee's corrective action program was also reviewed to determine if repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution had been addressed. This review represented two samples.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems (71122.01)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current Radiological Effluent Release Report to verify that the program was implemented as described in the Radiological Environmental Technical Specifications/Offsite Dose Assessment Manual (RETS/ODAM) and the UFSAR. The effluent report was also evaluated to determine if there were any significant changes to the ODAM or to the radioactive waste system design and

operation. The inspectors verified that any changes to the ODAM were technically justified, documented, and made in accordance with Regulatory Guide 1.109 and NUREG-0133. Modifications (if any) made to the radioactive waste system design and operation were evaluated to determine if these alterations changed the dose consequence to the public. The inspectors also verified that technical and/or 10 CFR 50.59 reviews were performed when required, and determined whether radioactive liquid and gaseous effluent radiation monitor set point calculation methodology had changed since completion of the modifications. The inspectors evaluated the effluent report for any anomalous results and verified that any such results were adequately resolved.

The RETS/ODAM and UFSAR were reviewed to identify the effluent radiation monitoring systems and associated flow measurement devices. There were no radiological effluent performance indicator occurrences for onsite follow-up. The UFSAR description of all radioactive waste systems was reviewed. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down the major components of the gaseous and liquid release systems, including radiation and flow monitors, demineralizers, filters, tanks, and vessels. This was done to observe current system configuration with respect to the description in the UFSAR, ongoing activities, and equipment material condition.

The inspectors observed the routine processing (including sample collection and analysis) of radioactive liquid waste to verify that appropriate treatment equipment was used and that radioactive liquid waste was processed in accordance with procedural requirements. As the licensee maintains a zero release program for liquid radioactive waste, there were no liquid effluent releases to observe or liquid effluent release packages to review, and thus no projected dose to the public from liquid releases. The inspectors observed the routine processing, sampling and release of radioactive gaseous effluent to verify that appropriate treatment equipment was used and that the radioactive gaseous effluent was processed and released in accordance with RETS/ODAM requirements. Radioactive gaseous effluent release data, including the projected doses to members of the public, was evaluated.

The inspectors reviewed any records of abnormal releases or releases made with inoperable effluent radiation monitors and reviewed the licensee's actions for these types of releases to ensure an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment.

The inspectors reviewed the licensee's technical justification for any changes made by the licensee to the ODAM as well as to the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection to determine whether the

changes affected the licensee's ability to maintain effluents ALARA and whether changes made to monitoring instrumentation resulted in a non-representative monitoring of effluents. The inspectors also reviewed the licensee's offsite dose calculations and evaluated any significant changes in dose values reported in the Radiological Effluent Release Report from values in the previous report.

The inspectors reviewed a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee properly calculated the offsite dose from radiological effluent releases and to determine if any annual RETS/ODAM (i.e., Appendix I to 10 CFR Part 50 values) were exceeded.

The inspectors reviewed air cleaning system surveillance test results to ensure that the system was operating within the licensee's acceptance criteria. The inspectors reviewed surveillance test results (or methodology) the licensee uses to determine the stack and vent flow rates. The inspectors verified that the flow rates were consistent with RETS/ODAM or UFSAR values.

The inspectors reviewed records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device and reviewed any completed system modifications and the current effluent radiation monitor alarm set point value for agreement with RETS/ODAM requirements. The inspectors also reviewed calibration records of radiation measurement instrumentation associated with effluent monitoring and release activities, along with the quality control records for the radiation measurement instruments.

The inspectors reviewed the results of the inter-laboratory comparison program to verify the quality of radioactive effluent sample analyses performed by the licensee. The inspectors reviewed the licensee's quality control evaluation of the inter-laboratory comparison test and associated corrective actions for any deficiencies identified. In addition, the inspectors reviewed the results from the licensee's quality assurance audits to determine whether the licensee met the requirements of the RETS/ODAM. This review represented eight samples.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self assessments, audits, LERs, and Special Reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also verified that the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies that were identified in problem identification and resolution.

The inspectors also reviewed corrective action reports from the radioactive effluent treatment and monitoring program since the previous inspection, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

1. Initial problem identification, characterization, and tracking;
2. Disposition of operability/reportability issues;
3. Evaluation of safety significance/risk and priority for resolution;
4. Identification of repetitive problems;
5. Identification of contributing causes;
6. Identification and implementation of effective corrective actions;
7. Resolution of NCVs tracked in the corrective action system; and
8. Implementation/consideration of risk significant operational experience feedback.

This represented one sample.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71122.02)

.1 Radioactive Waste System

a. Inspection Scope

The inspectors reviewed the liquid and solid radioactive waste system description in the UFSAR for information on the types and amounts of radioactive waste generated and disposed. The inspectors reviewed the scope of the licensee's audit program with regard to radioactive material processing and transportation programs to verify that it met the requirements of 10 CFR 20.1101(c). This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Radioactive Waste System Walkdowns

a. Inspection Scope

The inspectors performed walkdowns of the liquid and solid radioactive waste processing systems to verify that the systems agreed with the descriptions in the UFSAR and the Process Control Program, and to assess the material condition and operability of the systems. The inspectors reviewed the status of radioactive waste process equipment that was not operational and/or was abandoned in place. The inspectors reviewed the licensee's administrative and physical controls to ensure that the equipment would not contribute to an unmonitored release path or be a source of unnecessary personnel exposure.

The inspectors reviewed changes to the waste processing system to verify the changes were reviewed and documented in accordance with 10 CFR 50.59 and to assess the impact of the changes on radiation dose to members of the public. The inspectors reviewed the current processes for transferring waste resin into shipping containers to determine if appropriate waste stream mixing and/or sampling procedures were utilized. The inspector also reviewed the methodologies for waste concentration averaging to determine if representative samples of the waste product were provided for the purposes of waste classification in 10 CFR 61.55. This review represented one sample.

b. Findings

No findings of significance were identified.

.3 Waste Characterization and Classification

a. Inspection Scope

The inspectors reviewed the licensee's radiochemical sample analysis results for each of the licensee's waste streams, including Dry Active Waste (DAW), spent resins and filters. The inspectors also reviewed the licensee's use of scaling factors to quantify difficult-to-measure radionuclides (e.g., pure alpha- or beta-emitting radionuclides). The reviews were conducted to verify that the licensee's program assured compliance with 10 CFR 61.55 and 10 CFR 61.56, as required by Appendix G of 10 CFR Part 20. The inspectors also reviewed the licensee's waste characterization and classification program to ensure that the waste stream composition data accounted for changing operational parameters and thus remained valid between the annual sample analysis updates. This review represented one sample.

b. Findings

No findings of significance were identified.

.4 Shipment Preparation

a. Inspection Scope

The inspectors reviewed the training records provided to personnel responsible for the conduct of radioactive waste processing and radioactive shipment preparation activities. The review was conducted to verify that the licensee's training program provided training consistent with NRC and Department of Transportation (DOT) requirements. This review represented one sample.

b. Findings

No findings of significance were identified.

.5 Shipping Records

a. Inspection Scope

The inspectors reviewed five non-excepted package shipment manifests/documents completed in 2002/2003 to verify compliance with NRC and DOT requirements (i.e., 10 CFR Parts 20 and 71, and 49 CFR Parts 172 and 173). This review represented one sample.

b. Findings

No findings of significance were identified.

.6 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed CAPs and Nuclear Oversight Department observations that addressed radioactive waste and radioactive materials shipping program deficiencies since the last inspection, to verify that the licensee had effectively implemented the corrective action program and that problems were identified, characterized, prioritized and corrected. The inspectors also verified that the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action reports from the radioactive material and shipping programs since the previous inspection, interviewed staff and reviewed documents to determine if the corrective measures were being conducted in an effective and timely manner commensurate with their importance to safety and risk. This review represented one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstones: Initiating Events and Mitigating Systems

.1 Reactor Safety Strategic Area

a. Inspection Scope

The inspectors reviewed recent licensee PI submittals. The inspectors used PI guidance and definitions contained in Nuclear Energy Institute Document 99-02, Revision 2, "Regulatory Assessment Performance Indicator Guideline," to verify the

accuracy of the PI data. As part of the inspection, the documents listed in the Appendix were used to evaluate the accuracy of PI data. The inspectors' review included, but was not limited to, conditions and data from logs, LERs, CAPs, and calculations for each PI specified.

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

- Unplanned Scrams per 7000 Critical Hours, for the period of January 2003, through December 2003, during the week of March 6, 2004;
- Unplanned Scrams with Loss of Normal Heat Removal, for the period of January 2003, through December 2003, during the week of March 6, 2004;
- Unplanned Power Changes per 7000 Critical Hours, for the period of January 2003, through December 2003, during the week of March 6, 2004;
- Safety System Unavailability for High Pressure Injection System, for the period of January 2003, through December 2003, during the week of February 28, 2004; and
- Safety System Unavailability for Heat Removal Systems, for the period of January 2003, through December 2003, during the week of February 28, 2004.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.2 Risk Assessment and Management

Introduction

The inspectors have identified several issues in the area of risk assessment and risk management over the past 18 months. Two of the issues have resulted in NCVs of 10 CFR 50.65(a)(4) for failures to perform adequate risk assessments. The NCVs were described in inspection reports 5000331/2002006 and 5000331/2003008. These issues have resulted in various corrective actions being taken.

The inspectors selected the following CAPs for review:

Action Request (AR) 32344, Actual Plant Overall Risk was Yellow, August 29, 2002;
CAP 27704, Unavailability of Inverter not included in Risk Review, June 3, 2003;
CAP 29259, Missed Risk Analysis for 'C' Torus to Drywell Vacuum Breaker, October 3, 2003;
CAP 29394, Risk Assessment, October 14, 2003; and
CAP 29421, ORAM/SENTINEL review not performed, October 16, 2003.

a. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed multiple related CAPs to determine if they addressed generic implications and that corrective actions were appropriately focused to correct the problem.

(2) Issues

Corrective actions related to each CAP appeared to be adequate to ensure that specific issue was appropriately addressed. Corrective actions taken for the August 29, 2002, issue included changing the on-line risk assessment process to require the Shift Technical Advisor to perform real-time risk assessments as system equipment availability changes. Additionally, these risk assessments are now documented on a new worksheet which provides appropriate risk assessment guidelines. Corrective actions taken for the June 3, 2003, issue included changes in the plant's risk model, which resulted in improvements to the overall plant risk evaluation. The inspectors noted that changes made by the licensee focused on improving the risk assessment process.

On October 3, 2003, the inspectors observed that the Control Room staff had considered the overall plant risk condition as "Green," although problems with the 'C' torus-drywell vacuum breaker resulted in it being considered unavailable. The Control Room staff performed an on-line risk assessment using ORAM/SENTINEL, after being prompted by the inspectors. ORAM/SENTINEL calculated the overall risk condition as "Red" with a core damage frequency of 9.412×10^{-6}. The "Red" risk profile was due to the Safety Function Assessment Tree parameter which considered the unavailable vacuum breaker as a degradation to containment integrity. An overall "Red" risk condition requires appropriate risk management activities to be performed to ensure

that redundant systems remain available. Since the evaluation was not performed, the associated risk management activities were also not performed.

An overall assessment of the plant's risk conditions was performed by the licensee's risk assessment engineers and the assessment determined that the risk condition was actually "Green" since the vacuum breaker was failed in the closed position, maintaining containment integrity. However, the model in ORAM/SENTINEL had considered the vacuum breaker as failed open. Corrective actions included placing risk assessment activities in the work order and equipment tagging process. The licensee also conducted additional training for Operations Department staff on the ORAM/SENTINEL and risk model program.

The cumulative effect of the corrective actions associated with evaluations and management of risk have decreased the number of NRC-identified problems with the licensee's on-line risk assessment and management.

.3 Measurement and Test Equipment (M&TE) Management

Introduction

The inspectors identified that timely corrective actions associated with the evaluation of failed M&TE utilized to calibrate the IRMs in March 2003 were not performed. The M&TE had failed its periodic calibration in October 2003, but no corrective actions were taken by the licensee until February 2004, even though the plant had gone through four forced outages during November 2003 where the IRMs were considered operable and utilized for plant startup. Guidance for the M&TE program is listed in ACP 1408.8, "Control of Measuring and Test Equipment." The procedure states, in part, "that out-of-tolerance conditions and use history evaluations will be performed in a timely manner." In this particular case the evaluations were not timely, since the evaluations were not performed prior to relying on the IRMs in Mode Two (Startup) operations and also not within the standard 30 days. The licensee's review of the failed test equipment utilized in the calibration of the IRMs was determined not to have produced significant offsets in the display meters since only a one percent error in the calibrated power supply was identified, therefore instrument overlaps were provided. In addition, the trip circuit was not affected in the calibration. Proper instrument overlaps and trip settings provided by the IRMs ensure plant safety. The process of ensuring that M&TE is fully functional and capable of performing its intended function is critical to the safe operation of the plant. Part of that process is confirming that the associated calibration equipment for M&TE remains capable of being used as a valid standard. When a problem is found with the calibration equipment, an associated evaluation must be performed in a timely manner to ensure the plant is operated safely. Based on this issue, the inspectors reviewed additional out-of-tolerance evaluations to ensure appropriate resolution timeliness.

The inspectors selected the following CAPs for review:

CAP 27165, As found out of tolerance for P641, April 24, 2003;
CAP 27168, As found out of tolerance for Q560, April 24, 2003;
CAP 29594, M&TE V121 was found out of tolerance, October 30, 2003;

CAP 29062, M&TE Q589 was found out of tolerance, September 17, 2003; and CAP 29061, M&TE A019 was found out of tolerance, September 17, 2003.

a. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed multiple related CAPs to determine if the condition reports addressed generic implications and that corrective actions were appropriately focused to correct the problem and performed in a timely manner.

(2) Issues

Corrective actions related to each CAP appeared to be adequate to ensure that issue was appropriately addressed. When the piece of test equipment failed, a corrective action document was written. The document resulted in a condition evaluation being performed to evaluate the use history of the equipment. Work orders were written to have data or measurements re-performed to ensure compliance, when necessary.

The inspectors did identify documentation deficiencies associated with the metrology laboratory quality records. Records did not contain all of the required information on the data sheets. The ability to verify the actual trail of the corrective action documents that performed the evaluation for the failure of the individual test equipment was not always available on the associated data sheet. The missing information was able to be obtained through additional sources such as the corrective action program. Licensee management is performing an overall assessment of the program based on issues raised by the inspectors.

4OA3 Event Follow-up (71153)

.1 (Closed) LER 050000331/2003-005-0: "Unplanned Manual Reactor Scram due to High Reactor Coolant Conductivity."

a. Inspection Scope

The inspectors evaluated LER 050000331/2003-005-0: "Unplanned Manual Reactor Scram due to High Reactor Coolant Conductivity."

b. Findings

Introduction

A finding of very low safety significance (Green) was identified due to the failure of the licensee to ensure that the 'E' condensate demineralizer was properly reassembled following maintenance. This was identified through a self-revealing event.

Description

On November 7, 2003, a manual reactor scram was inserted due to increasing reactor water conductivity. The licensee conducted extensive evaluations to determine why reactor water conductivity increased and concluded that the cause was attributed to a resin intrusion. Troubleshooting activities were then performed to determine how the resin intrusion occurred. During the troubleshooting, the licensee determined that deficiencies with the 'E' condensate demineralizer had allowed resin leakage into the reactor vessel. Several deficiencies were identified with the 'E' demineralizer. It had one septum that was disengaged from the quick-disconnect fitting, two septa that were loose with leak paths from the bottom seals, and 72 septa of incorrect length. The deficiencies occurred during the septum replacement and subsequent reassembly of the 'E' condensate demineralizer, which was performed on November 6, 2003.

The licensee also performed root cause evaluation (RCE) 001016 for the resin intrusion. Three overall root causes were identified as part of that RCE. They were that the critical characteristics to ensure that the septa function were maintained were not identified, post maintenance testing did not identify the failure mode, and maintenance personnel did not demonstrate a questioning attitude during the assembly of the condensate demineralizer. All three causes demonstrate the failure to ensure that the 'E' condensate demineralizer was properly reassembled following the septa replacement. The failure to ensure that the demineralizer was properly reassembled is a performance deficiency that caused resin leakage which resulted in a reactor scram. This finding was determined to be of very low safety significance, since it did not impact any mitigating systems capability.

Analysis

The inspectors determined that a performance deficiency existed, because the 'E' condensate demineralizer was not properly reassembled following maintenance, thereby allowing a resin intrusion to occur. Since there was a performance deficiency, the inspectors reviewed this finding against the guidance contained in Appendix B, "Issue Screening," of IMC 0612, "Power Reactor Inspection Reports." The inspectors concluded that the guidance in Appendix E, "Examples of Minor Issues," of IMC 0612 was not applicable or useful for the specific finding. The inspectors determined that the finding was more than minor, since it had an actual impact on safety and resulted in a reactor scram.

The inspectors reviewed this finding in accordance with IMC 0609, Attachment A, "Significance Determination of Reactor Findings for At-Power Situations," using the Initiating Events worksheet. Since the finding did not contribute to the likelihood of a primary or secondary Loss of Coolant Accident (LOCA), affect mitigating equipment, or increase the likelihood of a fire or flood, it therefore screened as Green.

Enforcement

The inspectors determined that no violations of NRC requirements occurred during the evaluation of the resin intrusion from the 'E' condensate demineralizer or the resultant reactor scram on November 7, 2003. This determination was based on the fact that the condensate demineralizer is not classified as a safety-related SSC. The licensee

entered this into the corrective action program as CAP 29719. (FIN 5000331/2004002-05)

Corrective actions taken included repairs to the 'E' condensate demineralizer, revisions to the procedure for the purchase and inspection of septa, and revisions to the procedure for returning the demineralizers to service.

.2 (Closed) LER 050000331/2003-006-0: "Unplanned Manual Reactor Scram due to Degrading Condenser Vacuum."

On November 25, 2003, a manual reactor scram was inserted due to a degrading condenser vacuum. Extensive testing and evaluations conducted by the licensee determined the cause of the degrading vacuum was excessive air in-leakage due to a failed welded seam between the high pressure condenser and the crossover loop seal. Corrective actions included replacing the failed weld and its companion weld in the low pressure condenser with full penetration welds. Other condenser welds on the sides and bottom of the loop seal were evaluated and determined to be acceptable. The safety significance of this event was minimal, since the condenser remained available for heat removal throughout the event and the availability of other mitigating systems was not affected. The LER was reviewed by the inspectors and no findings of significance were identified. The licensee documented the issue in CAP 030391.

4OA5 Other Activities

.1 (Closed) Unresolved Item (URI) 050000331/2003-008-03: "Operation of the Drywell Cooler Motor Operated Valves (MOVs) Under Reduced Voltage."

This URI was originally opened because additional information on the safety function of the drywell coolers' MOVs was needed. The inspectors reviewed the list of drywell cooler's MOVs against the criteria contained in GL 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," and licensee document MOV 2.1, "GL 89-10 MOV Program Scope." Using these criteria, the inspectors determined that drywell coolers' MOVs are not classified as safety-related, and thus are not within the scope of GL 89-10. Therefore this URI was closed.

.2 Spent Fuel Material Control and Accounting At Nuclear Power Plants (TI [Temporary Instruction] 2515/154)

a. Inspection Scope

The inspectors interviewed the licensee's Special Nuclear Material (SNM) custodian using the questions in TI 2515/154 as a guideline. The inspectors reviewed licensee procedures governing the movement and accounting of SNM, and verified the procedures were adequate for the relevant task, approved at an appropriate management level, and controlled in accordance with the licensee's document control policy. The inspectors reviewed inventory records for SNM as well as non-fuel items stored in the spent fuel pool. The inspectors noted the adequate segregation of spent fuel assemblies and non-fuel items in the spent fuel pool. The inspectors verified that licensee staff was cognizant of regulatory guidance for completing Nuclear Material

Transaction Reports (NRC Form 741) and Nuclear Material Balance Reports (NRC Form 742), and that samples of completed reports were accurate and in accordance with the guidance. Lastly, the inspectors verified that software used to generate past and present inventories were controlled at the appropriate level, and subject to quality assurance requirements. Documents reviewed as part of this TI are listed in the Attachment. This TI was not a part of the baseline inspection program and was therefore not considered a sample. Phases I and II of the TI are considered complete for the licensee.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. M. Peifer and other members of licensee management on April 5, 2004. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

An interim exit was conducted for:

- Emergency Preparedness inspection with Mr. P. Sullivan on March 3, 2004;
- Occupational radiation safety, radiological access control, and ALARA inspection with Mr. D. Curtland on March 12, 2004.

4OA7 Licensee-Identified Violations

Cornerstone: Mitigating Systems

.1 10 CFR 50, Appendix B, Criterion III, "Design Control," requires that the SSCs to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. That design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design. Contrary to these requirements, the licensee changed the design of the un-interruptible instrument alternating current (AC) power system in Design Change Package (DCP) 1411 without proper design control being maintained. When DCP 1411 was installed into the plant, the licensee's design and safety analysis failed to properly evaluate the effect of losing a specific direct current (DC) panel and a Loss of Offsite Power (LOOP) on the operation of RWS make-up CV4914 and CV4915.

DCP 1411 installed three independent inverter power systems consisting of a battery charger, an inverter, a voltage regulator, a static switch, and a manual bypass switch.

The systems replaced the un-interruptible AC system, the Division 1 and Division 2 instrument AC systems. The original design of the system did not have batteries providing backup system power. SV4934 and SV4935, which determine the position of the RWS make-up CVs, were electrically connected to the opposite train so that a loss of DC divisional power 1D13 and 1D23 and a LOOP would cause the SVs to de-energize, which caused the RWS make-up CVs to open. The installation of inverter power systems 1D15 and 1D25 changed the loss of DC divisional power and LOOP Scenario, since the inverter kept the instrument AC division powered. With the instrument AC division powered, the SVs remain energized, which keeps the RWS make-up CVs closed. The fail-safe position for the make-up CVs is open.

The safety evaluation performed by the licensee during this modification did not properly evaluate this scenario, since it stated that there would be no impact. There was an impact since the valves no longer went to there open fail safe condition during a loss of DC with a LOOP. The inspectors determined that although the evaluation and design utilized for the installation of DCP 1411 were inadequate, there was a safety-related hand switch in the RWS make-up circuit that will cause the RWS make-up CVs to open. Therefore, this violation is not more than very low safety significance, and is being treated as an NCV. The licensee entered this issue into the corrective action program as CAP 30637.

Cornerstone: Emergency Preparedness

.2 A violation of very low safety significance was identified by the licensee, related to the discovery that information technology (IT) contractor staff had made changes to the Emergency Response Data System (ERDS) software, and these changes were not communicated to the NRC as required by 10 CFR 50, Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities.” The EP staff discovered this violation by evaluating an operating experience information transmittal from another licensee which described a similar situation at the other facility. Upon questioning by the EP staff, the IT contractor staff confirmed that they had made changes to ERDS software in the past, but were unaware of the notification requirements in 10 CFR 50 Appendix E.

The inspectors verified that corrective actions have been taken to ensure compliance with the Appendix E notification requirements. These measures included transferring ownership of ERDS to the EP group, and researching and documenting all the changes made by IT contractors to ERDS. The inspectors further verified that past unreported changes to ERDS did not compromise its accurate functioning at both the licensees’ emergency response facilities as well as the NRC Headquarters Operations Center. This was of low safety significance due to the fact that the accuracy of ERDS information was not compromised, and the unreported changes were relatively minor.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
M. Peifer, Site Vice President
J. Bjorseth, Plant Manager
S. Catron, Regulatory Affairs Manager
D. Curtland, Site Engineering Director
T. Evans, Operations Manager
B. Kindred, Security Manager
C. Kress, Training Manager
W. Simmons, Maintenance Manager
D. Wheeler, Chemistry Manager
J. Windschill, Radiation Protection Manager

Nuclear Regulatory Commission
D. Beaulieu, Project Manager, NRR
B. Burgess, Chief, Reactor Projects Branch 2

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

5000331/2004002-01	NCV	Inadequate Acceptance Criteria for Emergency Diesel Generator Heat Exchangers Inspections (1R07)
5000331/2004002-02	NCV	Failure to Maintain Adequate Design Control when the Residual Heat Removal Service Water/Emergency Service Water Pit Level Indicating Switches were Downgraded (1R15)
5000331/2004002-03	FIN	Failure to Ensure Proper Reassembly of the 'E' Condensate Demineralizer Resulted in a Manual Reactor SCRAM (4AO3)

Closed

5000331/2004002-01	NCV	Inadequate Acceptance Criteria for Emergency Diesel Generator Heat Exchanger Inspections (1R07)
5000331/2004002-02	NCV	Failure to Maintain Adequate Design Control when the Residual Heat Removal Service Water/Emergency Service Water Pit Level Indicating Switches were Downgraded (1R15)

05000331/2004002-03	FIN	Failure to Ensure Proper Reassembly of the ‘E’ Condensate Demineralizer Resulted in a Manual Reactor SCRAM (4AO3)
050000331/2003-005-0	LER	Unplanned Manual Reactor Scram due to High Reactor Coolant Conductivity (4OA3)
050000331/2003-006-0	LER	Unplanned Manual Reactor Scram due to Degrading Condenser Vacuum (4OA3)
050000331/2003-008-03	URI	Operation of the Drywell MOVs Under Reduced Voltage (4OA5)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

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

1R04 Equipment Alignment

OI 255A1, Control Rod Drive System Electrical Lineup, Revision 1
OI 255A2, Control Rod Drive System Valve Lineup and Checklist, Revision 2
OI 416A1, RHRSW System Electrical Lineup, Revision 2
OI 416A2, 'A' RHRSW System Valve Lineup and Checklist, Revision 4
OI 416A4, 'B' RHRSW System Valve Lineup and Checklist, Revision 3
OI 416A6, RHRSW System Control Panel Lineup, Revision 2
OI 149A1, RHR System Electrical Lineup, Revision 2
OI 149A4, 'B' RHR System Valve Lineup and Checklist, Revision 1
CAP 30519, NRC resident inspector noticed oil from Motor Operator 1940, January 27, 2004 (NRC identified)
OI 152, HPCI System, Revision 57
OI 152A2, HPCI System valve Lineup and Checklist, Revision 3
OI 152A1, HPCI System Electrical Lineup, Revision 0
OI 152A4, HPCI System Control Panel Lineup, Revision 0
OI 150A1, RCIC System Electrical Lineup, Revision 0
OI 150A2, RCIC System Valve Lineup and Checklist, Revision 5
OI 150A4, RCIC System Control Panel Lineup, Revision 1
BECH-M124, RCIC System (Steam Side)
BECH-M125, RCIC System (Water Side)
CWO A70171, RCIC Condenser PI 2473 Gauge Face Has Two "Do Not Use" Stickers On It, March 10, 2004 (NRC identified)
CAP 30654, NRC Concern on Debris in RCIC Room, February 9, 2004 (NRC-Identified)

1R05 Fire Protection

Fire Drill Scenario and Objectives, Cable Spreading Room, Area Fire Plan 25, Class A Cable Tray Fire, January 9, 2004
Area Fire Plan 25, Cable Spreading Room, Revision 23
Fire Hazards Analysis for Zone 11-A, Cable Spreading Room, Revision 29
AOP-913, Fire, Revision 39
AFP 1, North Corner Rooms, Revision 22
AFP 2, South Corner Rooms, Revision 22
AFP 18, North Turbine Building Ground, Revision 23
AFP 19, South Turbine Building Ground, Revision 22
AFP 21, North Turbine Operating Deck, Revision 22
AFP 22, South Turbine Operating Deck, Revision 23
AFP 26, Control Building, Revision 25
AFP 27, Control Building HVAC, Revision 23

AFP 12, Reactor Building Decay Tank, Revision 22
CAP 30777, Reactor Feed Pump Vent Pipe Vibration, February 19, 2004 (NRC Identified)
CAP 30789, Control of Transient Equipment, February 20, 2004 (NRC Identified)
Fire Protection Evaluation FPE-B97-019, Revision 1

1R06 Flood Protection Measures

Individual Plant Examination Section 3.3.6; Internal Flooding Analysis; November 1992
AOP 902; Flood; Revision 21
EOP 3; Secondary Containment Control; Revision 10
PWO 1123938, "Calibrate LS-3749 (HPCI Floor Drain High Level,)" June 6, 2003
PWO 112341, "Calibrate LS-3768 (HPCI Room Level High Alarm Switch,)" May 17, 2000
I.IT-T116-01, "Telmar Current and VoltageTransmitters," Revision 4
BECH-E125 (025)

1R07 Heat Sink Performance

Equipment Monitoring Procedure (EMP) -1E053-Heat Transfer (HT), Emergency Diesel Generator 1E-53A & B Cooler Heat Transfer Test for "A" Diesel Generator, August 25, 2002
EMP-1E053-Heat Transfer (HT), Emergency Diesel Generator 1E-53A & B Cooler Heat Transfer Test for "B" Diesel Generator, July 23, 2002
CWO 118453, Mechanical Inspection "B" Diesel Generator Heat Exchangers, February 27, 2002
CWO 1124742, Mechanical Inspection "A" Diesel Generator Heat Exchangers, September 22, 2003
EMP-1P099-Flow Verification, Emergency Service Water Flow Verification Test for "A" Diesel Generator, March 29, 2002
EMP-1P099- Flow Verification, Emergency Service Water Flow Verification Test for "B" Diesel Generator, March 27, 2002
CAP 30954, Cleanliness Criteria for Heat Exchanger Visual Inspection, March 9, 2004 (NRC Identified)

1R11 Licensed Operator Requalification Program

SEG 2004C1-01, Loss of Uninterruptible Power Supply/Hydraulic ATWS, Revision 0
EOP, ATWS, Revision 12
EOP 1, Reactor Pressure Control, Revision 11
EAL Table 1, Revision 2
ACP 110.1, Conduct of Operations, Revision 1
ACP 101.01, Procedure Use and Adherence, Revision 24
ACP 101.2, Verification Process and SELF/PEER Checking Practices, Revision 5

1R12 Maintenance Effectiveness

Control Rod Drive System, Performance Criteria Basis Document, Revision 2

CWO A67777, Power Supply Smells Electrically Burnt When Cover Is Opened, Output is Low (63.3VDC) and AC is Excessive
CWO A61459, While Adjusting Insert Speed, Water Sprays Out of Needle Valve, December 3, 2003
CWO A55315, CRD 26-31 Is Reading 15 Degrees F Hotter Than the Rest of the CRDs, Cooling Line May Have Blockage, January 9, 2004
CWO A49905, Valve Appears to be Leaking By Its Seat When Attempting to Pressure Check Spectacle Flange, January 23, 2004
CWO A59701, Valve Has a Slow Leak. Tightened Handwheel But Is Still Leaking Past the Seat, January 15, 2004
CWO A63313, Valve Leaks By Closed Seat, Attempted to Cycle Valve Several Times to Lessen Leakage Unsuccessfully, January 8, 2004
CWO A64172, Standby Liquid Control, Performance Criteria Basis Document, Revision 1
OTH 34540, Repairs to SBLC Continuity Meter Required Entry into LCO for 'B' SBLC, July 5, 2002
CWO A65890, Heater Flange has Crystallized Boron on Gasket, December 1, 2003
CWO A50985, Replace PI-2606 with Dampened Gauge Due to Erratic Readings With Positive Displacement Pumps Running, August 20, 2001
CWO A56008, Pump 1P230B Piston Gland Leaking 6 DPM, August 19, 2003
CWO A56009, Pump 1B230A Piston Gland Leaking 2 DPM, June 12, 2003
CWO A57472, SBLC Tank Hi/Lo Level Alarm Comes In and Draws at Tank Level of 83% in Control, January 11, 2002
CWO A72381, CWO A62947 Was Inadvertently Closed Without the Problem Being Fixed, September 11, 2003
CWO A62947, TIC-2602 Reading is High Out of Specifications at 89 F, but Area Temperature is 79 Degrees, July 23, 2003
CAP 26750, Squib Test Firing Problem, Problem with Test Hookup, Not Valve

1R13 Maintenance Risk Assessments and Emergent Work Control

Work Planning Guide - 2, On-Line Risk Management Guideline, Revision 12
Online Look-Ahead Agenda, Week of January 17, 2004
Online Look-Ahead Agenda, Week of January 31, 2004
Online Look-Ahead Agenda, Week of February 14, 2004
Online Look-Ahead Agenda, Week of February 21, 2004
CAP 30200, "Detailed Risk Review for STP 3.5.1-04," December 22, 2003
Online Look-Ahead Agenda, Week of March 13, 2004
Online Look-Ahead Agenda, Week of March 20, 2004
Online Look-Ahead Agenda, Week of March 27, 2004
OTH 37379, Maintenance Risk Evaluation for Week 11, March 5, 2004

1R14 Non-Routine Evolutions

Level A Plan, Downpower Plan, February 27-28, 2004
Instructions for Sequence Exchange, February 27-28, 2004
Pre-Rod Move Briefing, Sequence Exchange, February 27-28, 2004
Expected Power Profile Graph for Sequence Exchange, February 27-28, 2004
Reactor Engineering Sequence Exchange Checklist, February 27-28, 2004

IPOI 3, Power Operations, Revision 61
Operations-020, Area Inspections, Revision 11
Op 20 Results, November 2, 2003
Op 20 Results, February 28, 2004
STP NS930002, Main Turbine Stop and Combined Intermediate Valve Test, Revision 3
STP 3.6.1.3-03, Main Steam Isolation Valve Trip/Closure Time Check, Revision 3
STP 3.3.1.1-13, Turbine Control Valve Logic and Instrument Functional Test, Revision 8

1R15 Operability Evaluations

ACP-114.5, Action Request System, Revision 32
OPR 252, Reactor Core Isolation Cooling, January 16, 2004
OPR 251, Control Rods, January 21, 2004
OPR 254, River Water Supply System, February 6, 2004
CAP 30637, River Water Supply, February 6, 2004
ACE 1348, RWS Make-up Solenoids, February 13, 2004
OPR 253, IRM, February 4, 2004
ACP 1408.8, Control of Measuring and Test Equipment, Revision 16
CE 1511, M&TE equipment N037 was found out of tolerance, February 4, 2004
OTH 37252, M&TE equipment found out of tolerance, February 18, 2004 (NRC identified)
OPR 255; RHRSW 1P022A-M, February 16, 2004
CAP 30744, RHRSW 1P022A-M Upper Thrust Bearing Was Observed to be 2/3 Below Indicated Stand, February 16, 2004

1R16 Operator Workarounds

CAP 30184, PSV 4401 Temperature Trends from TE 4401 and TE 4401A, December 19, 2004
Operating Order 04-137, Operating with Elevated Safety Relief Valve Tailpipe, February 27, 2004
ARP 1C03A, Reactor and Containment Cooling, Revision 36
OWA 04-004, Control Building Chiller Reliability, January 29, 2004
ACP 1410.12, Operator Burden Program, Revision 0

1R17 Permanent Plant Modifications

CWO 1126796, Modify Control Circuit for TS7538C Such That SV7539A Will Open Automatically at 105F and Circuit Operation Will Match Original Design, Nov. 24, 2003
CAP 36461, “Implement a Modification to Correct the Design Change Review (DCR)-1207 Design Error,” November 23, 2003
ACP 109.0, Engineering Change Packages, Revision 28
GMP-ELEC-19, Panel Wiring and Termination, Revision 12
CA 36461, Implement a Modification to Correct the DCR-1207 Design Error, December 8, 2003
Correspondence from B. Ruegsegger, President, Elsie Manufacturing Inc. to J. Kuehl, Duane Arnold Energy Center (DAEC) Program Engineering Supervisor, entitled “RE: Confirmation of the Operating Range of the Elsie Model A 165 °F UL-Listed Fusible Links,” January 8, 2004

1R19 Post-Maintenance Testing

CWO A63690, 'A' Control Building Chiller, January 9, 2004
STP 3.7.5-01, Control Building Chiller Operability, Revision 3
CWO A65764, RCIC Drain Trap 2408, January 26, 2004
STP 3.5.3-02, RCIC System Operability Test, Revision 16
PWO 11291159, 'A' GSW Pump Replacement, February 18, 2004
PWO 1125621, "A" SBLC Pump, November 16, 2003
STP 3.1.7.01, SBLC Pump Operability Test, Revision 6
CWO A60005, Mechanical Seal Leak from Outboard Seal, August 4, 2003
CWO A63477, Replace Seal Water Piping, March 1, 2004
STP 3.5.1-05, HPCI System Operability Test, Revision 21
CWO A67214, Diesel Driven Fire Pump Overspeed Switch, March 15, 2004
STP NS13B001, Diesel Fire Pump Overspeed Shutdown, Revision 17
STP NS13B015, Diesel Driven Fire Pump, Revision 5
STP NS13B001A, Diesel Fire Pump Electrical Connections, Revision 22
PWO 1126361, Replace Mechanical Seal on 'B' Core Spray Pump, March 19, 2004
CAP 31097, Unsat Fit-up on a Socket Weld, March 25, 2004
CAP 31077, System Drain Down Info Needs Included in RWP Folders, March 23, 2004
CAP 331106, Inaccurate Documentation (As-Left Torque Value), March 26, 2004
STP 3.5.1-01, Core Spray Operability Test, Revision 12
PWO 1126683, Clean Coils on HPCI Room Cooling Unit Per Procedure, March 25, 2004
GMP-MECH-26, Heat Exchangers, Revision 6

1R22 Surveillance Testing

STP 3.3.5.1-04, Functional Test of Reactor Vessel Shroud Level - Low Instrumentation, Revision 1
STP 3.8.4-06, Battery Charger Capacity Test, Revision 1
CAP 30602, S118 Battery Capacity Test System Software Problems Delayed 1D44 Charger Testing, February 3, 2004
STP 3.7.4-02, Main Control Room Ventilation Standby Filter Unit Test, Revision 7
CAP 30587, Delay in Completing Scheduled LCO Work, February 6, 2004
STP 3.7.2-01, River Water Supply Simulated Automatic Actuation Test, Revision 5
PWO 1128733, Calibrate LIS 4935A, February 6, 2004
PWO 1128734, Calibrate LIS 4935B, February 6, 2004
CAP 30637, River Water Supply Emergency Makeup Solenoids Installed on Wrong Division, February 6, 2004
BECH-E104 (025), 4160V and 480V System Control and Protection, Revision 18
BECH-E104 (026), 4160V and 480V System Control and Protection, Revision 18
BECH-E111 (013A), Service Water Systems, Revision 5
STP 3.8.1-04, Standby Diesel Generators Operability Test, Revision 12
STP 3.5.1-04, LPCI Simulated Automatic Actuation Test, Revision 2
CAP 30200, Detailed Risk Review for STP 3.5.1-04, December 22, 2003
STP 3.3.6.1-14, RWCU Isolation Logic, Revision 4
CAP 30919, Evaluate STP 3.3.6.1-14 for pre-conditioning, March 4, 2004 (NRC identified)

STP 3.8.1-06, Standby Diesel Generators Operability Test (Fast Start), Revision 17
STP NS540002, Emergency Service Water Operability Test, Revision 11

1R23 Temporary Plant Modifications

Temporary Modification Permit 04-014, February 17, 2004
CAP 30698, Isolation Function on V38-0052, February 11, 2004
Secondary Containment Penetration Control Form 04-014, February 17, 2004
Temporary Modification Permit 04-021, Pressurize Core Spray System with Demin Water Per OI 151, Section 9.2, March 19, 2004
BECH-M109, P&ID Condensate and Demineralized Water System, Revision 63
OI 151, Core Spray System, Revision 39

1EP4 Emergency Action Level and Emergency Plan Changes

Duane Arnold Energy Center Emergency Plan Section B, Revision 26
Section C, Revision 21; Section I, Revision 21; Section N, Revision 21 and Appendix 2, Revision 21

1EP6 Drill Evaluation

2004 White Team Training Drill Scenario, January 21, 2004
EPIP 2.5, Control Room Emergency Response Operation, Revision 14
EAL, Determination of Emergency Action Levels, Revision 2
EOP 1, RPV Control, Revision 9
EOP 2, Primary Containment Control, Revision 9
EOP 3, Secondary Containment Control, Revision 10
EOP ATWS, ATWS-RPV Control, Revision 12
AOP 255.1, Control Rod Movement/Indication Abnormal, Revision 25

2OS1 Access Control to Radiologically Significant Areas

ACP 1411.13; Control of Locked High Radiation Areas
ACP1411.23; Equipment and Material Controls in Radiological Areas; Revision 13
HPP 3104.01; Control of Access to High Radiation Areas; Revision 20
CAP 026008; FRAC Tank Released from the RCA with Loose Surface Contamination, March 7, 2003
CAP 026370; Adverse Trend in Hi Rad Entry Errors, March 25, 2003
CAP 028844; Refuel Floor HEPA Unit is Tied into Plant Ventilation Duct without a Temp Mod, August 28, 2003
CAP 029072; Confusion in the Decontamination Process for Tools and Test Equipment, September 18, 2003
CAP029304; Repeated Personnel Stepping Out of RCA When PCM2B has a Contaminated Alarm, October 7, 2003
CAP029408; Not All Workers Who Have Entered the ISFSI are Passing Through PCM-2 at Access, October 15, 2003
CAP 029446; Lost Locked High Radiation Area (LHRA) Key #4, October 19, 2003
CAP 029457; Inconsistent Radiological control Practices Being Used at ISFSI Fenced Area, October 20, 2003

CAP 029502; Attendance Issue (RPD) During LDP Module at DAEC October 2003, October 23, 2003
CAP 029603; Individual was Chewing Inside the RCA, October 31, 2003
CAP 029711; Vendor Calibrated Portable HEPA Ventilation Tester with Wrong Challenge Aerosol, November 6, 2003
CAP 029928; Recommendation to Set Up Ingress Radiation Portal Monitoring, November 25, 2003
CAP 029984; ISFSI Contamination Control, December 2, 2003
CAP 030120; Reactor Building Crane Hook Lowered and Unattended Was Found Contaminated, December 12, 2003
CAP 030244; Non-uniform Dose Rate Surveys not bing Documented, December 31, 2003
CAP 030307; Drain Catch Bucket Found on Shelf in LL with Contamination Inside, January 8, 2003
CAP 030362; PCM 2 Calibration Ultimately Performed by Non-qualified Technician, January 12, 2003
CAP 030674; No Program Exists to Track, Control and Monitor RAM Outside the RMA, February 10, 2004
CAP 03826; Security Officer Exited and Re-entered Rad Boundary without Proper Processing, February 24, 2004
CAP 030863; Laundry LSA Box Creating High Background Causing SAM to be Tagged OOS, February 27, 2003

2OS2 As Low As Is Reasonably Achievable Planning and Controls (ALARA)

HPP 3101.05; Administration of Radiation Work Permits (RWPs), Revision 19
HPP 3102.02 ALARA Job Planning, Revision 15
OTH027668; Radiation Protection Focused Self-assessment, June 13, 2003
RWP 124; Job Step 10, DT2209 (Steam Trap) Rebuild or Replace Trap and Drain Piping Downstream of DT2209, Revision 6
RWP 124; Job Step 11, HPCI Pump Carbon Seals, Inspect and Replace, Revision 6
RWP 124; Job Step 12, PSV 2223, PSV 2228 Remove Valve, Modify Piping, Decontaminate and Assemble Valve, Revision 6
RWP 124; Job Step 13, V23-0009 Remove Bonnet and Replace Stem and Disc Assembly, Revision 6
CAP 025449; RWP for Filling FRAC Tanks with Hotwell Water Not Ready Prior to Work, February 5, 2003
CAP 027731; Significant Discrepancy in Estimated/Actual Dose of MOV Work (RWP 220), June 6, 2003
CAP 028478; Start of Work on A58714 Delayed 2 Hours for RWP Preparation, August 5, 2003
CAP 029335; Radiation Protection Improvement Plan, October 10, 2003
CAP 029685, MECHFUN G080-03 Conflicts with ALARA Review 03-008 (C-SRM Removal), November 5, 2003
CAP 029892; Improvement Needed On RWCU A Filter Repair Health Physics Job Planning, November 22, 2003
CAP 030231; Limited Population Who Can Perform Independent Review of ALARA Planning Document, December 30 ,2003

CAP 030476; Work of High Radiological Risk was Re-scheduled without Input from Health Physics, January 23, 2004

2PS1 Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems

CAP029960; Unplanned ODAM LCO Due To Operating With The Off-gas Charcoal Absorbers Bypassed, November 28, 2003
CAP029982; KAMAN 12 Process To Sample Flow Ratio Problems Persist, December 2, 2003
CAP030031; LLRPSF Ventilation Control With KAMAN 12 Inoperable, December 5, 2003
CA036500; Establish A Means Of Controlling LLRPSF Ventilation When K-12 Is Inoperable, December 11, 2003
CAP028129; Evaluate Need to Do a Revision to All Service Water Calibration STPs, July 9, 2003
CAP028724; Update DAEC Safety Related Service Water Program to Meet Fleet Procedures, August 21, 2003
CAP027911; Frequency of Flow Alarm Check on KAMAN-10, June 20, 2003
CAP028313; KAMAN Monitors and Associated Equipment Have Had Numerous Failures, July 22, 2003
CAP028635; KAMAN #6 Failed with Intermittent High Voltage and High Concentration Alarms, August 16, 2003
CAP029413; Unexpected P/S Ratio Alarm Received on KAMAN-12, October 15, 2003
CAP029806; KAMAN-10 Computer Problem During STP-NS791012, November 15, 2003
CAP029917; RM7647 (RB Vent Shaft 2 Normal Range KAMAN Monitor Went "Unreachable", November 25, 2003
CAP030147; Incorrect KAMAN Monitor "Source Checked",December 16, 2003
CAP030285; Normal Range KAMAN Calibration STPs Need to Be Revised and Made Consistent, January 6, 2004
CAP030347; The Microcomputer for KAMAN-10 is Locked Up and Could Not Be Reset, January 10, 2004
CAP030652; KAMAN-7 Inoperable Due to Periodic Detector Failure Alarm, February 9, 2004
CAP030875; Off-gas Pretreatment, GE Stack Monitor, and KAMAN Show Elevated Readings, February 28, 2004
CAP030981; RW UV/Ozone System Is Not Discussed in the UFSAR, March 11, 2004
Effluents Controls Program; Spring 2002 Self Assessment, March 28, 2002
OTH028048; REMP Program Cornerstone, June 27, 2003
2003-004-1-008; Nuclear Oversight Observation Report: Chemistry, December 2, 2003
Annual Radioactive Materials Release Report; 2002
Annual Radioactive Materials Release Report; 2001
DAEC Offsite Dose Assessment Manual; Revision 19
STP 3.7.4-02; Main Control Room Ventilation Standby Filter Unit Test, A, January 28, 2004
STP 3.7.4-02; Main Control Room Ventilation Standby Filter Unit Test, B, February 4, 2004
STP 3.6.4.3-03; Standby Gas Treatment System HEPA and Charcoal Filter Efficiency Tests A, January 28, 2004

STP 3.6.4.3-03; Standby Gas Treatment System HEPA and Charcoal Filter Efficiency Tests B, December 1, 2003
STP 3.6.4.3-03; Standby Gas Treatment System HEPA and Charcoal Filter Efficiency Tests B, December 2, 2003
STP-NS791016; Surveillance Test Procedure: KAMAN Monitor Inoperable, June 18, 2003 - February 2, 2004
STP-NS790302; Liquid Process Rad Monitor Inoperable Sampling and Analysis, December 9, 2003
STP-NS790303; RHRSW/ESW Rupture Disc Rad Monitor Calibration, October 27, 2003
STP-NS790301; RHRSW Rad Monitor Calibration, June 30, 2003
STP-NS790301; GSW Rad Monitor Calibration, December 2, 2003
STP-NS790708; Offsite Effluent Dose Calculations, Selected Data; 2001 - 2003
Memo; Counting Instrument Calibration, January 5, 2000
STP-NS790601; Effluent P&I Sampling & Analysis, March 3, 2004
STP-NS791007; K4 Calibration, March 8, 2004
STP-NS791015; TB Flow Monitor Calibration, October 20, 2003

2PS2 Radioactive Material Processing and Transportation

SE-98-097; Safety Evaluation Form, Surge Tank and UV/Ozone System in Low Level Radwaste Processing and Storage Facility (LLRPSF) (ECP1610); Revision 1
Shipment No 03-21; Contaminated Equipment, LSA II, May 2, 2003
Shipment No 03-45; Contaminated Turbine Rotor, SCO II, November 12, 2003
Shipment No 03-47; De-watered Condensate Resin, LSA II, November 18, 2003
Shipment No 04-08; De-watered Condensate Resin, LSA II, January 28, 2004
Shipment No 04-13; De-watered Condensate Resin, LSA II, February 17, 2004
RWH 3410.1; Process Control Program; Revision 10
03-010-R; Radiological Engineering Calculation Cover Sheet - 10 CFR Part 61 Compliance Data Technical Basis for DAEC Dry Active Waste; Revision 0
03-008-R; Radiological Engineering Calculation Cover Sheet - 10 CFR Part 61 Compliance Data Technical Basis for DAEC Condensate Resin; Revision 0
04-001-R; Radiological Engineering Calculation Cover Sheet - 10 CFR Part 61 Compliance Data Technical Basis for DAEC Reactor Water Cleanup Resin; Revision 0
IG 30016, 01; Lesson Topic, Radwaste Classification, Characterization, Sampling and Requirements; Revision 1
IG 60016, 02; Lesson Topic, Radioactive Materials Shipment; Revision 6
IG 60045, 01; Lesson Topic, Waste Segregation and Handling; Revision 7
IG 60045, 03; Lesson Topic, Radwaste Function Specific; Revision 1
NG-00-1500; Memorandum, Radwaste Operator 49 CFR 172.704 Training, August 28, 2000
NG-01-0258; Memorandum, DAEC Subpart “H” Training, February 26, 2001
NG-04-0040; Memorandum, Authorization to Prepare and Verify Radioactive Material/Waste Shipping Paperwork, January 13, 2004
Listing of All Non-excepted Package Shipments 2003 and 2004
Print-out of Currently Qualified 49 CFR 172 Subpart “H”, DAEC Personnel, March 2, 2004
Nuclear Oversight Observation Reports; 2003-003-1-001, 2003-003-1-006,

2003-003-1-007, 2003-004-1-005, 2003-004-1-007, 2003-004-1-009, 2003-004-1-013, 2004-001-1-002
CAP028573; Contract Worker Record of 49 CFR Subpart H Training not Available, August 12, 2003
CAP029020; Radwaste Operator Conducted OJT on Task He Was Not Qualified On, September 12, 2003
CAP030818; Radioactive Storage of the Frac Tanks Outside the Restricted/Protective Area, February 23, 2004
CAO030969; The UFSAR Contains References to Decommissioned Abandoned in Place Equipment, March 10, 2004

4OA1 Performance Indicator Verification

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 2
ACP 1402.4, NRC Performance Indicators Collection and Reporting, Revision 3
Memorandum, DAEC 4th Quarter 2003 PI Summary, January 21, 2004
Memorandum, DAEC 3rd Quarter 2003 PI Summary, October 21, 2003
Memorandum, DAEC 2nd Quarter 2003 PI Summary, July 20, 2003
Memorandum, DAEC 1st Quarter 2003 PI Summary, April 21, 2003

4OA2 Identification and Resolution of Problems

ACP 114.5, Action Request System, Revision 40
ACP 114.4, Corrective Action Program, Revision 15
AR 32344, Actual Plant Overall Risk was Yellow, August 29, 2002 (NRC identified)
CAP 027704, Unavailability of Inverter not included in Risk Review, June 3, 2003 (NRC identified)
CAP 029394, Risk Assessment, October 14, 2003
CAP 029421, ORAM-Sentinel Review Not Performed, October 16, 2003 (NRC identified)
CAP 029259, Missed Risk Analysis for “C” Torus to Drywell Vacuum Breaker, October 3, 2003 (NRC identified)
CAP 029252, CV-4327C failed to cycle during STP 3.6.1.7-01, October 3, 2003
CAP 029268, Risk Review needed for inoperable Torus-to-Drywell Vacuum Breaker, October 3, 2003
ACP 1408.8, Control of Measuring and Test Equipment, Revision 16
CAP027165, As found out of tolerance for P641, April 24, 2003
CAP027168, As found out of tolerance for Q560, April 24, 2003
CAP029594, M&TE V121 was found out of tolerance, October 30, 2003
CAP029062, M&TE Q589 was found out of tolerance, September 17, 2003
CAP029061, M&TE AO19 was found out of tolerance, September 17, 2003
CAP030986, Documentation deficiencies identified with Met lab records, March 11, 2004 (NRC identified)

4OA3 Event Follow-up

LER 050000331/2003-005-0, Unplanned Manual Reactor Scram due to High Reactor Coolant Conductivity, January 6, 2004
RCE 1016, Resin Intrusion, January 2004

LER 050000331/2003-006-0, Unplanned Manual Reactor Scram due to Degrading Condenser Vacuum, January 26, 2004

4OA5 Other Activities

MOV 2.1, “GL 89-10 MOV Program Scope,” Revision 1
DAEC Material Balance Reports for plutonium, enriched uranium, and depleted uranium for the period October 1, 2002 to August 15, 2003
DAEC Physical Inventory Listings for plutonium, enriched uranium, and depleted uranium for the period October 1, 2002 to August 15, 2003
DAEC Nuclear Material Transaction Report related to fission and transmutation of depleted uranium, September 30, 2003
DAEC Nuclear Material Transaction Report related to fission and transmutation of enriched uranium, September 30, 2003
DAEC Nuclear Material Transaction Report related to production and or consumption of plutonium, September 30, 2003
DAEC Nuclear Material Transaction Report related to decay of plutonium, September 30, 2003
Nuclear Oversight Observation Report 2002-001-1-008, Special Nuclear Material Control (Corrective Actions), March 31, 2002
Letter from M. Peifer, DAEC Site VP to L. Harris, NRC, Response to NRC Bulletin 2003-04: Rebaselining of Data in the Nuclear Materials Management and Safeguards System, January 6, 2004
ACP 1407.1, Control and Accounting of Special Nuclear Material, Revision 12
ACP 1407.2, Material Control in the Spent Fuel Pool and Cask Pool, Revision 10
STP NS810002, Physical Inventory of Special Nuclear Material, Revision 3
Reactor Engineering Department Instruction (REDI) 3, Creation of Item Control Area Transfer Reports, Revision 1
REDI-11, Nuclear Material Accounting Database (NUMAD), Revision 4
REDI-16, Special Nuclear Material Reporting (SNMtrac), Revision 2

LIST OF ACRONYMS USED

AC	Alternating Current
ACE	Apparent Cause Evaluation
ACP	Administrative Control Procedures
AFP	Area Fire Plan
ALARA	As Low As Is Reasonably Achievable
AOP	Abnormal Operating Procedures
AOT	Allowed Outage Time
AR	Action Request
ATWS	Anticipated Transient Without Scram
CAP	Corrective Action Plan
CFR	Code of Federal Regulations
CRD	Control Rod Drive
CV	Control Valve
CWO	Corrective Work Order
DC	Direct Current
DOT	Department of Transportation
DAW	Dry Active Waste
DRP	Division of Reactor Projects
DAW	Dry Active Waste
EDG	Emergency Diesel Generator
EOP	Emergency Plan Operating Procedures
EP	Emergency Preparedness
ERDS	Emergency Response Data System
ESW	Emergency Service Water
EP	Emergency Preparedness
GL	Generic Letter
GSW	General Service Water
HPCI	High Pressure Core Injection
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IR	Inspection Report
IRM	Intermediate Range Monitor
IT	Information Technology
LER	Licensee Event Report
LIS	Level Indicating Switch
LOCA	Loss of Coolant Accident
LOOP	Loss of Off-site Power
LPCI	Low Pressure Coolant Injection
MC&A	Material Control & Accounting
MOV	Motor-Operated Valve
NCV	Non-Sited Violation
NRC	Nuclear Regulatory Commission
ODAM	Off-site Dose Assessment Manual
OI	Operating Instructions
OOS	Out-of-Service
OPR	Operability Evaluations

LIST OF ACRONYMS USED

ORAM	On-Line Risk Assessment Model
OWA	Operator Workaround
PARS	Publicly Available Records
PI	Performance Indicator
PWO	Preventive Work Order
QL	Quality Level
RCE	Root Cause Evaluation
RCIC	Reactor Core Isolation Cooling
RETS	Radiological Environmental Technical Specification
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
RPT	Radiation Protection Technician
RWCU	Reactor Water Clean Up
RWP	Radiation Work Permit
RWS	River Water System
SBLC	Standby Liquid Control
SDP	Significance Determination Process
SEG	Simulator Exercise Guide
SNM	Special Nuclear Material
SSC	Structures, Systems, Components
STP	Surveillance Test Procedure
SV	Solenoid Valve
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VHRA	Very High Radiation Area