U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-331
License No:	DPR-49
Report No.	50-331/96-05
Licensee:	IES Utilities Inc. 200 First Street S.E. P. O. Box 351 Cedar Rapids, IA 52406-0351
Facility:	Duane Arnold Energy Center
Dates:	June 6 - July 18, 1996
Inspectors:	K. Riemer, Senior Resident Inspector C. Lipa, Resident Inspector M. Miller, Senior Resident Inspector, Clinton Plant S. Burgess, Reactor Engineer E. Plettner, Operator Licensing Examiner
Approved by:	R. D. Lanksbury, Chief Reactor Projects Branch 2

EXECUTIVE SUMMARY

Duane Arnold Energy Center
NRC Inspection Report 50-331/96-05

This integrated inspection report included resident and regional inspectors evaluation of aspects of licensee operations, engineering, maintenance, and plant support.

The inspectors identified several examples of poor interdepartmental communications. These occurred during routine activities and involved multiple departments. While there were no adverse consequences as a result of the poor communications, the inspectors were concerned about this issue due to the critical importance of good communications to effective and safe operation.

Operations

- Operator identification of and response to materiel condition problems encountered during the period, such as increasing drywell oxygen level and loss of power to the "A" reactor protection system bus continued to be appropriate (Section O1.1).

- The inspectors identified several weaknesses or deficiencies in operations procedures. The deficiencies were similar in nature to those identified during the last 2 operator licensing examinations and constituted a violation of 10 CFR 50, Appendix B, Criterion V, (Section O3.1).

Maintenance

- Maintenance and testing activities were generally completed thoroughly and professionally (Section M1.1).

- Materiel condition issues continued to arise during this inspection period, some of which required plant personnel to take prompt action (Section M2.1). These issues included several 1/2 scrams in June and July and leaking equipment resulting in increased containment oxygen levels.

Engineering

- The inspectors determined that a safety evaluation for low emergency service water flow to the spent fuel pool was inadequate in violation of 10 CFR 50.59 (Section E1.1).

- Engineering support for emergent materiel condition issues and surveillance discrepancies was thorough and appropriate (Sections M1.1 and M2.1). However, there were examples where communications between engineering and operations were weak during support of routine

maintenance activities (Sections E1.2 and M1.2). Examples included weak communications during chlorination of the "C" well water and during residual heat removal system motor operated valve work.

Plant Support

- The inspectors were concerned with the weak communications and coordination between departments during a system draining evolution (Section R1.1) and during resolution of well water chlorination system problems (Section R1.2).

Self Assessment and Quality Verification

- Self-assessment activities, such as Operations Committee and Action Request screening meetings were considered effective (Section O7).

Report Details

Summary of Plant Status

The plant began this inspection period at 100 percent power and was operating near 100 percent power for most of the inspection period. There was a routine downpower for turbine valve testing and control rod sequence exchange on June 8. On July 13, there was a routine downpower for turbine and main steam valve testing, which also included special scram time testing.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

a. Inspection Scope

The inspectors conducted frequent reviews of ongoing plant operations. This included control room observations and plant tours. The conduct of operations was professional and safety conscious. Observations indicated that the control room staffing levels were appropriate and operations staff was knowledgeable of plant conditions, responded promptly and properly to alarms, and performed thorough turnovers.

b. Observations and Findings

The inspectors noted several instances of thorough panel attentiveness and integrated system knowledge by control room operators. Operators identified an increasing trend in drywell oxygen levels (reference Section M2.1). The quick identification by the operators of the increasing trend allowed sufficient time for engineering and maintenance personnel to troubleshoot the problem. In another case, on June 25, 1996, control room operators identified the need for grab samples, as required by the Offsite Dose Assessment Manual (ODAM), when the plant was in an abnormal well water lineup and a radiation monitor became inoperable.

O2 Operational Status of Facilities and Equipment

O2.1 Engineered Safety Feature System Walkdowns (71707)

The inspectors used Inspection Procedure 71707 to walk down accessible portions of the following ESF systems:

- Emergency Service Water
- River Water Supply
- Standby Diesel Generators

Equipment operability, material condition, and housekeeping were acceptable in all cases. The inspectors identified no substantive concerns as a result of these walkdowns.

03 Operations Procedures and Documentation

03.1 Weaknesses and Deficiencies Identified in Operations Procedures

a. Inspection Scope

During the operator licensing examination, held June 3 thru 10, 1996, the inspectors also evaluated procedure usage and the adequacy of those procedures.

b. Observations and Findings

The inspectors identified the following procedure weaknesses and deficiencies:

- Operating Instruction (OI) 878.8, "NUMAC Rod Worth Minimizer System," Rev. 9, Section 8.2.4, contained no requirement or steps to be performed to correct a rod substitution value once the "SUBSTITUTE" key had been pushed. The lack of this statement resulted in three candidates failing to select the correct rod substitution value. Thus, they failed the associated job performance measure (JPM).

- In OI 358, "Reactor Protection System," Rev. 26, Attachment 4, "RPS Power Supply Transfer Half-scram Recovery Checklist," contained no requirement or step to reset the carbon bed vault radiation monitor. The lack of this statement resulted in a continuous alarm condition for the "CARBON BED VAULT RIS-4138 HI RAD" (1C04C, D-1) and the "CARBON BED VAULT RIS-4138 DNSCL/INOP" (1C04C, C-1) annunciators. With the annunciator in a continuous alarm condition, the operators would not know when an actual alarm condition had occurred and thus, may not have taken appropriate actions to correct the problem.

- Annunciator response procedure for annunciator 1C03A, C-5, "SRV/SV TAILPIPE HI PRESS OR HI TEMP," Rev. 4, Section 3.6.a, required the operator to reduce reactor power 25% and cycle the affected Safety/Relief valve's hand switch. The step contained no guidance on how to accomplish the 25% downpower; it was assumed to be accomplished by Integrated Plant Operating Instruction (IPOI) 4, Section 6.0 (Fast Power Reduction) where recirculation flow would be reduced to 24 mlbm/hr. and then CRAM rods were used to reduce power. The examiners questioned the intent of the power level reduction and whether there was a specific power level intended versus always having to reduce power by 25%. The reason for the

concern was that depending on the power level when the alarm was received, the operators could have no choice but to scram the reactor.

- In OI 324, "Standby Diesel Generator System," Rev. 37, Section 5.2, quoted name plate labels differently from the actual name plate labels on the equipment in the plant.

c. Conclusions

Although the consequences of the identified procedure weaknesses were minor, the inspectors were concerned that the previous two operator licensing examinations had identified similar operating procedure deficiencies (reference Inspection Reports (IR) 50-331/94012 and 50-331/OL-95-01(DRS)). The licensee investigated and corrected each of the problems identified above before the end of the examination. While the inspectors considered the planned and completed corrective actions to be appropriate, the inspectors were concerned with the repeat nature of this issue. Part 50 of 10 CFR, Appendix B, Criterion V, requried in part that activities affecting quality be prescribed by procedures of a type appropriate to the circumstances. The procedure deficiencies described above constitute a violation of 10 CFR 50, Appendix B, Criterion V (50-331/96005-01).

07 Quality Assurance in Operations

07.1 Licensee Self-Assessment Activities

a. Inspection Scope

During the inspection period, the inspectors reviewed multiple licensee self-assessment activities, including:

- Routine Operations Committee Meeting
- Monthly Quality Assurance Debrief
- Routine Action Request Screening Meetings

c. Conclusions

The inspectors observed active management participation at the meetings. Deficiencies identified were being tracked by the licensee's Action Request (AR) process. The inspectors concluded that the self-assessment activities observed were effective.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (62703) (61726)

The inspectors observed all or portions of the following work and testing activities:

- Low pressure coolant injection system quarterly test
- Motor bearing replacement on "A" river water supply motor
- River water supply system quarterly test
- Reactor core isolation cooling (RCIC) system quarterly test
- Daily instrument checks
- Core spray system simulated automatic actuation annual test
- High pressure coolant injection quarterly test
- Standby diesel generator cooler heat transfer test
- Scram time testing
- Residual heat removal service water (RHRSW) quarterly test
- Increased frequency stroke time testing of containment isolation valve CV4371A

b. Observations and Findings

The inspectors observed the briefings for the core spray actuation and the scram time tests, which were classified as "infrequently performed evolutions." The briefings were thorough and the tests were well coordinated.

During review of the data from the RHRSW test, the American Society of Mechanical Engineers (ASME) engineer identified that vibration readings for three of the four pumps were much lower than expected. Upon further review, the licensee determined that the data was invalid. The test was promptly re-run, with acceptable results. An AR was written to determine the cause of the invalid data. The inspectors considered the licensee's actions to be appropriate.

Containment isolation valve CV4371A, drywell nitrogen isolation, failed to meet ASME stroke time on June 20, 1996. The test was repeated and results were acceptable. The valve was placed on an increased test frequency (daily) while efforts were on going to determine the root cause. There was no design basis closure time requirement for this valve and the inspectors verified that the requirements of the ASME OM-10 Code were met. On July 15, 1996, CV4371A again failed to meet the ASME stroke time during the initial test; however, the results of a subsequent retest were within ASME requirements. The licensee determined that the root cause was a problem with solenoid valve SV4371A that actuates CV4371A. SV4371A was replaced in its entirety on

July 18, 1996. The licensee planned to continue increased frequency testing on CV4371A for approximately 1 month to insure the problem did not recur.

c. Conclusions

Maintenance and testing activities were observed to be completed properly and professionally. The inspectors observed prompt support by engineering to resolve the surveillance discrepancies discussed above.

M1.2 Weak Communications During Safety System Maintenance Work

b. Observations and Findings

During a routine, scheduled RHR system maintenance outage, the licensee performed work on valve MO-1940 (loop "B" heat exchanger bypass valve). On the backshift between June 5 and June 6, 1996, work was completed and the valve was tested by the valve operation test and evaluation system (VOTES). Personnel performing the work and testing did not inform Operations personnel of the test results; as a result, operators were not aware of the formal system status. The inspectors observed that operators were also unable to obtain the status and results from maintenance personnel during the routine daily turnover on June 6. The information was still unavailable at the routine plan of the day meeting. The information was subsequently communicated to management and operations personnel during the dayshift on June 6.

c. Conclusions

While the delay in communicating maintenance/testing results did not appear to have adverse consequences in this case, the inspectors were concerned that poor intra and interdepartmental communications had the potential to unnecessarily increase safety system outage time.

M1.3 Underground Cable Cut During Maintenance

a. Inspection Scope (62703)

On June 26, 1996, licensee personnel were performing trenching operations within the protected area yard in order to perform work on an underground fire protection header component. During the digging evolution, a 12.5 kV underground cable was cut and as a result several outbuildings lost electrical power. When the licensee attempted to transfer the Technical Support Center heating, ventilation, and air conditioning (TSC HVAC) power supply to the TSC diesel, the diesel failed to start.

b. Observations and Findings

The licensee documented the initial occurrence, and subsequent issues, via ARs 96-1330, 96-1333, 96-1334, and 96-1342. The licensee also initiated an HPES on the event. The licensee's initial investigation

determined that the failure of the TSC diesel to start was a procedural/knowledge type of issue, as opposed to an actual hardware failure. Pending inspector review of the HPES conclusions and subsequent corrective actions, this is an inspection follow-up item (IFI 50-331/96005-02).

M2 Maintenance and Materiel Condition of Facilities and Equipment

M2.1 Plant Material Condition

b. Observations and Findings

Plant materiel condition was acceptable. The inspectors noted that a number of materiel condition issues arose during the inspection period that required the plant personnel to take prompt action. The inspectors considered the licensee's response to these materiel condition issues to be appropriate. While each individual occurrence was of minor consequence, collectively the issues represented distractions for operators and other plant staff. In each case, the issue was entered into the plant's maintenance process or corrective action process and corrected, as appropriate. The examples are listed below:

- On June 6 and July 12, 1996, spurious 1/2 scrams occurred. Monitoring equipment installed after the June 6, 1996, 1/2 scram provided useful information, which led the licensee to suspect that a problem with the "A" APRM or its power supply was the cause. The licensee's investigation was still underway at the end of the report period.

- On June 5 and June 10, 1996, the "D" well chlorination system was out of service again (see IR 50-331/96004 for other problems with this system). There was no impact on drywell temperature; however; this system continues to remain a challenge for plant staff. See Section R1.2 for more details.

- The licensee began to notice an increasing trend in containment oxygen levels. The technical specification (TS) maximum was 4 percent and the actual level reached approximately 3 percent. Several items were secured to identify the source of the leak. The equipment noted to be leaking included a containment isolation valve resilient seal and the hydrogen/oxygen analyzer suction piping. The licensee planned repairs in the near future. The containment was vented and purged periodically to reduce the oxygen concentration and maintain it below 3 percent. The inspectors noted aggressive engineering support to address this issue.

- Drywell nitrogen isolation valve CV4371A failed to meet ASME stroke times twice during the report period. Details are discussed in Section M1.1.

- On July 5, 1996, during monthly testing, a standby diesel

generator panel was sprayed with lubricating oil due to a leaking fitting. Electricians carefully inspected cables and a relay inside the panel that may have been affected by the oil. Engineering determined that there was no operability concern with the condition of the components. Repairs were planned for August 1996. The inspectors considered the investigation and temporary repair to be prompt and thorough.

- On July 16, 1996, reactor protection system (RPS) electrical protection assembly (EPA) breaker A1 tripped and power was lost to the "A" RPS bus. This resulted in a half scram and containment isolation valve group isolations. The licensee reported this event in accordance with 10 CFR 50.72 requirements. Licensee troubleshooting efforts were unable to determine the cause as of the end of the inspection period. The inspectors will followup on this issue during closure of the Licensee Event Report (LER).

c. Conclusions

The inspectors noted prompt operator identification, appropriate maintenance attention, and thorough engineering support of the identified materiel condition issues.

M8 Miscellaneous Maintenance Issues (92902)

M8.1 (Closed) Licensee Event Report (LER) 50-331/94009, Revision 0: Control Rod Drive Differential Pressure Transmitter (DPT) Leak into the Reactor Building. Test results showed that the retaining bolts that failed were susceptible to cracking in a moist environment. The root cause was a previously unidentified packing leak on a valve located directly above the DPT. Corrective actions included repair of the leaking valve, replacement of the DPT, revision to maintenance procedures, training to applicable personnel, and a walkdown of other similar DPTs in the plant. The inspectors verified implementation of the corrective actions and had no concerns. This item is closed.

M8.2 (Closed) LER 50-331/94008, Revision 0: Missed Sensor Response Time Testing of Reactor Protection System Pressure Switches. This issue was the subject of a Non-Cited Violation in NRC Inspection Report 50-331/94012. The licensee identified problems with, and corrected the processes that allowed, the required testing to be overlooked. The inspectors verified the implementation of the corrective actions and their effectiveness. The inspectors considered the corrective actions to be thorough and adequate to prevent recurrence. This item is closed.

M8.3 (Closed) LER 50-331/95011, Revision 0: Elevated Standby Diesel Generator Room Temperature Leads to a High Generator Bearing Temperature. This issue was discussed in IR 50-331/95009 and in IR 96002 as a non-cited violation. The inspectors reviewed the ventilation calculations and verified that the diesel generator operability was not impacted by the incorrect installation of the diesel room temperature controller. The inspectors reviewed the root cause analysis and

corrective actions and had no concerns. This item is closed.

III Engineering

E1 Conduct of Engineering

a. Inspection Scope (37551)

Selected engineering problems or events were evaluated to determine their root causes. The effectiveness of the licensee's controls for the identification, resolution, and prevention of problems was also examined. The inspection included review of areas such as corrective action systems, root cause analysis, safety committees, and self assessment.

E1.1 Inadequate Safety Evaluation for Low Emergency Service Water Makeup Flow Rate to Spent Fuel Pool

a. Inspection Scope

The inspectors evaluated closed AR 940777, regarding a licensee-identified discrepancy between UFSAR requirements and actual emergency service water (ESW) makeup flow rate to the spent fuel pool. This evaluation included an independent review of documents such as, the UFSAR, the licensee's Safety Evaluation, refuel outage logs, spent fuel pool heat up rate curve, and outage risk management guidelines. The inspectors also conducted interviews with licensee personnel.

b. Observations and Findings

The inspectors identified concerns with assumptions in the licensee's Safety Evaluation, as discussed below.

Section 9.1.3.3 of the UFSAR states that the ESW system provides Seismic Category I makeup capability to the spent fuel pool in the event that all external cooling to the pool is lost. The makeup flow was provided via a hose connection to the ESW through a fire hose stored in the reactor building. The UFSAR stated that the makeup flow rate to maintain a pool level of 36 feet would be 38.8 gpm. The rerack amendment calculated that for the worst case heat load, the ESW makeup requirement would be approximately 43 gpm. The ESW makeup to the fuel pool had a design flow of 75 gpm; however, a test on February 20, 1995, just before DAEC entered its refueling outage (i.e., the highest heat loads on the pool), revealed that the ESW system was only able to provide about 10 gpm flow to the pool. The licensee performed a 10 CFR 50.59 Safety Evaluation after the refueling outage, which asserted that there were other diverse, but less qualified, sources of makeup as well as innovative methods of removing decay heat/makeup. None of these sources appeared to be Seismic Category I. In addition, an important assumption in the licensees safety evaluation was that the loss of spent fuel pool cooling would occur more than 60 days after reactor shutdown.

The inspectors identified that there was no analysis of the worst case (i.e., had the loss of pool cooling occurred at the beginning of the refueling outage, during the period of highest heat loads).

The published heat up rate curve for the spent fuel pool alone with Cycle 13 full core and previous spent fuel (Appendix 6 to "Outage Management Guide-7," Revision 4, dated March 8, 1995) showed that during the period of highest heat loads on the pool (March 8, 1995), the heat up rate would have been approximately 7.5 °F per hour. In the safety evaluation, the licensee assumed a value of 2.5 °F per hour, which corresponded to a condition more than 60 days after reactor shutdown.

The licensee determined that an alternate ESW lineup would increase the flow rate to the SFP. The licensee planned to incorporate the alternate lineup into the appropriate Operating Instructions before the next refuel outage (October 1996). Additionally, the licensee planned to test the alternate lineup to ensure that the flow rate specified in the UFSAR was met. At the end of the inspection period, the licensee planned to revise the Safety Evaluation and had initiated further analysis, using worst case data from RFO-13. The inspectors will review the revised Safety Evaluation during closure of the NOV.

c. Conclusion

The failure of the licensee's safety evaluation to provide adequate bases for the determination that there was no unreviewed safety question is a Violation of 10 CFR 50.59(b)(1), which states, in part, that the records must include a written safety evaluation which provides the bases for the determination that the change, test, or experiment, does not involve an unreviewed safety question (50-331/96005-03).

E1.2 Poor Communications During Chlorination of the "C" Well Water

a. Inspection Scope

On July 16, 1996, the licensee utilized a vendor to perform a chemical shock treatment of the "C" well because of concerns associated with bacteria levels in that system. The well water system is a nonsafety-related system that provides cooling water to a number of areas, including the drywell coolers. The well water system, and its associated chlorination system, had been a long term concern due to their impact on drywell ambient temperatures, as well as operator actions necessary to ensure technical specification temperature limits were met (reference IRs 50-331/96004 and 96002).

b. Observations and Findings

The shock treatment method utilized included the disconnection of the "C" well pump discharge piping to allow for better mixing of the chemicals by sluicing between the well and a tanker truck. The specific details of the method to be used were not documented in the work package, nor was it discussed with operations personnel by the system engineer or others involved in the activity. Based on past performance, the operators were under the impression that the chemicals would just be added to the "C" well and the system would not be breached. Operators did not become aware of the job scope or system status until the task was nearly completed. One of the consequences of the operators not knowing the job scope was a tagout that did not offer personnel protection from a pump start. After discovery, operators changed the tagout to include a Hold Card on the pump power switch. The licensee also documented the occurrence with AR 96-1444 and initiated a human performance enhancement system (HPES) evaluation.

c. Conclusions

The inspectors were concerned that poor interdepartmental communications contributed to a situation in which operators did not know the physical status of one of their systems and prepared a tagout that may not have been appropriate for the circumstances. Once the situation was discussed, the inspectors had no substantial concerns with licensee management actions taken in response to the issue.

E8 Miscellaneous Engineering Issues (92902)

E8.1 (Closed) LER 50-331/94001, Revision 0: Inadequate Test of the APRM High Flux Scram Trip Setpoint. This issue was the subject of Violation 50-331/94002-02(DRP), which is closed in Section E8.2 of this report. The inspectors considered corrective actions to be appropriate. This item is closed.

E8.2 (Closed) Violation 50-331/94002-02: Failure to Properly Test APRM Scram Trip Setpoint as Required by TS. The licensee responded to both the specific issue (inadequate TS surveillances) and the broader cause of the issue (failure to incorporate vendor manual information) in the response letter, dated April 4, 1994. The surveillance was revised and completed satisfactorily. Significant changes had been made to the vendor manual program as a result of a self-assessment conducted in April 1994. These changes were reviewed by the inspectors. The inspectors considered the corrective actions appropriate to prevent recurrence. This item is closed.

E8.3 (Closed) IFI 50-331/95011-01: Acceptability of the removal of 17 motor-operated valves (MOVs) from the Generic Letter 89-10 program. The staff considers the commitments made by the licensee as discussed in NRC Inspection Report 50-331/95011, and the letters of March 10, 1995, and March 18, 1996, to provide adequate confidence that the licensee had demonstrated and will maintain the capability of these 17 MOVs to return

to their safety position under accident conditions. This position is documented in NRC letter to IES Utilities dated June 25, 1996. This item is closed.

E8.4 (Closed) IFI 50-331/96002-09: Emergency Service Water Makeup Flow Rate to the Spent Fuel Pool Less Than Specified in UFSAR. The inspectors reviewed the licensee's safety evaluation for this issue and determined that adequate bases were not provided for the determination that no unreviewed safety question existed. This was a violation of 10 CFR Part 50.59, as discussed in Section E1.1 above. The corrective actions will be reviewed during the closure of the violation. This IFI is closed.

IV Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Weak Communications During Draining Evolution Results in Spread of Contamination

a. Inspection Scope

At the shift turnover meeting on July 11, 1996, the inspectors became aware of weak communications between a radwaste operator and an auxiliary operator during a system draining evolution. This resulted in the spread of contamination in the southeast corner room. The inspectors followed up on this issue by conducting interviews, and reviewing procedures and logs.

b. Observations and Findings

During performance of STP 45C001-Q, "Residual Heat Removal (RHR) Service Water Operability Test," the operator was required to drain a portion of the RHR service water piping into the southeast corner room sump. The sump was not designed to automatically pump down, so communications had to be established with the radwaste operator to allow for manual operation of the control valve that allows the sump to drain to the radwaste system. As specified in STP 45C001-Q, the operator was required to inform radwaste that they would be receiving water in the sump. Although the operator performed this notification, the communications were ineffective, such that the radwaste operator did not remain at the panel in order to manually operate the control valve when high level in the sump was indicated. When the auxiliary operator noticed that the sump was not draining properly, he secured the draining evolution; however, this still resulted in contamination of approximately 30 square feet of clean floor area in the southeast corner room from the sump over flowing.

The licensee promptly documented the occurrence on an AR form and a decision was made to perform a human performance enhancement system (HPES) evaluation. Other corrective actions included, successful draining of the system and decontamination of the area. The licensee

also planned to review whether there was an equipment malfunction or system design problem that may have complicated this event. The inspectors considered the licensee's planned corrective actions to be appropriate to prevent recurrence.

R1.2 Poor Communications During Well Water Chlorination System Problems

b. Observations and Findings

On June 5, 1996, the "D" well water chlorination system was out of service. The "A" chlorination pump was leaking and the "B" pump was secured. Subsequent investigation by the licensee determined that chemistry personnel had secured the chlorination pump without informing operations personnel. While there was little impact on the plant in this case; the inspectors were concerned that poor interdepartmental communication resulted in the operators not knowing the complete status of a system.

R1.3 Conclusions On Plant Support Issues

The inspectors were concerned with the weak communications and coordination between departments during these evolutions. These examples of weak communications between departments are similar to other examples discussed in this report.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on July 18, 1996. 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.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Franz, Vice President Nuclear
G. Van Middlesworth, Plant Manager
R. Anderson, Manager, Outage and Support
P. Bessette, Manager, Engineering
J. Bjorseth, Maintenance Superintendent
D. Curtland, Manager, Operations
R. Hite, Manager, Radiation Protection
D. Jantosik, Acting Manager, Corporate Quality Assurance
K. Peveler, Manager, Licensing and Emergency Planning

INSPECTION PROCEDURES USED

IP 37551:	Engineering
IP 61726:	Surveillance Observation
IP 62703:	Maintenance Observation
IP 62707:	Maintenance Observation
IP 71707:	Plant Operations
IP 71750:	Plant Support
IP 92700:	Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92901:	Followup - Operations
IP 92902:	Followup - Engineering
IP 92903:	Followup - Maintenance

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-331/96005-01	NOV	Operating Procedure Deficiencies
50-331/96005-02	IFI	HPES conclusions and corrective actions on TSC diesel failure to start
50-331/96005-03	NOV	10 CFR 50.59 evaluation was inadequate for low emergency service water makeup flow rate to the SFP

Closed

50-331/94001	LER	Inadequate test of the APRM high flux scram set point
50-331/94002-02	VIO	Failure to properly test APRM scram trip set point as required by Technical Specification
50-331/94008	LER	Missed sensor response time testing of reactor protection system pressure switches
50-331/94009	LER	Control rod drive differential pressure transmitter (DPT) leak into the reactor building
50-331/95011	LER	Elevated standby diesel generator room temperature leads to a high generator bearing temperature

50-331/95011-01	IFI	Acceptability of the removal of 17 motor operated valves from the Generic Letter 89-10 program
50-331/96002-09	IFI	Emergency service water makeup flow rate to the spent fuel pool less than specified in the UFSAR

LIST OF ACRONYMS USED

APRM	Average power range monitor
AR	Action Request
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
DAEC	Duane Arnold Energy Center
DPT	Differential pressure transmitter
EPA	Electrical Protection Assembly
ESF	Engineered Safety Feature
ESW	Emergency Service Water
HPES	Human performance enhancement system
IFI	Inspection followup item
IR	Inspection report
JPM	Job performance measure
LER	Licensee Event Report
NOV	Notice of Violation
OI	Operating Instruction
QA	Quality Assurance
RCIC	Reactor core isolation cooling
RHR	Residual heat removal
RHRSW	Residual heat removal service water
RPS	Reactor protection system
SE	Safety Evaluation
SFP	Spent fuel pool
SRV	Safety relief valve
STP	Surveillance Test Procedure
SV	Safety valve
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved item
VOTES	Valve Operation Test and Evaluation System