

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

REPORT NO. 50-331/96002

FACILITY

Duane Arnold Energy Center
License No. DPR-49

LICENSEE

IES Utilities Incorporated
IE Towers, P. O. Box 351
Cedar Rapids, IA 52406


DATES

January 17 through March 8, 1996

INSPECTORS

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APPROVED BY



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4/12/96
Date

AREAS INSPECTED

Routine, unannounced inspection of plant operations, maintenance, surveillance, onsite engineering, and plant support. Routine announced inspection of effluent and radiation monitoring, off-site dose assessments, and engineered safety feature filtration system testing. Safety assessment and quality verification activities were routinely evaluated. Followup inspection was performed for certain previously identified items.

EXECUTIVE SUMMARY

Overall, performance at DAEC remained good. Most activities observed were well performed and indicated good planning and preparation. The corrective action process appeared to continue to be well utilized by licensee personnel with only occasional, minor instances noted where items were not entered into the system. While overall plant material condition remained good, problems with the reactor recirculation motor generator (MG) sets, particularly the "B" MG set, continued to occur. Human performance problems related to personnel errors and inattention to detail also continued to occur during this report period. These problems were of particular concern because they occurred during the performance of day-to-day routine activities and were observed across multiple departments. Corrective actions for an earlier violation involving weaknesses in the Engineered Maintenance Action process were apparently too narrow in scope and did not prevent a violation during this report period. This violation was of particular concern because it involved a safety-related system that was of high risk importance.

Within the area of **OPERATIONS**, the inspectors continued to note good operator response to events such as a reactor recirculation motor generator set trip and a reactor recirculation pump runback. Although operator identification of an increasing trend in drywell temperature was considered good (Section 1.1), inattention to detail during routine activities in two cases, a theme that continued from the prior inspection report period is a concern.

- During routine performance of the monthly standby diesel generator surveillance, an operator failed to complete two of the three data pages. The diesel had to be re-run later to obtain the required data (Section 2.1).
- A mobile cart in the control room was not restrained as required by procedure. This was apparently not noticed during operator panel walkdowns over several days until identified by the NRC (Section 2.2).

The inspectors also identified concerns with human performance and inattention to detail during the performance of routine activities within the area of **MAINTENANCE**. These examples were similar in nature to those observed in other departments.

- Maintenance personnel installed temporary monitoring equipment in the control room and failed to restrain the cart as required (Section 2.2).
- The inspectors identified that a technician failed to properly calibrate an instrument (Section 2.3).
- Technicians completed a surveillance without realizing that a page was missing (Section 2.3).

In **ENGINEERING** a concern was identified involving the failure to correct weak controls in the engineered maintenance action (EMA) process even though a violation for that problem occurred in September 1994 (Section 3.1). However, the inspectors did note aggressive engineering involvement by System Engineering in response to an increasing trend in average drywell temperature. This response was timely and appropriate (Section 3.3).

Within the area of **PLANT SUPPORT** a concern with inattention to detail during the performance of routine activities was identified. This concern involved an error made by a radioactive waste operator while clearing a tagout (Section 4.4). However, overall performance in radiation protection continued to be strong with no noted problems in the gaseous and liquid radioactive waste program, effluent and radiation monitoring, or off-site dose assessments (Section 4.1). Preliminary engineered safety feature filtration test results were in compliance with technical specifications, however, a minor difficulty was encountered during annual testing of the "A" Standby Filter Unit (Section 4.2).

The inspectors identified two concerns within the area of **SELF ASSESSMENT AND QUALITY VERIFICATION**.

- The corrective actions for a violation in September 1994 regarding the EMA process were considered narrow in scope in that only certain procedures were required to be updated prior to returning equipment to service (Section 3.1).
- An Action Request form was not written on the licensee-identified drywell temperature trend until questioned by the inspectors (Section 3.3).

Summary of items opened in this report

Violations: Identified in Sections 2.1, 2.3 (3), and 3.1.

Non-Cited Violations: Identified in Section 2.2.

Inspection Follow-up Items: Identified in Sections 1.1 (2) and 6.0 (4).

DETAILS

1.0 PLANT OPERATIONS (71707) (92901)

The inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators during the inspection. The inspectors verified the operability of selected emergency systems, reviewed tagout records, and verified proper return to service of affected components. Tours of the reactor and turbine buildings, pump house, and river intake structure were conducted to observe equipment materiel condition and plant housekeeping, and to verify that maintenance work requests had been initiated for equipment in need of maintenance. It was observed that the Plant Manager and Operations Supervisor were well-informed of the overall status of the plant and that they made frequent visits to the control room.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under technical specifications (TS), Title 10 of the *Code of Federal Regulations*, and administrative procedures.

At the beginning of the inspection period, reactor power was approximately 40 percent while the plant was in single loop operations following a trip of the "B" reactor recirculation motor generator (RRMG) set on January 17, 1996. The RRMG was placed back on line on January 19. On January 23, the "B" RRMG experienced a runback from 100% to 70% and back to 100% in approximately 1 minute. On February 10, reactor power was reduced to approximately 40 percent for planned preventive maintenance on the "A" RRMG set and a planned rod sequence exchange. From February 14 through February 27, reactor power was administratively de-rated to approximately 95 to 99 percent power to maintain margin to thermal limits.

Concerns were identified with operator inattention to detail during routine surveillance testing as discussed in Section 2.1 and during routine control room walkdowns following a maintenance activity that left a wheeled cart unrestrained in the back panel area as discussed in Section 2.2.

1.1 Plant Materiel Condition

Overall, materiel condition was good. The inspectors noted that a number of materiel condition problems arose during the inspection period that required the operators to take prompt action and/or resulted in TS limiting condition for operation (LCO) entries. The inspectors considered the operators' response to these problems and the identification of an increasing drywell temperature trend to be good. While each individual occurrence was of minor consequence, collectively the problems represented distractions for operators and other plant

staff. In each case, the problem was entered into the plant's maintenance process or corrective action process, where appropriate. The examples are listed below:

- On January 17, 1996, the "B" reactor recirculation motor generator (RRMG) set tripped on exciter field undervoltage. This was the fourth trip of this unit since July 1994. After repairs, the unit was restarted on January 19. The inspectors will review this issue further upon completion of the licensee's root cause as part of Inspection Follow-up Item (IFI) 50-331/96002-01.
- On January 23, while inserting a Group 3 Primary Containment Isolation, the "B" reactor recirculation pump experienced a speed controller runback and recovery from 100% to 70% to 100% in approximately 1 minute. No definite cause was found and monitoring equipment was installed. The inspectors will review the licensee resolution of this issue upon completion of the root cause as part of Inspection Follow-up Item (IFI) 50-331/96002-02.
- During maintenance on the rod select matrix on January 26, the power supply failed and the rod select matrix was out of service for approximately 1 hour. There has been a history of problems with the rod select matrix, though none related to power supply failures.
- On February 10, the "A" RRMG set was taken off line for planned maintenance on brushes. The brushes had been showing abnormal brush wear and further analysis was planned to identify the cause.
- On February 6, Operations identified an increasing trend on drywell temperature. (See Section 3.3 for details.)
- On February 27, following testing of the "A" standby filter unit, the supply isolation damper did not close. The system was declared inoperable and an LCO was entered. The damper was promptly repaired. (See Section 4.2 for details.)

1.2 Licensee Event Report (LER) Followup (92700) (90712)

(Closed) LER 50-331/94011, Revision 0: Missed Surveillance of Rod Block Monitors (RBM) Due to a Failure to Recognize the Surveillance Requirement. The corrective actions included: 1) a functional test of the RBM upon discovery of the error, 2) written communication to the control room operators to reinforce expectations for review of LCOs and surveillance requirements, and 3) discussion of the event in Operator Requalification training in September through November 1994. This event was discussed in inspection report 50-331/94013(DRP) as a Non-Cited Violation. The corrective actions were considered appropriate. This LER is closed.

No violations or deviations were identified in this area. Two Inspection Follow-up Items were identified.

2.0 MAINTENANCE AND SURVEILLANCE OBSERVATIONS (61726)(62703)(92902)

Station maintenance activities of safety-related systems and components listed below were observed and/or reviewed to verify that they were conducted in accordance with approved procedures, regulatory guides, industry codes or standards, and in conformance with TS.

The inspectors observed safety-related surveillance testing and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with TS and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspectors observed or reviewed portions of maintenance activities on equipment such as reactor recirculation system speed control, rod select matrix, standby diesel generators (SBDG), and standby filter unit (SFU) damper operator. The inspectors witnessed portions of test activities such as core spray logic system functional test, SBDG monthly surveillance, core spray system quarterly surveillance, SFU system annual surveillance, and low pressure coolant injection subsystem simulated automatic actuation. Concerns were identified with weak attention to detail during routine activities that caused several issues as discussed below.

2.1 Diesel Generator Surveillance Performance Error

On January 20, 1996, while performing the routine monthly standby diesel generator test (STP 48A001-M: "Standby Diesel Generator Monthly Operability Test"), the operator conducting the test failed to complete two of the three required data pages. After obtaining a data point from the control room, and completing the first page of a three page attachment data checklist, the operator inadvertently returned to the main body of the procedure without completing the last two pages of the data checklist. The operator continued on with the test instructions and secured the diesel generator in accordance with the surveillance requirements. The error was discovered during the control room review of the completed surveillance test. The surveillance was subsequently reperfomed and all the data appropriately collected. The surveillance test results were satisfactory and the licensee documented the occurrence in action request (AR) 960178. Additional corrective actions included counseling of the involved operator and a revision to Operations Department Instruction (ODI)-018 to include additional guidance on self checking practices.

While reperformance of the test resulted in satisfactory results and verified standby diesel generator operability, the inspectors were concerned that the operator's inattention to detail necessitated extra run time on the diesel and unnecessary reperformance of the surveillance test. Additionally, while the actual safety consequences of this particular event were minimal, the inspectors were also concerned that the event was similar in nature to those in other areas where personnel

errors or mistakes occurred during the conduct of routine, day-to-day activities (discussed in Sections 2.2, 2.3, and 4.4 of this report and in inspection reports 50-331/95011 and 95013).

Technical Specification 6.8.1 required, in part, that written procedures covering surveillance and testing which could have an effect on the nuclear safety of the facility be implemented. During the performance of the monthly standby diesel generator testing, the licensee failed to follow STP 48A001-M, "Standby Diesel Generator Monthly Operability Test." This example of a licensee identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII of the NRC Enforcement Policy (50-331/96002-03a). This item is closed.

2.2 Unattended Mobile Equipment Cart in Control Room

On February 20, 1996, the inspectors noted that a wheeled cart, used for reactor recirculation system troubleshooting, was left unattended and unrestrained in the control room back panel area. The equipment cart had been in that condition for several days. The cart, which contained temporary monitoring equipment attached to the control room panels, had been used for troubleshooting activities several days earlier. Licensee personnel decided to leave the troubleshooting equipment in place for further system monitoring. Duane Arnold Administrative Control Procedure (ACP) 1408.11 required that mobile equipment, when left unattended, shall be restrained in such a manner that it will not become a rolling hazard during a seismic event. While there was minimal safety consequence associated with the unrestricted cart, the inspectors were concerned with the lack of attention to detail exhibited by various groups. Maintenance and engineering personnel were involved with the original installation and use of the equipment cart. Additionally, control room operators conducted control room walkdowns several times each day as part of their turnover activities. The noncompliance with licensee procedural requirements was not noticed for several days until pointed out by the inspectors. This failure constitutes a violation of minor significance and is being treated as a Non-Cited Violation, consistent with Section IV of the NRC Enforcement Policy (50-331/96002-04). This item is closed.

2.3 Follow-up of Previously Opened Items (92902)

(Closed) Unresolved Item (URI) 50-331/95009-02: Standby Diesel Generator Room Temperature Controller Installed Incorrectly. Technical Specification 6.8.1 required, in part, that written procedures covering maintenance operations which could have an effect on the nuclear safety of the facility be implemented. During the calibration and installation of this instrument on October 9, 1995, the licensee failed to follow procedure I.PC-J073-005, "Johnson Controls, INC., Series T-5800 Pneumatic Receiver-Controllers." This self-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII of the NRC Enforcement Policy (50-331/96002-05). The inspectors reviewed the licensee's ventilation calculations, which supported the conclusion that the SBDG operability was not impacted during the time period between the incorrect installation and

the identification of the issue (October 9 thru 20, 1995). The inspectors reviewed the subsequent Root Cause Analysis and corrective actions and had no further concerns. This item is closed.

(Closed) URI 50-331/95013-01: Failure to Properly Calibrate Standby Filter Unit Pressure Switch. Technical Specification 6.8.1 required, in part, that written procedures covering maintenance operations which could have an effect on the nuclear safety of the facility be implemented. While observing this maintenance activity on January 2, 1996, the inspectors noted that the instrument was not calibrated properly in accordance with maintenance procedure GMP-INST-005, "Pressure and Vacuum Switch Field Calibration," Revision 3. This violation is being treated as a Non-Cited Violation, consistent with Section IV of the NRC Enforcement Policy (50-331/96002-06). The inspectors reviewed the subsequent Human Performance Enhancement System (HPES) investigation and corrective actions and had no further concerns. This item is closed.

(Closed) URI 50-331/95013-02: Personnel Error During Reactor Core Isolation Cooling (RCIC) Surveillance Test. Technical Specification 6.8.1 required, in part, that written procedures covering surveillance and testing requirements which could have an effect on the nuclear safety of the facility be implemented. During the performance of a RCIC surveillance test on January 16, 1996, the licensee failed to follow procedure STP 42A025-CY, "RCIC Auto Isolation Logic System Functional Test." This occurred because the technician failed to notice that a page was missing until the test was complete. This example of a self-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII of the NRC Enforcement Policy (50-331/96002-03b). This is another example of the Non-Cited Violation discussed in Section 2.1. The licensee performed the following immediate corrective actions in response to the issue: suspended the STP; returned RCIC to standby readiness; reperformed the STP (the test was completed satisfactorily); and documented the event per AR 96-0165. Long term corrective actions included emphasizing expectations to Procedures Department personnel, increasing plant awareness of the issue, and initiating an AR to track future occurrences of procedures issued from the Procedures Department with a missing page. The inspectors reviewed the licensee's corrective actions and had no substantive concerns. This item is closed.

No violations or deviations were identified in this area. Four Non-Cited Violations were identified.

3.0 ONSITE ENGINEERING (37551)

Selected engineering problems or events were evaluated to determine their root cause(s). The effectiveness of the licensee's controls for the identification, resolution, and prevention of problems was also examined. Concerns were noted with the corrective actions taken to resolve previous problems within the engineered maintenance action (EMA) process as discussed below.

3.1 Weak Controls in Engineered Maintenance Action (EMA) Process

The inspectors noted two examples where weak controls in the EMA process impacted routine activities, as discussed below.

- On January 25, 1996, the licensee identified that the incorrect oil was added to the "A" and "B" river water supply (RWS) pump motors during a maintenance activity on January 22, 1996. In November 1995, two of the four RWS motors were replaced with motors from a different manufacturer, which had different lubrication requirements. However, the preventive maintenance action request (PMAR) and referenced procedure still specified the original lubrication information. The Engineered Maintenance Action (EMA) process, which covered the motor replacement, did not have controls to ensure that PMARs or maintenance procedures were updated before the equipment was returned to service.

Engineering analysis determined that the mixed oils did not affect operability. However, the inspectors were concerned that the weak controls in the EMA process were similar to an issue in September 1994, which had not been adequately corrected. In September 1994, NRC identified that annunciator response procedures were not updated following changes to area radiation monitor setpoints. This item was cited as a violation in report 50-331/94017(DRP). The corrective actions for that violation were considered narrow in scope in that only certain procedures were required to be updated prior to returning equipment to service. The inspectors were also concerned that, because of weak corrective actions for the violation in September 1994, incorrect maintenance activities were performed on pumps in both divisions of a safety-related system of high risk importance in the Individual Plant Examination.

Criterion XVI of 10 CFR Part 50, Appendix B, required that measures be established to assure that conditions adverse to quality were promptly identified and corrected. The failure to correct weak controls in the EMA process after the Violation in September 1994, was considered a violation (50-331/96002-07).

- On March 5, 1996, another EMA related issue resulted in Operations not being able to meet one of the shiftly surveillance requirements as specified in procedure STP 42A001, "Instrument Checks," Revision 113. In this case, a change occurred to the plant on February 2, 1996, when an EMA removed a remote drywell temperature sampling switch. This switch was referred to by Procedure STP 42A001, Appendix J, as an alternate means of obtaining average drywell temperature. On March 5, 1996, the primary means of obtaining the average drywell temperature reading (a computer point) was unavailable and operators attempted to use the proceduralized alternate method. However, the procedure had not been updated to reflect the fact that the selector switch had been removed. As a result, operators were unable to meet the 3-hour window for obtaining the data as required by the surveillance procedure. The TS required obtaining the average drywell temperature once per 24 hours and the licensee was able to

meet this requirement. Technical Specification 6.8.1 required, in part that written procedures covering surveillance and testing which could have an effect on the nuclear safety of the facility be implemented. The failure to meet the 3-hour window for obtaining the data as required by STP 42A001 was a violation. This example of a licensee identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII of the NRC Enforcement Policy (50-331/96002-03c). This is another example of the Non-Cited Violation discussed in Sections 2.1 and 2.3. This item is closed.

The licensee determined that the plan to remove the switch was reviewed and approved in November 1993, before the surveillance procedure was revised to use the switch as an alternate sampling method. However, by the time the EMA was implemented in February 1996, the alternate method of sampling had been added to the surveillance procedure and there were no controls in the EMA process to check for this type of situation. Although the licensee was able to meet TS requirements, the inspectors were concerned with this additional example of weak controls in the EMA process and will review both examples in the close-out review of violation 50-331/96002-07.

3.2 Analysis of Water in HPCI Turbine Steam Exhaust Piping

As discussed in NRC Inspection Report 50-331/95012, the licensee identified the potential for a significant amount of water to become trapped between the check valves in the HPCI turbine steam exhaust piping following a surveillance test. After initially declaring the HPCI system inoperable due to potential waterhammer concerns, the licensee concluded that the system was operable by using qualitative comparisons between their system configuration and other facilities', and vendor information relative to other HPCI waterhammer evaluations.

The licensee initiated a detailed operability analysis using calculated loads from a postulated water slug traveling through the pipe. The forces and moments due to this load were combined with other design basis loads to determine the effects on the piping, pipe supports, and nozzles. The analysis, scheduled for completion in mid-March, was complicated by the Mark I torus loads that had to be retrieved and factored into the evaluation process.

Although the preliminary water slug forces, given in GE Nuclear Energy's "HPCI Starting Load Estimates," contained significant conservatism in most aspects of the calculation, NRC inspectors concluded that some assumptions and analytical approaches did not correspond to actual plant configurations. Examples included under-estimating the available water volume between the check valves, neglecting the water downstream of the first check valve when evaluating inertial forces and wave formation, and needing to consider void collapse loads between the check valves.

The licensee acknowledged that additional refinements to potential waterhammer loads would be necessary, but stated that current efforts were focussed on determining the available structural margin in the piping. This allowed quantification of the degree of refinement needed

for the waterhammer load magnitude. The inspectors will review the detailed operability analysis when the calculations become available and will review the licensee's corrective actions during the routine closure of the associated licensee event report (LER 95-013).

3.3 Increasing Trend of Average Drywell Temperature

On February 6, 1996, the Operations Department noticed an increasing trend in drywell temperature. The average temperature had increased from approximately 118 °F to 126 °F over the previous 2 weeks. The licensee's TS limit was 135 °F. System engineering began aggressively working on resolution of the problem and determined that a possible cause was increased fouling of the drywell coolers due to the lack of chlorination for the "D" well water system. The chlorination system had been out of service since December 11, 1995, due to leaks in the system. Priority maintenance was initiated for the chlorination system on February 9 and engineering was also pursuing other ideas.

The inspectors were concerned that an Action Request (AR) was not written on this issue (until questioned by the inspectors on February 14) and that the chlorination system was not given higher priority back in December due to the potential for fouling of the drywell coolers. The licensee's investigation had not established the cause of the temperature increase and were not sure whether the chlorination system had any impact on this issue. The inspectors considered the licensee's plans to troubleshoot, identify, and correct the problem to be appropriate.

One violation and one example of a non-cited violation were identified in this area. No deviations were identified in this area.

4.0 PLANT SUPPORT (71750, 84750)

The inspectors reviewed selected activities associated with radiological controls, radiological effluents, waste treatment, environmental monitoring, physical security, emergency preparedness, and fire protection to ensure conformance with facility procedures and/or regulatory requirements. Performance in radiation protection continued to be strong. The gaseous and liquid radwaste program (including effluent and radiation monitoring, and dose assessments) continued to be well run. Preliminary engineered safety feature (ESF) test results were in compliance with TS, however, a minor difficulty was encountered during annual testing of the "A" Standby Filter Unit. One concern was identified with inattention to detail while restoring a radwaste system tagout.

4.1 Radioactive Waste Treatment, Effluent, and Environmental Monitoring

The licensee aggressively implemented its effluent and radiation monitoring program in accordance with the Offsite Dose Assessment Manual (ODAM). The inspector reviewed the most recent ODAM revision, which included the addition of a thermoluminescent dosimeter in an increased population area, and the elimination of one milk sample; no problems were noted. Radiation and effluent monitors were operational and well maintained. The inspectors reviewed selected calibrations and set-

points of these monitors for compliance with station procedures and noted no problems. Monthly and yearly off-site gamma air doses to members of the public from radioactive materials were maintained within the applicable limits during the reviewed time frame.

4.2 Engineered Safety Feature (ESF) Filtration and Control Room Habitability

The inspectors observed portions of testing of the "A" Standby Filter Unit (SFU) and reviewed selected ESF atmospheric cleanup filtration and adsorption unit records. Preliminary test results for the "A" and "B" SFU appeared to be in compliance with TS, and a review of the operation logbook indicated that the TS-required monthly runs of the ESF systems were performed for the last 12 months.

While restoring the "A" SFU, the supply isolation damper AV-7301A did not close, and a high temperature annunciator was received in the control room. The system was declared inoperable and an LCO was entered per TS 3.10.A.3.a. A corrective maintenance action request (CMAR) was initiated, the licensee identified the cause of the problem, some minor mechanical changes were made, and the system was declared operable within the TS allotted time. Overall response to the problem was timely and thorough.

4.3 Tours of Radiation and High Radiation Areas

The inspectors performed routine plant tours, including select high radiation area tank rooms. Housekeeping throughout the plant was very good, however, some minor weaknesses were observed inside of contaminated areas with gloves, hoses, and ladders on the floor. The overall condition of the radwaste tank rooms was very good, although, water marks were noted from previous known steam leaks outside of the 1T-6 condenser back wash receiving tank room.

4.4 Follow-up of Previously Opened Items (92904)

(Closed) URI 50-331/95013-03: Radwaste Operator Error During System Tagout Restoration. The inspectors reviewed the licensee's investigation of this issue, including results of an HPES evaluation and corrective actions. Since the error was made on a nonsafety-related system this did not constitute a violation of NRC requirements. However, the inspectors were concerned that this error occurred during a routine task and that there was weak self-checking on the part of the operator. The corrective actions were considered appropriate. This item is closed.

5.0 DEFINITIONS

5.1 Non-Cited Violations

The NRC uses the Notice of Violation to formally document the failure to meet a legally binding requirement. However, because the NRC wants to encourage and support licensee initiatives for self-identification and correction of problems, two violations identified in this report will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria

in Section VII.B of the NRC Enforcement Policy. Two other violations will not be cited because the criteria in Section IV of the NRC Enforcement Policy were satisfied. Violations of regulatory requirements identified during the inspection which are being treated as Non-Cited Violations are discussed in Sections 2.1, 2.2, 2.3, and 3.1.

5.2 Inspection Follow-up Items

Inspection Follow-up Items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee, or both. Six IFIs disclosed during the inspection are discussed in Sections 1.1 and 6.0.

6.0 REVIEW OF UFSAR COMMITMENTS

A recent discovery of a licensee operating their facility in a manner contrary to the Updated Final Safety Analysis Report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures, and parameters to the UFSAR description. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the UFSAR that related to the areas inspected. The following inconsistencies were noted between the wording of the UFSAR and the plant practices, procedures and parameters observed by the inspectors.

- The licensee identified on December 21, 1995, that 180 gallons of water had entered the HPCI turbine exhaust piping. The licensee concluded that water was drawn up from the torus due to a leaking check valve in the exhaust line, and that the installed vacuum breakers were functioning properly. Section 6.3.2.2.1 of the UFSAR specifies that the installation of the vacuum breakers was to ensure that during HPCI system operation and subsequent shutdown no differential pressure exists that could cause torus water to enter the exhaust lines and cause water hammer. The water intrusion issue did occur and is documented in IR 50-331/95013. This inconsistency will be reviewed during the closure of LEF 95-013.
- On January 10, 1996, the licensee identified that DC powered RCIC steam supply valve MO 2401, electrically back seated on September 8, 1995, may exceed the UFSAR design closure time of 20 seconds under design basis conditions. Licensee calculations showed that under degraded voltage and full flow conditions, stroke time would be 22.7 seconds. The licensee subsequently resolved the issue and documented the basis for operability, which included a statement that the values for closure time in UFSAR Section 7.3.1.1.1.7 are nominal in nature and not based upon detailed analysis. This inconsistency will be reviewed further and is tracked as Inspection Follow-up Item (IFI) 50-331/96002-08.
- In February 1995, the licensee identified, through testing, that the ESW makeup flow rate to the spent fuel pool was less than design and less than specified in UFSAR Section 9.1.3.3. A 50.59 Safety Evaluation was performed in May 1995 that documented the

rationale for the conclusion that there was no unreviewed safety question. This inconsistency will be reviewed further by the Office of Nuclear Reactor Regulation (NRR) as part of the Spent Fuel Pool Licensing Basis Review and is tracked as IFI 50-331/96002-09.

- The normal supply of compressed air for the safety-related and standby gas treatment (SBGT) system is not safety-related. Section 9.3.1.2.2 of the UFSAR specifies that failure of the normal compressed air system will not affect operation of the system because of the safety-related seismic category I standby air compressors (1K-3 and 1K-4) that will be available if the main plant compressed air system fails. The definition of operability in Duane Arnold's TS includes the statement that necessary attendant auxiliary equipment required for system to perform its function are also capable of performing their related support function. Duane Arnold did not enter a TS LCO or consider the SBGT inoperable when 1K-4 was out of service on January 2, 1996. This inconsistency will be reviewed further and is tracked as IFI 50-331/96002-10.
- Section 9.5.1.2.1 of the UFSAR describes the fire protection system as having pressure maintained by a jockey pump and accumulator combination. The inspectors noted that the accumulator has been isolated and tagged out since 1992. No 10 CFR 50.59 safety evaluation had been performed. This inconsistency will be reviewed further and is tracked as IFI 50-331/96002-11.

7.0 MANAGEMENT MEETINGS

7.1 Exit Meeting

On February 29, 1996, the inspectors met with licensee representatives (denoted by *) and summarized the scope and findings of the inspection activities. The licensee acknowledged the findings presented. At the conclusion of the inspection on March 8, a second exit was held with licensee representatives (denoted by +) to discuss new information since February 29.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

- *J. Franz, Vice President Nuclear
- +*G. Van Middlesworth, Plant Manager
- *R. Anderson, Manager, Outage and Support
- *R. Anderson, Operations Supervisor
- +*P. Bessette, Acting Manager, Nuclear Licensing
- T. Gordon, Acting Maintenance Superintendent
- *R. Hite, Manager, Radiation Protection
- *K. Putnam, Licensing Supervisor
- *M. McDermott, Manager, Engineering
- *K. Peveler, Manager, Corporate Quality Assurance