July 19, 2000

Mr. Dave Wilson
Vice President, Nuclear
Alliant Tower
200 First Street SE
P. O. Box 351
Cedar Rapids, IA 52406-0351

SUBJECT: DUANE ARNOLD - NRC INSPECTION REPORT 50-331/2000005(DRS)

Dear Mr. Wilson:

On June 30, 2000, the NRC completed a routine inspection at your Duane Arnold Nuclear Plant. The results of this inspection were discussed on June 30, 2000, with Mr. Van Middlesworth and other members of your staff. The enclosed report presents the results of this inspection.

The inspection was an examination of activities conducted under your license as they relate to radiation safety and to compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of representative records, tours of your facility and interviews with personnel. This inspection focused on occupational radiation safety and included a review of your performance indicator data collecting and reporting process.

Based on the results of this inspection, no findings were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

Gary L. Shear, Chief
Plant Support Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-331/2000005(DRS)

See Attached Distribution

cc w/encl: E. Protsch, Executive Vice President -
Energy Delivery, Alliant;
President, IES Utilities, Inc.
Richard L. Anderson, Plant Manager
K. Peveler, Manager, Regulatory Performance
State Liaison Officer
Chairperson, Iowa Utilities Board
The Honorable Charles W. Larson, Jr.
Iowa State Representative

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Richard L. Anderson, Plant Manager
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-331
License No:	DPR-49
Report No:	50-331/2000005(DRS)
Licensee:	Alliant, IES Utilities Inc.
Facility:	Duane Arnold Energy Center
Location:	Palo, Iowa
Dates:	June 26–30, 2000
Inspector:	D. Nelson, Radiation Specialist
Approved by:	Gary L. Shear, Chief, Plant Support Branch Division of Reactor Safety

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas) reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

SUMMARY OF FINDINGS

Duane Arnold Energy Center (DAEC)
NRC Inspection Report 50-331/2000005(DRS)

The report covers a one week period of announced inspection by a regional radiation specialist. This inspection focused on occupational radiation safety and included a review of the access control program, and as-low-as-is-reasonably-achievable ALARA planning and controls in conjunction with the October 22 through December 1, 1999, Refueling Outage 16 (RFO16). In addition, the inspector reviewed the licensee's performance indicator data collecting and reporting process.

RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

- No findings were identified.

Report Details

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control

.1 Plant Walkdowns and Radiological Boundary Verifications

a. Inspection Scope

The inspector performed walkdowns of the radiologically controlled area (RCA) to verify the adequacy of radiological controls and postings. Specifically, the inspector performed confirmatory radiation measurements in the Reactor and Turbine Buildings to verify that radiologically significant work areas (high radiation areas (HRAs) and radiation areas) were properly posted and controlled in accordance with 10 CFR Part 20 and the licensee's procedures.

b. Findings

There were no findings identified.

.2 Reviews of Radiation Work Permits

a. Inspection Scope

The inspector reviewed selected routine radiation work permits and electronic dosimeter alarm set points for both dose rate and accumulated dose for access to high radiation areas. The inspector verified that adequate work controls were in place to maintain worker exposures as-low-as-is-reasonably-achievable ALARA.

b. Findings

There were no findings identified.

.3 Reviews of Licensee's Programmatic Controls for Highly Activated/Contaminated Materials

a. Inspection Scope

The inspector reviewed procedure ACP 1407.2, "Material Control in the Spent Fuel Pool and Cask Pool," and toured the Spent Fuel Pool (SFP) to verify that all highly activated/ contaminated materials were properly stored and controlled in the SFP. The inspector also discussed with the Radiation Protection Manager the licensee's programmatic controls over the highly activated/contaminated materials .

b. Findings

There were no findings identified.

.4 Reviews of Radiologically Significant Work

a. Inspection Scope

The inspector reviewed the conduct of work activities in the Reactor and Turbine Buildings, and the drywell during the October 22 through December 1, 1999, Refueling Outage (RF016) that resulted in collective worker exposures greater than one person-rem. Specifically, the inspector verified the adequacy of radiological controls (e.g., radiation work permits and surveys) as well as the content of ALARA pre-job briefings for the following work activities:

(1) MO-1909 Inspection and Repair;
(2) Weld Repair Recirc Nozzles ECP 1627;
(3) 'B' IRM Replacement;
(4) Inservice Inspection Activities;
(5) Snubber Replacement; and
(6) MOV Work in Drywell.

b. Findings

There were no findings identified.

.5 Radiologically Significant Work and Radiation Worker Performances

a. Inspection Scope

There were no work evolutions being performed during the inspection that were estimated to result in collective worker exposures greater than one person-rem. The inspector did observe the radiological control practices of personnel working within posted radiation areas. The inspector verified that radiation worker performance was in compliance with radiation work permit controls and limits.

b. Findings

There were no findings identified.

.6 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed Action Requests associated with radiation protection technician performance, radiation worker practices, and control of activities within HRAs, initiated since January 2000. The inspector verified that identified problems were properly characterized, prioritized, entered into the corrective action program, and resolved in an expeditious manner.

b. Findings

There were no findings identified.

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

.1 Review of Radiologically Significant Work Activities

a. Inspection Scope

The inspector reviewed the formal ALARA reviews for work activities in the RCA and the drywell during Refueling Outage 16 that were expected to result in collective worker exposure greater than one person-rem to workers for the following work activities:

(1) MO-1909 Inspection and Repair;
(2) Weld Repair Recirc Nozzles ECP 1627;
(3) 'B' IRM Replacement;
(4) Inservice Inspection Activities;
(5) Snubber Replacement; and
(6) MOV Work in Drywell.

The inspector verified that exposure estimates and exposure performance data were based on plant job history and jobs were scheduled to consider the benefits of dose reduction activities to include temporary shielding and job schedule sequencing for scaffolding.

b. Findings

There were no findings identified.

.2 Radiation Dose Controls and Trending

a. Inspection Scope

The inspector reviewed the licensee's dose goals and dose trending for Refueling Outage 16 to determine whether the licensee maintained occupational radiation exposure ALARA. The inspector also reviewed dose records to determine that the station's outage dose compared favorably with other boiling water reactors.

b. Findings

There were no findings identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspector verified the licensee's assessment of its performance indicator (PI) for occupational radiation safety. Since no reportable elements were identified by the licensee for the 1st and 2nd quarters of 2000, the inspector compared the licensee's data with 1st and 2nd quarter ARs to verify that there were no occurrences concerning locked high radiation (>1 rem/hr) and very high radiation (>500 rads/hr) areas or unintended individual doses greater than 100 millirem.

b. Findings

There were no findings identified.

4OA5 Performance Indicator Data Collecting and Reporting Process Review (TI 2515/144)

a. Inspection Scope

The inspector evaluated the licensee's performance indicator (PI) data collection and reporting process to determine whether the licensee was appropriately implementing the NRC/Industry guidance, as documented in Nuclear Energy Institute (NEI) 99-02, Revision 0, "Regulatory Assessment Performance Indicator Guide." The inspector reviewed procedure ACP 1402.4, Revision 0, "NRC Performance Indicator Collection and Reporting," and interviewed members of the licensee's staff responsible for data acquisition, and PI verification and reporting.

b. Findings

There were no findings identified.

4OA6 Management Meetings

Exit Meeting Summary

.1 The inspector presented the inspection results to Mr. Van Middlesworth and other licensee management and staff at the conclusion of the site inspection on June 30, 2000. The licensee representatives acknowledged the inspection findings and identified no proprietary information.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Anderson, Plant Manager
R. Hite, Radiation Protection Manager
C. Kress, Training Supervisor
L. Kriege, Chemistry Supervisor
J. Newman, Radiological Engineering Supervisor
R. Perry, Quality Assurance
K. Peveler, Manager, Regulatory Performance
D. Schebler, Radiation Protection Supervisor
G. Van Middlesworth, Site General Manager
T. Vine, Radwaste Supervisor
M. Wood, Project Engineer Team Leader

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
AR	Action Request
HRA	High Radiation Area
ISI	In-Service Inspection
NEI	Nuclear Energy Institute
PI	Performance Indicator
QA	Quality Assurance
Radworker	Radiation Worker
RP	Radiation Protection
RPM	Radiation Protection Manager
RWP	Radiation Work Permit
TI	Temporary Instruction

PARTIAL LIST OF DOCUMENTS REVIEWED

Station Procedures

ACP 1407.2 (Revision 8)	Material Control in the Spent Fuel Pool and Cask Pool
ACP 1402.4 (Revision 0)	NRC Performance Indicator Collection and Reporting
ACP 1411.13 (Revision 7)	Control of Locked High Radiation Areas
ACP 1411.17 (Revision 11)	Occupational Dose Limits and Upgrades
ACP 1411.22 (Revision 8)	Control of Access to Radiological Areas
HPP 3104.12 (Revision 0)	Dose Profiling Hardware for Characterization in the Spent Fuel Pool and Cask Pool

Radiation Protection Manual (Revision 3)

RWPs and ALARA Reviews

RWP # 16	Heater Bay Entries at Power
RWP # 32	NRC Inspection Tours
RWP # 33	DAEC Management, Planning, Engineering Inquiries
RWP # 182	Spent Fuel Pool, Cask Pit or Equipment Pit - Misc Activities
RWP # 10192	M1 - MO1909 Valve Maintenance
RWP # 40210	S1:ISI and Support Work (Insulation, Scaffold, Bioshields)
RWP # 40500	Weld Overlay on N2 Nozzles
ALARA Review # 99011	MO-1909 Inspection and Repair
ALARA Review # 99-020	Weld Repair Recirc Nozzles ECP 1627
ALARA Review # 00-001	'B' IRM Replacement
ALARA Review # 00-002	V19-0149, Inspection and Repair
ALARA Review # 00-003	SFP/Cask Pool Clean-up

Quality Assurance Assessments and Self Assessments

Quality Assurance Quarterly Assessment Report, First Quarter 2000

"Radiological Briefings to Workers," Radiation Protection Self Assessment, December 12, 1999

"Material Release from Radiological Areas,", Radiation Protection Self Assessment, July 31, 1999

Investigation Reports and ARs

Refueling Outage 16 Post Outage Radiation Protection Summary

Radiation Safety Condition Report Trends, 1999 Refueling Outage (10/15/99 to 11/15/99)

Action Requests: AR # 17571, AR # 18270, AR # 18968, AR # 18831, AR # 18832, AR # 19066, AR # 19071, AR # 19075, AR # 19762, AR # 19813, AR # 19931, AR # 20334, and AR # 20359

Other Documents

Daily Exposure Reports for: June 26, 27, 30, 1999

Spent Fuel Pool/Cask Pool Material Storage Log

4th Quarter 1999 Action Request Radiological Occurrence Trend Report.

1st Quarter 2000 Action Request Radiological Occurrence Trend Report

Action Request - Radiation Protection Department Attachment