

July 22, 1992

Docket No. 50-331

DISTRIBUTION:

Mr. Lee Liu
Chairman of the Board and
Chief Executive Officer
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Dear Mr. Liu:

SUBJECT: AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-49
(TAC NO. M82525)

The Commission has issued the enclosed Amendment No. 184 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications in response to your application dated December 20, 1991.

The amendment revises the Technical Specifications (TS) in accordance with the requirements of Generic Letter 89-01 by: (1) incorporating programmatic controls in the Administrative Controls section of the Technical Specifications that satisfy the requirements of 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50; (2) relocating from the TS to the Offsite Dose Assessment Manual (ODAM) procedural details or specific requirements in the current Technical Specifications involving radioactive effluent monitoring instrumentation, the control of liquid and gaseous effluents, equipment requirements for liquid and gaseous effluents, radiological environmental monitoring, and radiological reporting details; (3) relocating from the TS to the Process Control Program (PCP) procedural details or specific requirements on solid radioactive wastes; (4) simplifying the associated reporting requirements; (5) simplifying the administrative controls for changes to the ODA and PCP; (6) adding record retention requirements for changes to the ODA and PCP; and (7) updating the definitions of the ODA and PCP consistent with these changes.

A copy of the Safety Evaluation is also enclosed. Notice of issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

Clyde Y. Shiraki, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. to License No. DPR-49
 - 2. Safety Evaluation
- cc w/enclosures: See next page

*See Previous Concurrence

LA:PD3-3:DRPW
PKreutzer
7/24/92

*PM:PD3-3:DRPW
CShiraki/tg
7/8/92 JRHall/7/22/92

*D:PD3-3:DRPW
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JBH 7/9/92

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7/14/92

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DPD

Mr. Lee Liu
Iowa Electric Light and Power Company

Duane Arnold Energy Center

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

IOWA ELECTRIC LIGHT AND POWER COMPANY
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.184
License No. DPR-49

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Iowa Electric Light and Power Company, et al., dated December 20, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 184, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of the date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

James R. Hall for

Clyde Y. Shiraki, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of issuance: July 22, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 184

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

REMOVE

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1.0-9
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3.2-4a
3.2-45b
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3.14-15
-
3.15.1 through
3.15-15
3.16-1 through
3.16-12
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6.9-5
6.10-3
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6.15-1

INSERT

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iia
iv
vi
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1.0-9
3.2-2a
3.2-4a
3.2-45b
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27. FREQUENCY NOTATION

| <u>NOTATION</u> | <u>FREQUENCY</u> |
|-----------------|--------------------------------|
| S | At least once per 12 hours. |
| D | At least once per 24 hours. |
| W | At least once per 7 days. |
| M | At least once per 31 days. |
| Q | At least once per 92 days. |
| SA | At least once per 184 days. |
| A | At least once per year. |
| R | At least once per 18 months. |
| S/U | Prior to each reactor startup. |
| P | Prior to each release. |
| NA | Not applicable. |

28. FIRE SUPPRESSION WATER SYSTEMS

A fire suppression water system shall consist of a water source, pumps, and distribution piping with associated sectionalizing control or isolation valves. Such valves include yard hydrant curb valves, the first valve ahead of the water flow alarm device on each sprinkler, hose standpipe or deluge system riser.

29. REACTOR TRIP SYSTEM RESPONSE TIME

Reactor trip system response time is the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until deenergization of the scram pilot valve solenoids.

30. REPORTABLE EVENT

A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

31. OFFSITE DOSE ASSESSMENT MANUAL

The Offsite Dose Assessment Manual (ODAM) contains the methodology and parameters to be used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the Radiological Environmental Monitoring Program. The ODA shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Program required by Section 6.9.4 and (2) descriptions of the information that should be included in the Semiannual Radioactive Material Release Report and Annual Radiological Environmental Report required by the Technical Specification 6.11.1.

32. Deleted33. PURGE - PURGING

PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is required to purify the confinement.

34. VENTING

VENTING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is not provided or required during the process. Vent, used in system names, does not imply a VENTING process.

35. PROCESS CONTROL PROGRAM (PCP)

The PROCESS CONTROL PROGRAM shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to ensure compliance with 10 CFR Parts 20, 61, 71, state regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

36. MEMBER(S) OF THE PUBLIC

MEMBER(S) OF THE PUBLIC are persons who are not occupationally associated with Iowa Electric Light and Power Company and who do not normally frequent the DAEC site. The category does not include contractors, contractor employees, vendors, or persons who enter the site to make deliveries or to service equipment.

37. SITE BOUNDARY

The Site Boundary is that line beyond which the land is neither owned, nor leased, nor otherwise controlled by IELP. UFSAR Figure 1.2-1 identifies the DAEC Site Boundary. For the purpose of implementing radiological effluent controls, the Unrestricted Area is that land (offsite) beyond the Site Boundary.

38. ANNUAL

Occurring every 12 months.

For the purpose of designating surveillance test frequencies, annual surveillance tests are to be conducted at least once per 12 months.

39. CORE OPERATING LIMITS REPORT

The Core Operating Limits Report is the DAEC-specific document that provides cycle-specific operating limits for the current operating reload cycle. These cycle-specific operating limits shall be determined for each reload cycle in accordance with TS 6.11.2. Plant operation within these limits is addressed in individual technical specifications.

40. Shutdown Margin

Shutdown margin is the amount of reactivity by which the reactor is subcritical or would be subcritical assuming all control rods are inserted, except for the analytically strongest worth control rod, which is fully withdrawn, with the core in its most reactive state during the OPERATING Cycle.

LIMITING CONDITIONS FOR OPERATIONSURVEILLANCE REQUIREMENTSD. Radiation Monitoring Systems-
Isolation & Initiation Functions1. Steam Air Ejector Offgas System

- a) At least one post-treatment steam air ejector offgas system radiation monitor shall be operable during reactor power operation. The monitors shall be set to initiate immediate closure of the charcoal bed bypass valve and the air ejector offgas isolation valve at a setting equivalent to or below the dose rate limits in ODAM Section 6.2.2.1.

- b) In the event no post-treatment monitor is operable, gases from the steam air ejector offgas system may be released to the environment for up to 72 hours provided (1) the charcoal bed of the offgas system is not bypassed, and (2) the offgas stack noble gas activity monitor is operable.

Otherwise, be in at least HOT STANDBY within the following 24 hours.

D. Radiation Monitoring Systems-
Isolation & Initiation Functions1. Steam Air Ejector Offgas System

Instrumentation shall be functionally tested, calibrated and checked as indicated in Table 4.2-D.

System logic shall be functionally tested as indicated in Table 4.2-D.

LIMITING CONDITIONS FOR OPERATIONI. EXPLOSIVE GAS MONITORING INSTRUMENTATION

1. A minimum of 2 Offgas Hydrogen Monitoring Instrument channels (R2)** shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.2.1.2 are not exceeded.

Applicability:

During Offgas System Operation

Action:

- a. With an explosive monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, declare the channel inoperable.
 - b. With one channel OPERABLE, operation of the Offgas System may continue provided the recombiner temperature sensor is OPERABLE. When only one of the preceding methods is operable, the Offgas System may be operated provided gas samples are collected at least once per day and analyzed for hydrogen within the ensuing 4 hours.
 - c. If the minimum required instrumentation is not returned to OPERABLE status within 30 days, prepare and submit to the Commission within 30 days, pursuant to Specification 6.11.3, a Special Report in lieu of any other report, why the instrument was not made operable in a timely manner.
2. The concentration of hydrogen in the Offgas System downstream of the recombiners shall be limited to $\leq 4\%$ by volume.

Applicability:

During Offgas System operation.

Action:

- a. With the concentration of hydrogen in the main condenser offgas treatment system downstream of the recombiners exceeding the limit, restore the concentration to within the limit within 48 hours.
- b. In the event the hydrogen concentration is not reduced to $\leq 4\%$ within 48 hours, be in at least HOT SHUTDOWN or within the limit within the following 24 hours.

** Refer to ODAM Figure 3-1 for location of effluent monitoring point R2.

SURVEILLANCE REQUIREMENTSI. EXPLOSIVE GAS MONITORING INSTRUMENTATION

1. Each explosive monitoring instrumentation channel shall be demonstrated OPERABLE by:
 - a. Daily channel check*
 - b. Quarterly channel calibration* which shall include the use of at least two standard gas samples, each containing a known volume percent hydrogen in the range of the instrument, balance nitrogen.
 - c. Monthly Channel Functional Test*
2. The concentration of hydrogen in the Offgas System shall be determined by monitoring the offgases in the Offgas System downstream of the recombiners with the hydrogen monitors.

* During Offgas System Operation

3.2.D.1 BASES

1. Main Condenser Offgas

Restricting the gross radioactivity rate of noble gases from the main condenser provides reasonable assurance that the total body exposure to an individual at the exclusion area boundary will not exceed a small fraction of the limits of 10 CFR Part 100 in the event this effluent is inadvertently discharged directly to the environment without treatment. This specification implements the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50.

3.2.I BASES

1. Explosive Gas Mixture

Specification 3/4.2.I is provided to ensure that the concentration of potentially explosive gas in the Offgas Treatment System downstream of the recombiners is maintained below the flammability limit of a hydrogen and oxygen mixture in the system. Keeping the mixture below its flammability limit will provide assurance that Offgas Treatment System integrity and operability is maintained and that the radioactive material concentration in the offgas will be controlled in conformance with 10 CFR Part 50, Appendix A, Criterion 60. Calibration gas concentrations will be within the range of interest for hydrogen concentration and will not include 0% or 100% hydrogen concentrations.

2. Explosive Gas Monitoring Instrumentation shall be OPERABLE and in service except that channels out of service are permitted for the purpose of required tests, checks, calibrations, and preventive maintenance without declaring the channel to be inoperable.

LIMITING CONDITIONS FOR OPERATION3.14 RADIOACTIVE EFFLUENTS

3.14.A Liquid Holdup Tanks*

3.14.A.1 The quantity of radioactive material contained in the unprotected outdoor tanks shall be limited to less than or equal to 50 curies, excluding tritium and dissolved or entrained noble gases. (The liquid radwaste storage tanks in the Low-Level Radwaste Processing and Storage Facility are considered unprotected outdoor tanks.)

Applicability: At all times.

Action:

- a. With the quantity of radioactive material in the tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tanks, within 48 hours reduce the tank contents to within the limit, and describe the events leading to this condition in the next Semiannual Radioactive Effluent Release Report.

* Tanks included in this specification are those outdoor tanks that are not surrounded by liners, dikes, or walls capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the liquid radwaste treatment system.

SURVEILLANCE REQUIREMENTS4.14 RADIOACTIVE EFFLUENTS

4.14.A Liquid Holdup Tanks

4.14.A.1 The quantity of radioactive material contained in the tanks shall be determined to be within the 50 curie limit by analyzing a representative sample of the tanks' contents at least once per 7 days when radioactive materials are being added to a tank.

LIMITING CONDITIONS FOR OPERATION3.14.B Liquid Holdup Tank Instrumentation

3.14.B.1 A minimum of one LLRPSF Sample Tank level indicating channel and one LLRPSF Surge Tank level indicating channel shall be OPERABLE.

Applicability: At all times.

Action:

- a. With no channel operable, liquid additions to the tank may continue for up to 30 days provided that the tank level is estimated during all liquid additions to the tank.
- b. If the minimum required instrumentation is not returned to OPERABLE status within 30 days, prepare and submit to the Commission within 30 days, pursuant to Specification 6.11.3, a Special Report, in lieu of any other report, why the instrument was not made OPERABLE in a timely manner.

SURVEILLANCE REQUIREMENTS4.14.B Liquid Holdup Tank Instrumentation

4.14.B.1 Each liquid holdup tank level instrument shall be demonstrated OPERABLE by:

- a. Daily channel check during liquid additions to the tank(s).
- b. A channel calibration once per 18 months.
- c. A quarterly channel functional test.

3.14.A and 4.14.A BASES

1. Liquid Holdup Tanks

The tanks listed in the specification include all liquid radwaste tanks in the Low-Level Radwaste Processing and Storage Facility (LLRPSF). Because the LLRPSF is not seismically designed, these tanks are considered as outdoor tanks that are not surrounded by liners, dikes, or walls capable of holding the tank contents.

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10 CFR 20, Appendix B, Table II, Column 2, at the nearest potable water supply in an unrestricted area.

3.14.B and 4.14.B BASES

1. Liquid Holdup Tank Instrumentation

Instrumentation is expected to be OPERABLE and in service when required by Specification. An instrument may be removed from service voluntarily for the purpose of tests, checks, calibration, or preventative maintenance without declaring the channel inoperable.

LIMITING CONDITIONS FOR OPERATION

3.15 RADIOACTIVE GASEOUS EFFLUENTS

Section 3.15 - Pages 3.15-2 through 3.15-15 have been deleted.

SURVEILLANCE REQUIREMENTS

4.15 RADIOACTIVE GASEOUS EFFLUENTS

Section 4.15 - Pages 3.15-2 through 3.15-15 have been deleted.

LIMITING CONDITIONS FOR OPERATION

3.16 OFFSITE DOSE ASSESSMENT

Section 3.16 - Pages 3.16-2 through 3.16-12 have been deleted.

SURVEILLANCE REQUIREMENTS

4.16 OFFSITE DOSE ASSESSMENT

Section 4.16 - Pages 3.16-2 through 3.16-12 have been deleted.

6.9 RADIOLOGICAL PROCEDURES AND PROGRAMS

6.9.1 Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

6.9.2 HIGH RADIATION AREA

In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area in which the intensity of radiation is greater than 100 mrem/hr but less than 1000 mrem/hr shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit.* Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.
- c. A health physics qualified individual (i.e., qualified in radiation protection procedures) with a radiation dose rate monitoring device who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physics Supervisor in the Radiation Work Permit.

6.9.3 In addition to the requirements of 6.9.2, areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour dose greater than 1000 mrem shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the Operations Shift Supervisor on duty and/or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved Radiation Work Permit which shall specify the dose rate levels in the immediate work area and the maximum allowable stay time for individuals in that area. For individual areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour dose in excess of 1000 mrem** that are located within large areas, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device. In lieu of the stay time specification of the RWP, direct or remote continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities within the area.

* Health Physics personnel or personnel escorted by Health Physics personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they are following plant radiation protection procedures for entry into high radiation areas.

** Measurement made at 18" from source of radioactivity.

6.9.4 The following programs shall be established, implemented, and maintained:

a. Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to MEMBERS OF THE PUBLIC as low as reasonably achievable. The program (1) shall be contained in the ODAM (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODAM,
- 2) Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 CFR Part 20, Appendix B, Table II, Column 2,
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODAM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released to unrestricted areas conforming to Appendix I to 10 CFR Part 50,
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODAM at least every 31 days,
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems which were used to establish compliance with the design objectives in 10 CFR Part 50, Appendix I, Section II be used when specified to provide reasonable assurance that releases of radioactive material in liquid and gaseous effluents be kept as low as reasonably achievable,
- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to the doses associated with 10 CFR Part 20, Appendix B, Table II, Column 1,
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

b. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program

and modeling of environmental exposure pathways. The program shall (1) be contained in the ODAM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- 1) Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODAM,
- 2) A Land Use Census to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the monitoring program are made if required by the results of this census, and
- 3) Participation in an Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

LIMITING CONDITIONS FOR OPERATION6.9.5 SOURCE LEAKAGE TEST

- A. Radioactive sources shall be leak tested for contamination. The leakage test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, it shall immediately be withdrawn from use, decontaminated and repaired, or be disposed of in accordance with Commission regulations.

Those quantities of byproduct material that exceed the quantities listed in 10 CFR 30.71 Schedule B are to be leak tested in accordance with the schedule shown in Surveillance Requirements. All other sources (including alpha emitters) containing greater than 0.1 microcurie are also to be leak tested in accordance with the Surveillance Requirements.

B. Reporting Requirements

Results of the leak tests performed on sources shall be included in the Annual Operating Report if the tests reveal the presence of 0.005 microcurie or more of removable contamination.

SURVEILLANCE REQUIREMENTS7.9.5 SOURCE LEAKAGE TEST

- A. Test for leakage and/or contamination shall be performed by the licensee or by other persons specifically authorized by the Commission or an agreement State, as follows:
1. Each sealed source, except startup sources subject to core flux, containing radioactive material, other than Hydrogen 3, with a half-life greater than thirty days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed six months.
 2. The periodic leak test required does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another user unless they have been leak tested within six months prior to the date of use or transfer. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, sealed sources shall not be put into use until tested.
 3. Startup sources shall be leak tested prior to and following any repair or maintenance and before being subjected to core flux.

6.9.5 BASES

Ingestion or inhalation of source material may give rise to total body or organ irradiation. This specification assures that leakage from radioactive material sources does not exceed allowable limits. In the unlikely event that those quantities of radioactive by-product materials of interest to this specification which are exempt from leakage testing are ingested or inhaled, they represent less than one maximum permissible body burden for total body irradiation. The limits for all other sources (including alpha emitters) are based upon 10 CFR 70.39(c) limits for plutonium.

7. Records of training and qualification for current members of the plant staff.
8. Records of in-service inspections performed pursuant to these Technical Specifications.
9. Records of Quality Assurance activities required by the QA Manual with the exception of the records included in Section 6.10.1.
10. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.
11. Records of meetings of the Operations Committee and the Safety Committee.
12. Records of the service lives of all safety-related hydraulic and mechanical snubbers including the date at which the service life commences and associated installation and maintenance records.
13. Records of results of analyses required by the radiological environmental monitoring program.
14. Records of reviews performed for changes made to the Offsite Dose Assessment Manual and the Process Control Program.

c. Monthly Operating Report

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the NRC to arrive no later than the 15th of each month following the calendar month covered by the report.

d. Other Reports

Table 6.11-1 lists some of the routine reports required by 10 CFR Parts 20, 40, 50 and 70, including those listed in Specification 6.11.1.

e. Annual Safety/Relief Valve Challenge

A report documenting safety/relief valve challenges shall be submitted within 60 days of January 1 each year.

f. Semiannual Radioactive Material Release Report

The Semiannual Radioactive Material Release Report covering the operation of the unit during the previous 6 months of operation shall be submitted within 60 days after January 1 and July 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODAM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

g. Annual Radiological Environmental Report

The Annual Radiological Environmental Report covering the operation of the unit during the previous calendar year shall be submitted before May 1 of each year. The report shall include summaries, interpretations, and analysis of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in (1) the ODAM and (2) Sections IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR Part 50.

h. I-131 Dose Equivalent Exceeding 50% of Equilibrium Value

A report of the results of specific activity analysis in which the primary coolant exceeded the limits of Specification 4.6.B.1.h shall be submitted on an annual basis within 60 days after January 1. The following information shall be included:

- (1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded;
- (2) Results of the last isotopic analysis for radioiodine performed prior to exceeding the limit, results of analysis while limit was exceeded and results of one analysis after the radioiodine activity was reduced to less than limit. Each result should include date and time of sampling and radioiodine concentrations;
- (3) Cleanup system operating status starting 48 hours prior to the first sample in which the limit was exceeded;
- (4) Graph of the I-131 concentration and one other radioiodine isotope concentration in microcuries per gram as a function of time for the duration of the specific activity above the steady-state level; and

- (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

6.11.2 CORE OPERATING LIMITS REPORT

- a. Core cycle-dependent limits shall be established prior to each reload cycle, or prior to any remaining part of a reload cycle, for the following:

- 1) Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) - Specification 3.12.A.
- 2) Linear Heat Generation Rate (LHGR) - Specification 3.12.B.
- 3) Minimum Critical Power Ratio (MCPR) - Specification 3.12.C.
- 4) MAFAC, and MAFAC, Factors which multiply the MAPLHGR limits - Specification 3.3.F.4.a.

These limits shall be documented in the CORE OPERATING LIMITS REPORT.

- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A, (GESTAR II).*
- c. The core operating limits shall be determined such that all applicable limits (e.g. fuel thermal-mechanical limits, core thermal hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.
- d. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.

6.11.3 UNIQUE REPORTING REQUIREMENTS

Special reports shall be submitted to the Director of Inspection and Enforcement Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification.

- a. Reactor vessel base, weld and heat affected zone metal test specimens (Specification 4.6.A.2).
- b. deleted
- c. Inservice inspection (Specification 4.6.G.).
- d. Reactor Containment Integrated Leakage Rate Test (Specification 4.7.A.2.f).

*Approved revision number at time reload fuel analyses are performed.

- e. deleted
- f. Fire Protection Systems (Specifications 3.13.A.3, 3.13.B.2, 3.13.B.3, 3.13.C.3, and 3.13.D.3).
- g. deleted
- h. Radioactive Liquid or Gaseous Effluent - calculated dose exceeding specified limit (ODAM Sections 6.1.3, 6.2.3 and 6.2.4).
- i. Off-Gas System inoperable (ODAM Section 6.2.5).
- j. Measured levels of radioactivity in an environmental sampling medium determined to exceed the reporting level values of ODAM Table 6.3-3 when averaged over any calendar quarter sampling period (ODAM Section 7.3.2.2).
- k. Annual dose to a MEMBER OF THE PUBLIC determined to exceed 40 CFR Part 190 dose limit (ODAM Section 6.3.1.1).
- l. Radioactive liquid waste released without treatment when activity concentration exceeds 0.01 μ ci/ml (ODAM Section 6.1.4.1).
- m. Explosive Gas Monitoring Instrumentation Inoperable (Specification 3.2.I.1).
- o. Liquid Holdup Tank Instrumentation Inoperable (Specification 3.14.B.1).

TABLE 6.11-1

REPORTING SUMMARY - ROUTINE REPORTS

| <u>Requirement</u> | <u>Report</u> | <u>Timing of Submittal</u> |
|--------------------|---|--|
| TS ¹ | Annual Safety/ Relief Valve Challenge | Within 60 days after January 1. |
| TS | Annual Exposure | Within 60 days after January 1. |
| \$20.407 | Personnel Exposure and Monitoring | Within first quarter of each calendar year. |
| \$20.408 | Personnel Exposure on Termination of Employment or Work | Within 30 days after the exposure of the individual has been determined or 90 days after date of termination of employment or work assignment, whichever is earlier. |
| \$40.64(a) | Transfer of Source Material | Promptly upon transfer. |
| \$40.64(a) | Receipt of Source Material | Within 10 days after material is received. |
| \$40.64(b) | Source Material Inventory | Within 30 days after September 30 of each year. |

¹Technical Specifications

TABLE 6.11-1 (Cont)

REPORTING SUMMARY - ROUTINE REPORTS

| <u>Requirement</u> | <u>Report</u> | <u>Timing of Submittal</u> |
|------------------------------------|--|--|
| \$50.59(b) | Changes, Tests, and Experiments | Within 60 days after January 1. |
| \$70.53 | Special Nuclear Material Status | Within 30 days after March 31 and September 30 of each year. |
| \$70.54 | Transfer of Special Nuclear Material | Promptly upon transfer |
| \$70.54 | Receipt of Special Nuclear Material | Within 10 days after material is received |
| Appendix G to 10 CFR Part 50 | Fracture Toughness | On an individual-case basis at least 3 years prior to the date when the predicted fracture toughness levels will no longer satisfy section V.B. of Appendix G to 10 CFR Part 50. |
| Appendix H to 10 CFR Part 50 | Reactor Vessel Material Surveillance | Completion of tests after each capsule withdrawal. |
| Appendix I to 10 CFR Part 50 | Semiannual Radioactive Material Release Report | Within 60 days after January 1 and July 1. |
| Appendix I to 10 CFR Part 50 | Annual Radiological Environmental Report | On or before May 1. |
| Appendix J to 10 CFR Part 50 | Reactor Containment Building Integrated Leak Rate Test | Approximately 3 months following conduct of test. |

6.14 OFFSITE DOSE ASSESSMENT MANUAL (ODAM)**6.14.1 Changes to the ODAM**

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.14. This documentation shall contain:
 - 1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 - 2) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.
- b. Shall become effective after review and acceptance by the Operations Committee and approval by the Plant Superintendent, Nuclear.
- c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODAM as a part of or concurrent with the Semiannual Radioactive Effluent Release Report for the period of the report in which any change to the ODAM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date the change was implemented.

6.15 PROCESS CONTROL PROGRAM (PCP)

6.15.1 Changes to the PCP

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.14. This documentation shall contain:
 - 1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 - 2) A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State or other applicable regulations.
- b. Shall become effective after review and acceptance by the Operations Committee and approval by the Plant Superintendent, Nuclear.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-49

IOWA ELECTRIC LIGHT AND POWER COMPANY
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter dated December 20, 1991, Iowa Electric Light and Power Company (IELP, the licensee) requested changes to the Duane Arnold Technical Specifications (TS) which implement alternatives to the Radiological Effluent Technical Specifications (RETS), including the relocation from the TS to the Offsite Dose Assessment Manual (ODAM) and the Process Control Program (PCP) of procedural details on radioactive effluents, solid radioactive wastes, environmental monitoring and associated reporting requirements.

The proposed license amendment was prepared in accordance with the guidance provided in Generic Letter (GL) 89-01 and its Enclosures. Accordingly, the proposed amendment (1) incorporates programmatic controls in the Administrative Controls section of the TS that satisfy the requirements of 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50; (2) relocates to the ODA procedural details or specific requirements involving radioactive effluent monitoring instrumentation, the control of liquid and gaseous effluents, equipment requirements for liquid and gaseous effluents, radiological environmental monitoring, and radiological reporting details; (3) relocates to the PCP existing procedural details or specific requirements in the current TS on solid radioactive wastes; (4) simplifies the associated reporting requirements; (5) simplifies the administrative controls for changes to the ODA and PCP; (6) adds record retention requirements for changes to the ODA and PCP; and (7) updates the definitions of the ODA and PCP consistent with these changes.

2.0 EVALUATION

The licensee incorporated the model specifications in Enclosure 3 to GL 89-01 into the TS to satisfy the requirements of 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50. Only changes necessary to be consistent with Duane Arnold Energy Center (DAEC) specific terminology and DAEC RETS were made. The definitions of the ODA and PCP were updated to reflect these changes. The programmatic and reporting requirements in the Administrative Controls section of the TS were changed in accordance with GL 89-01 with no substantive modifications. The programmatic controls assure that programs are established, implemented, and maintained to assure that operating procedures are

provided to control radioactive effluents consistent with the requirements of 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50. The current TS include requirements for explosive gas monitoring instrumentation, limitations on the quantity of radioactivity in the liquid hold-up tanks and condenser exhaust, and limitations on explosive gas mixtures in the offgas treatment system.

Consistent with the requirements of GL 89-01, these items were retained in the TS.

As required by GL 89-01, the licensee confirmed that changes to the ODAM or PCP involving the detailed procedural requirements currently covered in the RETS, consisting of the limiting conditions for operation, remedial actions, surveillance requirements, reporting requirements and the Bases section of the TS have been prepared to implement the relocation of these procedural details to the ODAM or PCP. These changes have been prepared in accordance with the new Administrative Controls in the TS on changes to the ODAM or PCP so that they will be implemented in the ODAM or PCP when this amendment is issued.

On the basis of our review, the NRC staff has concluded that the changes included in the proposed TS amendment request are consistent with the guidance provided in GL 89-01. Since the control of radioactive effluents continues to be limited in accordance with operating procedures that must satisfy regulatory requirements, the staff has concluded that this amendment request is administrative in nature and that there is no impact on plant safety as a consequence. Therefore, the proposed changes are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Iowa State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or a change to a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (57 FR 4488). Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). This amendment also involves changes in recordkeeping, reporting or administrative procedures or requirements. Accordingly, with respect to these items, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR §51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: C. Y. Shiraki

Date: July 22, 1992