August 7, 1996

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Mr. Lee Liu
Chairman of the Board and
Chief Executive Officer
IES Utilities Inc.
Post Office Box 351
Cedar Rapids, IA 52406

SUBJECT: AMENDMENT NO. 215 TO FACILITY OPERATING LICENSE NO. DPR-49 - DUANE ARNOLD ENERGY CENTER (TAC NO. M94313)

Dear Mr. Liu:

The Commission has issued the enclosed Amendment No. 215 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications (TS) in response to your application dated November 30, 1995.

The amendment revises the TS by implementing the Option I-D long-term stability solution and removing the existing service information letter, SIL-380 Rev. 1-based Technical Specifications. In addition, the amendment requires a plant scram be initiated should the plant enter natural circulation conditions and prohibits restarting a recirculation pump while in natural circulation. The amendment deletes TS actions and surveillance requirements related to core plate differential pressure noise while in single recirculation pump operation.

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,
Original signed by:

Glenn B. Kelly, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures: 1. Amendment No. 215 to License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 7, 1996

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Chairman of the Board and
Chief Executive Officer
IES Utilities Inc.
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2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 215
License No. DPR-49

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by IES Utilities Inc., et al., dated November 30, 1995, 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.

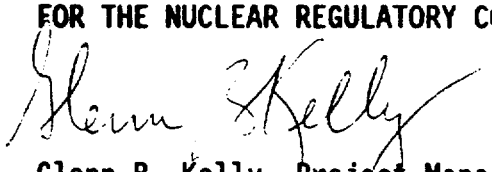
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 215, 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 120 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Glenn B. Kelly, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of issuance: August 7, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 215

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 vertical lines.

Remove	Insert
vii	vii
1.1-11	1.1-11
1.1-12	1.1-12
3.3-6	3.3-6
3.3-7	3.3-7
3.3-7a	3.3-7a
3.3-7b	3.3-7b
3.3-13	3.3-13
---	3.3-13a
3.3-15	3.3-15
3.3-16	delete
6.11-4	6.11-4

DAEC-1

TECHNICAL SPECIFICATIONS

LIST OF FIGURES

iv. The analytical procedures now used result in more logical answer than the alternative method of assuming a higher starting power in conjunction with the expected values for the parameters.

Trip Settings

The bases for individual trip settings are discussed in the following paragraphs.

A. Neutron Flux Trips

1. APRM High Flux Scram (Run Mode)

The average power range monitoring (APRM) system, which is calibrated using heat balance data taken during steady state conditions, reads in percent of rated thermal power (1658 MWt). Because fission chambers provide the basic input signals, the APRM system responds directly to average neutron flux. During transients, the instantaneous rate of heat transfer from the fuel (reactor thermal power) is less than the instantaneous neutron flux due to the time constant of the fuel. Therefore, during abnormal operational transients, the thermal power of the fuel will be less than the indicated by the neutron flux at the scram setting. Analyses are performed to demonstrate that the APRM flux scram over the range of settings from a maximum of 120% to the minimum flow biased setpoint of 62% provide protection from the fuel safety limit for all abnormal operational transients including those that may result in a thermal hydraulic instability.

An increase in the APRM scram trip setting would decrease the margin present before the fuel cladding integrity Safety Limit is reached. The APRM scram trip setting was determined by an analysis of margins required to provide a reasonable range for maneuvering during operation. Reducing this operating margin would increase the frequency of spurious scrams which have an adverse effect on reactor safety because of the resulting thermal stresses. Thus, the APRM scram trip setting was selected because it provides adequate margin for the fuel cladding integrity Safety Limit yet allows operating margin that reduces the possibility of unnecessary scrams.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
4. If Specification 3.3.D.1, 2 or 3 cannot be met, be in COLD SHUTDOWN within 24 hours.	
E. Reactivity Anomalies	E. Reactivity Anomalies
The reactivity difference between the actual rod density and predicted rod density shall not exceed 1% $\Delta k/k$.	The rod density shall be predicted and compared to the actual rod density:
1. If the reactivity is different by more than 1% $\Delta k/k$, perform an analysis to determine and explain the cause of the reactivity difference; operation may continue if the difference is explained and corrected.	1. During the first startup following CORE ALTERATIONS and
2. Otherwise be in COLD SHUTDOWN within 24 hours.	2. At least once per full power month.
F. Recirculation Pumps	F. Recirculation Pumps
1. Operation in natural circulation* is not permitted. If operation in natural circulation occurs, the reactor shall be scrammed.	1. Not used
2. No recirculation pump shall be placed in operation while the reactor is in natural circulation.*	2. Not used
3. Operation in the Exclusion Region of the power/flow map described in the Core Operating Limits Report is not permitted. If entry into this region occurs, immediately insert control rods or increase core flow to exit the region.	3. Not used

*No recirculation pumps running and two or more control rods withdrawn and the reactor in STARTUP or RUN.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
4. Single Loop Operation (SLO) The reactor may be started and operated, or may continue operating in SLO provided the following restrictions are observed:	4. Single Loop Operation (SLO)
a. MAPLHGR multipliers and MCPR adjustment are used in accordance with the CORE OPERATING LIMITS REPORT.	a. Jet Pump baseline data for SLO shall be updated as soon as practical after entering SLO per Specification 4.6.E.4.
b. Flow Biased APRM setpoints are adjusted for SLO per Specifications 3.1.A and 3.2.C.	
c. The idle loop is isolated electrically by disconnecting the breaker to the recirculation pump motor generator (M/G) set drive motor prior to reactor startup, or if disabled during reactor operation, within 24 hours of entering SLO.**	

**The breaker may be racked in and the M/G set and recirc. pump started under administrative control for testing provided Specification 3.3.F.5 is satisfied.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
5. Restoration from SLO	
a. Verify the thermal limitations of Specification 3.6.A are met prior to startup of the idle recirculation loop.	
b. After startup of the idle recirculation pump, the discharge valve of the lower speed pump may not be opened unless the speed of the faster pump is less than 50% of its rated speed.	

(DELETED)

The REM bypass time delay is set low enough to assure minimum rod movement while upscale trips are bypassed.

A Limiting Control Rod Pattern for rod withdrawal error (RWE) exists when (a) core thermal power is greater than or equal to 30% of rated and less than 90% of rated ($30\% \leq P \leq 90\%$) and the MCPR is less than 1.70, or (b) core thermal power is greater than or equal to 90% of rated ($P \geq 90\%$) and the MCPR is less than 1.40.

During the use of such patterns, it is judged that testing of the REM channel (when one channel is inoperable) prior to withdrawal of such rods to assure its operability will assure that improper withdrawal does not occur.

D. Scram Insertion Times

The control rod system is designed to bring the reactor subcritical at a rate fast enough to prevent fuel damage; i.e., to prevent the MCPR from becoming less than the safety limit.

After initial fuel loading and subsequent refuelings when operating above 950 psig, all control rods shall be scram tested within the constraints imposed by the Technical Specifications and before the 40% power level is reached. The requirements for the various scram time measurements ensure that any indication of systematic problems with rod drives will be investigated on a timely basis.

E. Reactivity Anomalies

During each fuel cycle excess operative reactivity varies as fuel depletes and as any burnable poison in supplementary control is burned. The magnitude of this excess reactivity may be inferred from the critical rod configuration. As fuel burnup progresses, anomalous behavior in the excess reactivity may be detected by comparison of the critical rod pattern at selected base states to the predicted rod inventory at that state. Power operating base conditions provide the most sensitive and directly interpretable data relative to core reactivity. Furthermore, using power operating base conditions permits frequent reactivity comparisons.

Requiring a reactivity comparison at the specified frequency assures that a comparison will be made before the core reactivity change exceeds 1% $\Delta k/k$. Deviations in core reactivity greater than 1% $\Delta k/k$ are not expected and require thorough evaluation. One percent reactivity limit is considered safe since an insertion of the reactivity into the core would not lead to transients exceeding design conditions of the reactor system.

F. Recirculation Pumps

Not allowing startup of an idle recirculation pump from a natural circulation condition prevents the reactivity insertion transient that would occur due to the sudden flow of cold stratified water into the core. In addition, operation in natural circulation could place

the plant in or near the exclusion region. Restarting a recirculation pump while in the exclusion region could result in the initiation of thermal hydraulic instability. Manually scramming the reactor is the recommended method of exiting the exclusion region when the plant is operating in natural circulation.

The reactor design criteria is such that thermal hydraulic oscillations are prevented or can be readily detected and suppressed without exceeding specified fuel design limits. To minimize the likelihood of an instability, a power/flow exclusion region to be avoided during normal operation is calculated using the approved methodology as stated in Specification 6.11.2.a.5. Since the exclusion region may change each fuel cycle, the limits are contained in the Core Operating Limits Report. Specific directions are provided to avoid operation in this region and to immediately exit upon an entry. Entries into the exclusion region are not part of normal operation. Any entry may occur as a result of an abnormal event, such as a single recirculation pump trip. In these events, operation in the exclusion region may be needed to prevent equipment damage, but actual time spent inside the exclusion region is minimized. Though each operator action can prevent the occurrence and protect the reactor from an instability, the APRM flow-biased scram function is designed to suppress global oscillations, the most likely mode of oscillation, prior to exceeding the fuel safety limit. While global oscillations are the most likely mode, protection from out-of-phase oscillations are provided through avoidance of the exclusion region and administrative controls on reactor conditions which are primary factors affecting reactor stability.

3.3 and 4.3 REFERENCES

1. Banked Position Withdrawal Sequence, NEDO-21231, January 1977.

2. General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A*.

3. General Electric Service Information Letter (SIL) No. 316, Reduced Notch Worth Procedure, November 1979.

4. Average Power Range Monitor, Rod Block Monitor and Technical Specification Improvement (ARTS) Program for the Duane Arnold Energy Center, NEDC-30813-P, December 1984.

5. Application of the "Regional Exclusion with Flow-Biased APRM Neutron Flux Scram" Stability Solution (Option I-D) to the Duane Arnold Energy Center, GENE-A00-04021-01, September 1995.

*Latest NRC-approved revision.

(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 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) $MAPFAC_F$ AND $MAPFAC_P$ Factors which multiply the MAPLHGR limits - Specification 3.3.F.4.a.

5) Exclusion Region in the power/flow map - Specification 3.3.F.3.

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.

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

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 215 TO FACILITY OPERATING LICENSE NO. DPR-49

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter dated November 30, 1995, IES Utilities submitted information supporting the application of Long Term Stability Solution Option 1-D (1-D) to the Duane Arnold Energy Center (a General Electric (GE) BWR-4). The package consisted of a plant-specific licensing topical report (Application of the "Regional Exclusion with Flow Biased APRM Neutron Flux Scram" Stability Solution (Option 1-D) to the Duane Arnold Energy Center, GENE-A00-04021-01, September 1995) supporting application of the previously approved Long Term Stability Solution Option 1-D (BWR Owners' Group Long-Term Stability Solutions Licensing Methodology, NEDO-31960A, November 1995) to the Duane Arnold Energy Center (DAEC) and several attachments. The attachments describe the ODYSY code (ODYSY Description and Qualification (Proprietary), GENE-A038-0495, August 1995), and the changes to the plant technical specifications necessary to implement 1-D.

Generic 1-D consists of two parts. First, an exclusion region in the power-to-flow map is established within which power oscillations are credible. Should the unit enter this region, operators are instructed to immediately exit the region or to scram the plant should power oscillations be detected. Second, a statistical method is employed to show that the existing flow biased average power range monitor (APRM) scram is sufficient to shutdown the plant in the event of oscillations before the Safety Limit Minimum Critical Power Ratio (SLMCPR) is violated. The flow biased APRM scram defines a line on the power-to-flow map above which the reactor is not allowed to operate. Should the power range instrumentation detect operation above this line, the reactor will automatically scram. The 1-D statistical method is described in NEDO-32465 (BWR Owners' Group Reactor Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications, NEDO-32465, May 1995), which has been approved by the staff.

2.0 EVALUATION

In our safety evaluation (SE) of NEDO-31960 dated July 12, 1993, the staff approved criteria that have to be satisfied before 1-D can be applied to a plant. First, the core must be small and, therefore, tightly coupled. Duane Arnold is a low power BWR-4 with a small core of 368 fuel bundles. Additionally, it was demonstrated in the supporting analysis presented in GENE-A00-04021-01 (the attachment to the Duane Arnold 1-D submittal) that the core wide decay ratio far exceeds the channel decay ratio over a wide range of operating conditions. This means that Duane Arnold is most likely to experience core wide (fundamental mode) as opposed to out-of-phase (higher mode) oscillations. The second criterion is that the core must have relatively tight inlet orificing. This has been demonstrated to favor the core wide mode over the out-of-phase mode. Duane Arnold has an inlet orifice size 14% smaller than a typical BWR-4. Duane Arnold, therefore, meets the criteria necessary to use 1-D.

In addition to meeting the acceptance criteria stated above for a 1-D plant, licensees have a choice of either using power distribution controls while operating or using an on-line stability monitor (staff SER on NEDO-31960). IES has opted to use an on-line stability monitor to provide operators with a means of detecting when the stability margin is degrading. IES proposes to use a system called SOLOMON at Duane Arnold. SOLOMON incorporates the General Electric (GE) proprietary frequency domain code ODYSY into an on-line software package that runs on the plant process computer to provide an evaluation of the reactor decay ratio. SOLOMON can also be used in a predictive mode to evaluate the stability effect of proposed reactor maneuvers. IES proposes to use SOLOMON at all times when the reactor is at power and to control certain types of operation if SOLOMON is inoperable. In order to do this, a "buffer zone" (for an example see Figure 12 of Cycle 14 Core Operating Limits Report, Rev. 1, IES Utilities, October 1995) is established, inside which operation is not allowed if SOLOMON is inoperable.

The detect and suppress methodology, as approved by the staff in its SER on NEDO-32465 (dated March 4, 1996), was used to calculate the smallest Minimum Critical Power Ratio (MCPR) during a postulated power oscillation event. This method allows demonstration, with a high statistical certainty, that the SLMCPR will not be violated before the Flow-Biased APRM system trips the plant. The procedure outlined in NEDO-32465 was properly applied to Duane Arnold and the Final Minimum Critical Power Ratio (FMCPR) was calculated to be 1.16. Since this is still above the SLMCPR, the calculation demonstrates that, with a 95 percent probability and a 95 percent confidence (the 95/95 value), power oscillations will be successfully terminated.

In order for the analysis presented in GENE-A00-04021-01 to be applicable to cycles other than Cycle 14, specific reload confirmation criteria have been developed and included in Section 7 of GENE-A00-04021-01. These criteria conservatively establish deviations in core design within which the FMCPR calculations in GENE-A00-04021-01 are applicable to the operating cycle under consideration. The intent of these criteria is to only require the calculations presented in GENE-A00-04021-01 to be redone in the event that a change in the core that could affect the stability margin of the reactor

occurs. The staff has reviewed these criteria and conclude that they are restrictive enough to require the FMCPR calculation to be redone when necessary and are, therefore, acceptable.

Review of individual Technical Specification Changes necessary to implement Option 1-D follows:

Change to Page vii

This change deletes a reference to Figure 3.3-1, "Thermal Power vs. Core Flow Limits for Thermal Hydraulic Stability Surveillance." This figure is no longer needed as it was used to implement the Interim Corrective Actions (ICA) which are superseded by 1-D. This change is acceptable .

Change to Pages 1.1-11,12

This change updates the APRM High Flux Scram bases to reflect that this scram also protects the plant from stability transients. See the discussion presented in the introduction describing the APRM scram and what it does. This change is acceptable because the updated description of the APRM scram correctly identifies its purpose.

Change to Page 3.3-6

This change states that operation in natural circulation is not permitted. The change also provides for an action to scram the reactor if reactor operation in natural circulation occurs. This change is acceptable because it reduces the challenge to the basic 1-D operational strategy and the manual scram action is backed up by the flow biased APRM High Flux scram protection.

Change to Page 3.3-6

This change clarifies 3.3.F.2 to state that no recirculation pumps shall be placed in operation while the reactor is in natural circulation. Should a restart of the recirculation pumps occur if the reactor is critical and operating in natural circulation (recirculation pumps at zero speed), the core will experience a transient power increase associated with the increase in flow. This change is acceptable because it seeks to prevent the transient effect associated with this action.

Change to Pages 3.3-6,7

This revised TS replaces 3.3.F.3 with the requirement that the plant not operate inside the exclusion region. It also states either power should be decreased or flow should be increased (assuming the recirculation pumps are still running) to immediately exit the region upon entry. Surveillance requirements 4.3.F.3 are also deleted. This change is acceptable because it is consistent with the 1-D operational strategy that was previously reviewed and approved by the staff in NEDO-31960A.

Change to Page 3.3-7a

This revised TS deletes stability related requirements for single loop recirculation operation and requirements related to core differential pressure noise. This change is acceptable because the unrevised TS applied to operation under the ICAs which are being superseded by 1-D.

Change to Page 3.3-7b

This change deletes additional core differential pressure measurement requirements. This TS was incorporated into the Duane Arnold TSs after a 1985 Single Loop Operation (1 out of 2 recirculation pumps running) event at Brown's Ferry in which high core plate noise was observed. It was thought that this noise could be an indicator of core stability margin. The staff agrees with DAEC's conclusion that this measurement is not indicative of the core stability margin and, therefore, removing this TS is acceptable.

Change to Pages 3.3-13,14

This change clarifies the bases of the TS regarding recirculation pump operation. The bases adds a discussion about thermal hydraulic instability. Thermal hydraulic instability refers to the fact that under certain conditions (high reactor power and low core flow as an example) a self sustained resonance can be established in the core causing large fission power oscillations. This change to the bases correctly describes thermal hydraulic instability and, therefore, is acceptable.

Change to Page 3.3-15

This change adds a reference to GENE-A00-04021-01, "Application of the Regional Exclusion with Flow-Biased APRM Neutron Flux Scram Stability Solution (Option 1-D) to the Duane Arnold Energy Center." This report correctly applies the 1-D methodology previously reviewed and approved by the staff in BWR Owners' Group Long-Term Stability Solutions Licensing Methodology, NEDO-31960A, November 1995 and BWR Owners' Group Reactor Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications, NEDO-32465, May 1995. This change is acceptable because the analyses presented in the report use approved methodology and the analyses are correctly performed.

Change to Page 6.11-4

This change adds the exclusion region in the power-flow map into the Core Operating Limits Report (COLR). This change is acceptable because the methodology defining the exclusion region is being incorporated into the technical specifications.

The staff has reviewed the changes proposed by IES Utilities to implement stability long term solution Option 1-D. The implementation consists of TS changes and referral to GENE-A00-04021-01 which contains the analyses (which were performed using staff approved methods) supporting 1-D at Duane Arnold. Also, the power-to-flow map exclusion region is added to the COLR. The staff

concludes that the methodology proposed for reference in the TS and the relocation of the exclusion region from the TS to the COLR 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 changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes 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 effluent 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 the amendment involves no significant hazards consideration and there has been no public comment on such finding (61 FR 10394-95). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the 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: T. Ulses, SRXB/DSSA

Date: August 7, 1996

REFERENCES

1. Application of the "Regional Exclusion with Flow Biased APRM Neutron Flux Scram" Stability Solution (Option 1-D) to the Duane Arnold Energy Center, GENE-A00-04021-01, September 1995.

2. BWR Owners' Group Long-Term Stability Solutions Licensing Methodology, NEDO-31960A, November 1995.

3. ODYSY Description and Qualification (Proprietary), GENE-A038-0495, August 1995.

4. BWR Owners' Group Reactor Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications, NEDO-32465, May 1995.

5. Cycle 14 Core Operating Limits Report, Rev. 1, IES Utilities, October 1995.

6. Application of the "Regional Exclusion with Flow Biased APRM Neutron Flux Scram" Stability Solution (Option 1-D) to the Monticello Nuclear Generating Plant, GENE-A00-04021-02, February 1996.