

JAN 14 1985

Docket Nos. 50-313
and 50-368

Mr. John M. Griffin, Senior Vice President
Energy Supply
Arkansas Power and Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Griffin:

The Commission has issued the enclosed Amendment Nos. 93 and 61 to Facility Operating License Nos. DPR-51 and NPF-6 for Arkansas Nuclear One, Unit Nos. 1 and 2 (ANO-1 & 2). These amendments consist of changes to the Technical Specifications (TS) in response to your application dated October 31, 1980, as supplemented by letters dated August 23, 1983 and July 11, 1984.

The amendments revise the TS to incorporate hydrogen/oxygen concentration limitations and hydrogen/oxygen monitoring requirements in the ANO radioactive waste gas systems.

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

Sincerely,

Original signed by:

John F. Stolz, Chief
Operating Reactors Branch No. 4
Division of Licensing

James R. Miller, Chief
Operating Reactors Branch No. 3
Division of Licensing

Enclosures:

1. Amendment No.93 to DPR-51
2. Amendment No.61 to NPF-6
3. Safety Evaluation

cc w/enclosures:
See next page

ORB#3:DL
PMKreutzer
12/1/84
12/2/85

ORB#3:DL
RSLee:dd
12/2/84
12/2/85

ORB#4:DL
GVissing
12/3/84

AD:OP:DL
GCLainas
12/14/85
ORB#4:DL
STolz
12/2/84

ORB#3:DL
JRMiller
12/14/84

OELD
W.D. Paton
1/7/85



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

ARKANSAS POWER & LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 93
License No. DPR-51

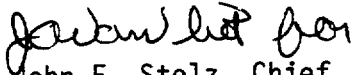
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Arkansas Power and Light Company (the licensee) dated October 31, 1980 as supplemented August 23, 1983 and July 11, 1984, complies with the standards and requirements of the Atomic Energy Act 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-51 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 93, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John F. Stolz, Chief
Operating Reactors Branch No. 4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 14, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 93

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Revise the Appendix A Technical Specifications as follows:

Remove

ii
ia
v
66u
110bb

Insert Page

ii
ia
v
66u
110bb
110bc

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3.24 EXPLOSIVE GAS MIXTURE

Applicability

Applies to the Waste Gas System hydrogen/oxygen analyzers

Objective

To prevent accumulation of explosive mixtures in the waste gas system.

Specification

- 3.24.1 The concentration of hydrogen/oxygen shall be limited in the waste gas decay tanks to Region "A" of Figure 3.24-1.
- 3.24.2 When the hydrogen/oxygen concentration in any of the decay tanks enters Region "B" of Figure 3.24-1, corrective action shall be taken to return the concentration values to Region "A" within 24 hours.
- 3.24.3 The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

Bases

These hydrogen/oxygen limits provide reasonable assurance that no hydrogen/oxygen explosion could occur to allow rupture of the waste gas decay tanks. The hydrogen and oxygen limits are based on information in NUREG/CR-2726 "Light Water Reactor Hydrogen Manual".

4.28 EXPLOSIVE GAS MIXTURE

Applicability

Applies to the Waste Gas System hydrogen/oxygen analyzers.

Objective

To prevent accumulation of explosive mixtures in the waste gas system.

Specification

- 4.28.1 The concentration of hydrogen/oxygen in the waste gas system shall be monitored continuously by either the primary or redundant waste gas analyzer during waste gas compressing operations to the waste gas decay tanks.
- 4.28.2 During waste gas system operation, with no H₂/O₂ analyzer in service, without delay suspend all additions of waste gas to the decay tanks or take grab samples for analysis every 4 hours during degassing operations, daily during other operations. The analysis of these samples shall be completed within 8 hours of taking the sample.

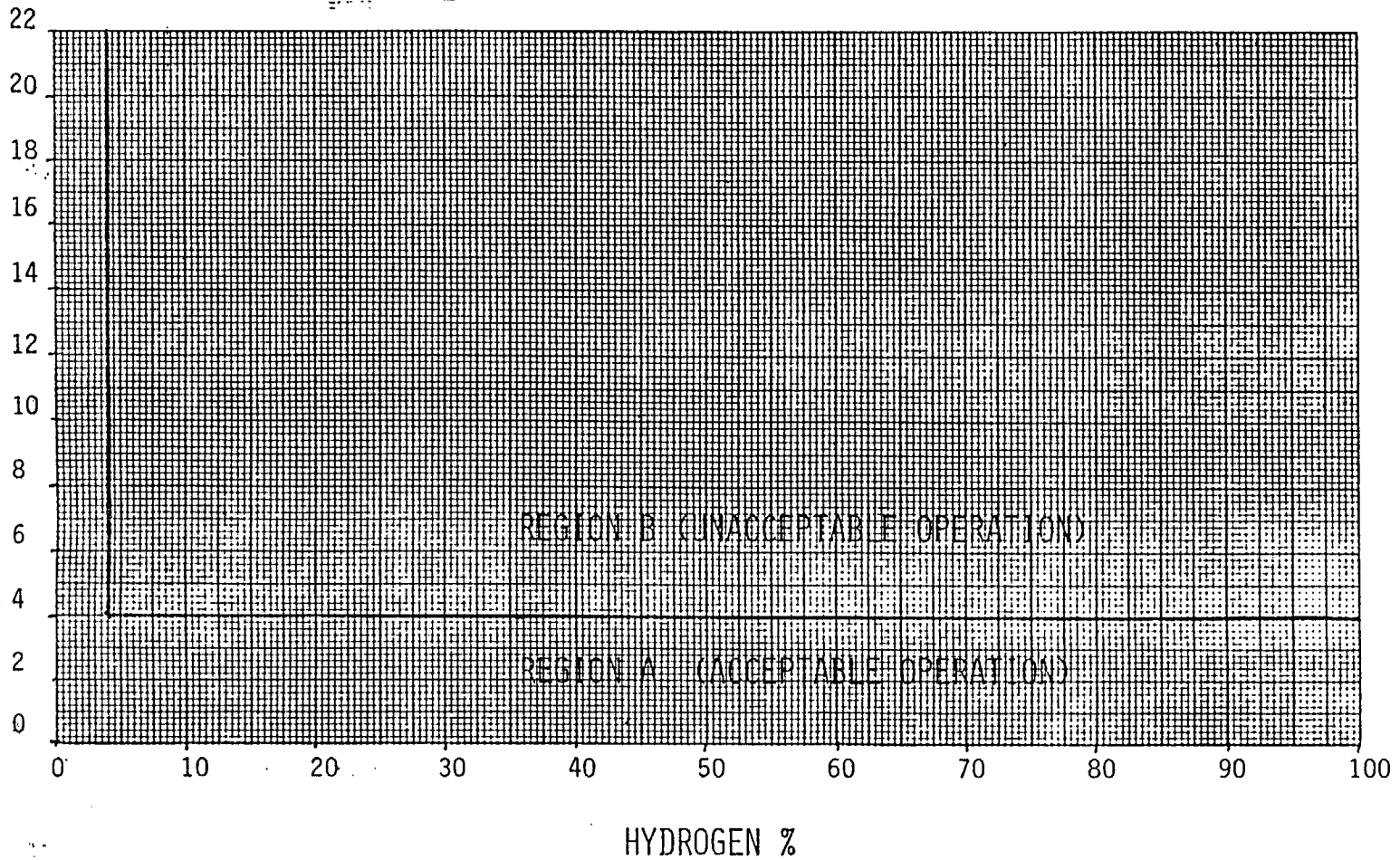
Bases

This specification is to assure that the hydrogen/oxygen concentration will be kept within the limits in Figure 3.24-1 and therefore not enter the flammable region concentrations in the waste gas decay tanks.

Grab samples are to be taken every 4 hours during degassing operations when both hydrogen/oxygen analyzers are out of service. These samples are to be analyzed within 8 hours to assure that the hydrogen/oxygen concentration is within the limits in Figure 3.24-1. During other Waste Gas compressor operations, the hydrogen/oxygen concentration is not as subject to change, therefore grab samples are to be taken every 24 hours.

110bc
OXYGEN, %

Amendment No. 93



HYDROGEN %
FIGURE 3.2 4-1
HYDROGEN - OXYGEN LIMITS FOR ANO-1
WASTE GAS SYSTEM



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

ARKANSAS POWER & LIGHT COMPANY

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 61
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Arkansas Power & Light Company (the licensee) dated October 31, 1980 as supplemented August 23, 1983 and July 11, 1984, 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.

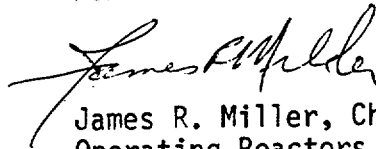
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-6 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 61, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 14, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 61

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are provided to maintain document completeness.

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RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.11.2.7 The concentration of the hydrogen/oxygen shall be limited in the waste gas storage tanks to Region "A" of Figure 3.11.1.

APPLICABILITY: At all times.

ACTION:

- a. When the concentration of hydrogen/oxygen in the waste gas storage tanks enters Region "B" of Figure 3.11-1, corrective action shall be taken to return the concentration values to Region "A" within 24 hours.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.7 The concentration of hydrogen/oxygen in the waste gas holdup system shall be determined to be within the above limits, with the waste gas system in operation, by continuously monitoring with the hydrogen/oxygen monitors required OPERABLE by Table 3.11-3.

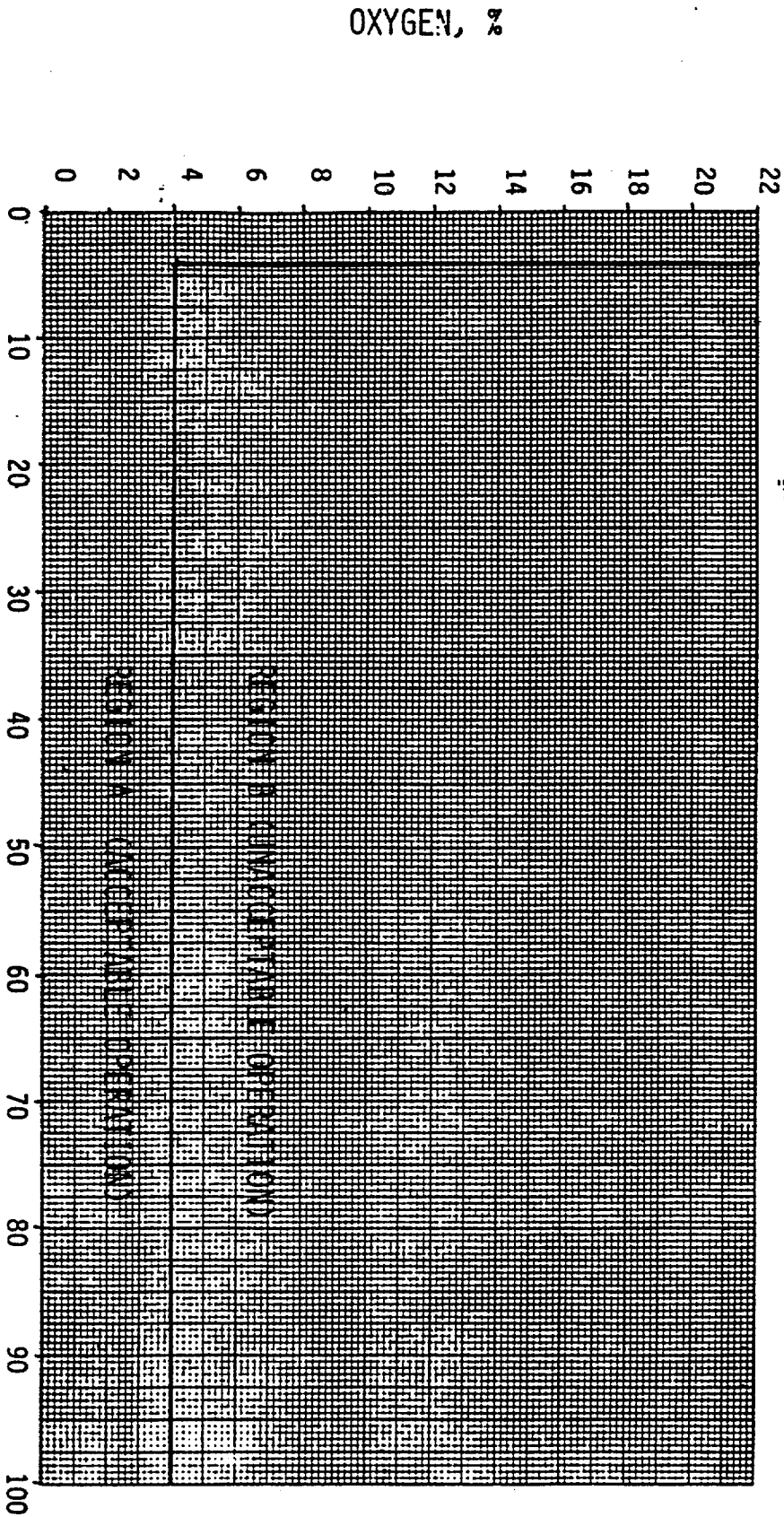
TABLE 3.11-3

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
1. Waste Gas Holdup System Explosive Gas Monitoring System			
a. Hydrogen monitor	(1)	*	(1)
b. Oxygen monitor	(1)	*	(1)

*During waste gas compressing operation (treatment for primary system off gases.)

ACTION 1 - With both channels inoperable, operation may continue provided grab samples are taken and analyzed 1) every 4 hours during degassing operations, and 2) daily during other operations. The analysis of these samples shall be completed within 8 hours of taking the sample.



HYDROGEN %

FIGURE 3.11-1

HYDROGEN - OXYGEN LIMITS FOR ANO-2
WASTE GAS SYSTEM

RADIOACTIVE EFFLUENTS

BASES

3/4.11.2.3 DOSE - IODINE-131, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

This specification is provided to implement the requirements of Sections II.C, III.A, and IV.A of Appendix I, 10 CFR Part 50. The Limiting Conditions for Operation are the guides set forth in Section II.C of Appendix I. The action statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable". The ODCM calculational methods specified in the Surveillance Requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data, such that the actual exposure of a MEMBER OF THE PUBLIC through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods for calculating the doses due to the actual release rates of the subject materials are consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977, and Regulatory Guide 1.111., "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977. These equations also provide for determining the actual doses based upon the historical average atmospheric conditions. The release rate specifications for iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days are dependent on the existing radionuclide pathways to man in the areas at or beyond the site boundary. The pathways that were examined in the development of these calculations were: 1) individual inhalation of airborne radionuclides, 2) deposition of radionuclides onto green leafy vegetation with subsequent consumption by man, 3) deposition onto grassy areas where milk animals and meat producing animals graze with consumption of the milk and meat by man, and 4) deposition on the ground with subsequent exposure of man.

3/4.11.2.4 and 5 GASEOUS RADWASTE TREATMENT

The requirement that the appropriate portions of these systems be used, when specified, provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable". This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50, and the design objectives given in Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the systems were specified as a suitable fraction of the dose design objectives set forth in Sections II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents. This specification applies to gaseous radwaste from Arkansas Nuclear One, Unit No. 2.

RADIOACTIVE EFFLUENTS

BASES

3/4.11.2.6 GAS STORAGE TANKS

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that, in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to a MEMBER OF THE PUBLIC at the nearest EXCLUSION AREA boundary will not exceed 0.5 rem. This is consistent with Branch Technical Position ETSB 11-5 in NUREG-0800, July 1981.

3/4.11.2.7 EXPLOSIVE GAS MIXTURE

It is expected that the hydrogen/oxygen concentration will be kept within the above limits and therefore not enter the flammable or detonable region concentrations within the waste gas storage tanks.

These levels provide reasonable assurance that no hydrogen/oxygen explosion could occur to allow rupture of the waste gas storage tanks. The hydrogen and oxygen limits are based on information in NUREG/CR-2726, "Light Water Reactor Hydrogen Manual."

Grab samples are to be taken every 4 hours during degassing operations when both hydrogen/oxygen analyzers are out of service. These samples are to be analyzed within 8 hours to assure that the hydrogen/oxygen concentration is within the limits in Figure 3.11-1. During other Waste Gas Compressor operations, the hydrogen/oxygen concentration is not as subject to change, therefore grab samples are to be taken every 24 hours.

3/4.11.3 TOTAL DOSE

This specification is provided to meet the dose limitations of 40 CFR Part 190 that have now been incorporated into 10 CFR Part 20 by 46 FR 18525. The specification requires the preparation and submittal of a Special Report whenever the calculated doses from plant radioactive effluents exceed twice the design objective doses of Appendix I. For sites containing up to four reactors, it is highly unlikely that the resultant dose to a MEMBER OF THE PUBLIC will exceed the dose limits of 40 CFR Part 190 if the individual reactors remain within the reporting requirement level. The Special Report will describe a course of action that should result in the limitation of the annual dose to a MEMBER OF THE PUBLIC to within the 40 CFR Part 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the MEMBER OF THE PUBLIC from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 8 km must be considered. If the dose to any MEMBER OF THE PUBLIC is estimated to exceed the requirements of 40 CFR Part 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR Part 190 have not already been corrected), in accordance

RADIOACTIVE EFFLUENTS

BASES (Continued)

with the provisions of 40 CFR Part 190.11 and 10 CFR Part 20.405c, is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR Part 20, as addressed in Specifications 3.11.1 and 3.11.2. An individual is not considered a MEMBER OF THE PUBLIC during any period in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle.

3/4.11.4 SOLID RADIOACTIVE WASTE

This specification implements the requirements of 10 CFR 50.36a and General Design Criterion 60 of Appendix A to 10 CFR 50.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENTS NOS. 93 AND 61 TO FACILITY OPERATING LICENSES

NOS. DPR-51 AND NPF-6

ARKANSAS POWER & LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNITS 1 AND 2

DOCKET NOS. 50-313 AND 50-368

Introduction

By letter dated October 31, 1980, supplemented by letters dated December 2, 1980, August 23, 1983, and July 11, 1984, Arkansas Power & Light Company (the licensee or AP&L) requested amendments of the Technical Specifications (TS), Appendix A, appended to Facility Operating Licenses Nos. DPR-51 and NPF-6 for Arkansas Nuclear One, Units Nos. 1 and 2 (ANO-1&2), respectively. The proposed amendments would change the TS to incorporate hydrogen/oxygen concentration limitations and hydrogen/oxygen monitoring requirements in the radioactive waste gas systems. The proposed TS would establish hydrogen/oxygen concentration limits in the Waste Gas Surge Tanks and Waste Gas Decay Tanks such that the likelihood of the formation of explosive gas mixtures in the radioactive waste gas systems would be small. The proposed revision would also provide the additional requirement of continuous monitoring of waste gas to the waste gas decay tanks by redundant waste gas analyzers. If both redundant analyzers would become inoperable during waste gas operation, the proposed change would require suspension of all additions of waste gas to the decay tanks or allow continued operation if grab samples would be taken every four hours followed by analysis within eight hours.

Background and Discussion

The proposed TS changes are a result of our review of the licensee's proposed amendment to the license for ANO-1 dated March 9, 1979, which would incorporate Radiological Effluent Technical Specifications (RETS) into the ANO-1 Appendix A TS. The licensee's submittal was in response to NUREG-0472, Revision 2, Standard Radiological Effluent Technical Specifications for PWRs. Our concern was focused on the absence of any hydrogen/oxygen concentration limits in the licensee's proposed RETS and in the sampling capabilities and analysis provisions for potential explosive mixtures in the waste gas system. Such limits were needed to prevent the formation of flammable or explosive mixtures in the waste gas systems. The Waste Gas Surge Tanks and Waste Gas Decay Tanks are not designed to withstand hydrogen explosions. As a result of this concern, the licensee established operating limits in procedures and installed redundant hydrogen/oxygen analyzers in both ANO-1&2 waste gas systems and submitted the proposed amendments to ANO-1&2 operating licenses.

Evaluation

We have reviewed the licensee's submittals, particularly the submittal dated July 11, 1984, which was a total revision of the original proposed amendment. The licensee has proposed a 4 volume percent operation action limit for oxygen and hydrogen at ANO-1&2 waste gas systems. We have determined this to be acceptable since it would reduce the likelihood of the formation of flammable or explosive mixtures in the waste gas systems. The installation of redundant hydrogen/oxygen analyzers resolve and satisfied our concerns on sampling capabilities and analysis provisions for potential explosive mixtures in the gaseous radwaste systems. We have determined this modification to be acceptable. We also find that the proposed action statements and surveillance requirements meet the intent of NUREG-0472 and do not remove or relax any existing RETS.

Environmental Consideration

These amendments involve changes in the installation or use of facility components located within restricted areas as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that the amendments involve 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet 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 these amendments.

Conclusion

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: January 14, 1985

Principal Contributors:

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