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 FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269  
 50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270  
 50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287

AUTH. NAME: TUCKER, H.B. AUTHOR AFFILIATION: Duke Power Co.  
 RECIP. NAME: DENTON, H.R. RECIPIENT AFFILIATION: Office of Nuclear Reactor Regulation, Director  
 STOLZ, J.F. Operating Reactors Branch 4

SUBJECT: Application to amend Licenses DPR-38, DPR-47 & DPR-55, revising radiological effluent Tech Specs to incorporate design mods. Mods reduce environ impact of effluent releases ALARA per App I 10CFR20 requirements.

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	NRR/DSI/RAB	10	1	1	<u>REG FILE</u>	04	1	1
	IRGN2		1	1				
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	NRC PDR	02	1	1	NSIC	05	1	1
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All Extras to NRR ORB4BC

**DUKE POWER COMPANY**

P.O. BOX 33189  
CHARLOTTE, N.C. 28242

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
(704) 373-4531

February 9, 1983

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Mr. J. F. Stolz, Chief  
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station  
Docket Nos. 50-269, -270, -287

Dear Sir:

Pursuant to 10 CFR 50, §50.90, please find attached proposed Radiological Effluent Technical Specifications (RETS) for the Oconee Nuclear Station. These are the final revised RETS which replace in their entirety all RETS previously submitted. This submittal incorporates the comments made by the NRC and Franklin Research Center representatives at the August 18 and 19, 1982 meeting at the Oconee Nuclear Station, and should therefore be in compliance with NRC requirements.

With this submittal, Duke would like to express our position regarding these proposed Technical Specifications. The "Standardized Radiological Effluent Technical Specifications" require conformance with 10 CFR 20 and Appendix I to 10 CFR 50. 10 CFR 20 defines the permissible levels of radiation and of radioactivity in effluents to unrestricted areas, consistent with considerations of the health and safety of the public. Appendix I to 10 CFR provides numerical guidance on radiation level (dose), i.e., design objectives for light-water reactors, to keep effluent releases as low as is reasonably achievable (ALARA). These radiation levels are a small fraction of the permissible levels of radiation per 10 CFR 20. During normal operation, the annual releases of radioactive material in effluents at Oconee can generally be maintained within the design objectives of Appendix I.

Furthermore, Section IV of Appendix I states,

"At the same time, the licensee is permitted the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such numerical guides for design objectives but still within levels that assure that the average population exposure is equivalent to small fractions of doses from natural background radiation. It is expected that in using this operational flexibility under unusual conditions, the licensee will exert his best efforts to keep levels of radioactive material in effluents within the numerical guides for design objectives."

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Section I of Appendix I of Part 50 in 10 CFR reads,

"This appendix provides numerical guides for design objectives and limiting conditions for operation to assist applicants for, and holders of, licenses for light-water-cooled nuclear power reactors in meeting the requirements of §§50.34a and 50.36a that radioactive material in effluents released from these facilities to unrestricted areas be kept as low as is reasonably achievable."

"Section 50.36a contains provisions designed to assure that releases of radioactive material from nuclear power reactors to unrestricted areas during normal reactor operations, including expected operational occurrences, are kept as low as practicable."

With these sections of Appendix I in mind, a summary of releases made from Oconee for the last three years (see Attachment I) indicates the objectives of Appendix I have been met. However, extraordinary efforts by plant personnel were required during several off-normal events to prevent exceeding the design objectives. Duke considers that the margin between these releases and the design objectives of Appendix I are low and there is a strong possibility that Oconee, in the future, may not meet these objectives if unusual operating conditions occur. On this basis, and consistent with the intent of Sections IV and I, it is proposed that the radioactive liquid effluent dose limits of Appendix I (contained in Technical Specification 3.9.2) not be applicable during times of off-"normal" reactor operations (e.g., during times of unusual conditions where this operational occurrence is not "expected"). Duke has defined this as degraded conditions which warrant the activation of the NRC approved Oconee Emergency Plan (such as large inventory of low activity water which overloads the existing radwaste system due to excessive primary system leakage). Using the understanding that Appendix I provides design objectives to keep effluent releases ALARA while defining suggested maximum liquid release values (during normal conditions) of less than 2 percent of the permissible level of radiation per 10 CFR 20, it is considered that the proposed conditions of non-applicability still keep the health and safety of the public a foremost concern. Even though equipment modifications or backfits were not to be required in order to meet Appendix I, several very costly modifications (totaling over \$100 million) have been made or will be made to Oconee to provide greater capability to meet the design objectives and to reduce the environmental impact of effluent releases. These modifications are as follow:

1. Dilution Flow: The addition of piping, valves, and controls to provide dilution of liquid radwaste effluents in the discharge pipe prior to entering the environment. This system ensures adequate dilution of releases.
2. Contaminated Laundry Upgrade: The addition of dry cleaning equipment and new wet washer/dryer machines to increase the station's laundry capacity. The use of dry cleaning equipment will eliminate a significant volume of liquid effluents.

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3. Primary to Secondary Leak System: The addition of tanks, pumps, and piping to provide a controlled means of processing turbine building sump water. This high volume, low concentration source of liquid effluent can have significant impact on annual release limits.
4. Portable Demineralizer System: The addition of piping, valves, and pumps to allow the use of disposable, portable demineralizers to supplement evaporator operation. This system will provide more effective processing through the use of ion specific resins and will provide additional process capacity.
5. New Radwaste Facility: Installation of liquid process equipment, volume reduction equipment, tanks, and associated auxiliary systems. This facility will provide permanently installed liquid process equipment with greatly enhanced capacity and a greater overall decontamination factor for liquid effluents.

Efforts are being made to complete these modifications to help keep the releases as small as possible while still providing a safe, dependable, reliable, and affordable source of power to our customers. We will continue to maintain the most effective use of existing equipment as well as implementation of these cost-effective modifications. In summary, Duke has in the past, and will in the future, exert best efforts to keep levels of radioactive levels within the Appendix I design objectives, at all times.

Also within this submittal, Duke has proposed raising the LLDs for Ce-144 and Mo-99 to  $5 \times 10^{-6}$   $\mu\text{Ci/ml}$  for liquid releases, and  $5 \times 10^{-9}$   $\mu\text{Ci/cc}$  for gaseous releases. Difficulty arises in identifying these radionuclides in effluent radionuclide mixtures in that the radiation level is usually below the minimum detectable level, and background radiation interference registers higher than the minimum allowable. There is only a small dose contribution ( $<.05$  mrem/yr) resulting from each of these radionuclides, if present in the LLD concentrations, in the station effluent releases for the entire year, as discussed in the August 1982 meeting.

As was agreed upon earlier, the resolution of the technical specification regarding explosive gas mixtures in the waste gas system would be delayed until the various modifications proposed as part of the Waste Gas Study can be evaluated and any necessary modifications implemented. The study is presently being reviewed by station and general office personnel and will be covered in a future submittal.

At the August 1982 meeting, sampling of local well water was discussed. Duke had studied this issue previously and concluded that it is no longer necessary to do so. The Oconee site lies within the drainage area of the Little and Keowee Rivers. The deposits of the Little and Keowee drainage basin are generally of low permeability which results in nearly total runoff to the two rivers and

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their numerous tributary creeks. Using a safety factor of five for variance in flow and competition for exchangeable sodium ions, it would require more than 1000 years for strontium or cesium ions to migrate a distance of one-half mile. In summary, the movement would be so extremely slow that the saprolite soil is an effective natural barrier to the migration of radionuclides. Further information on this subject can be found in the Oconee Nuclear Station Final Safety Analysis Report, Section 2.4.13 - GROUNDWATER.

An additional change to page 6.1-1a is included and is proposed to clarify an existing requirement and is not related to radiological effluents. The definitions used in Revision 3 of the NRC Standard Technical Specifications for the following items are already included in the Oconee Technical Specifications and are referenced here to facilitate your review of this RETS proposal:

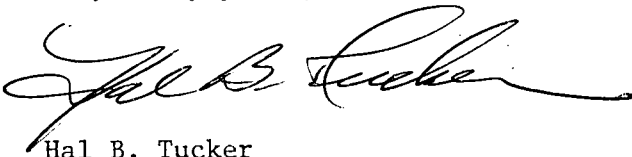
Channel Calibration	Technical Specification 1.5.2
Channel Check	Technical Specification 1.5.3
Channel Functional Test	Technical Specification 1.5.4
Operable - Operability	Technical Specification 1.3
Rated Thermal Power	Technical Specification 1.1
Site Boundary	Technical Specification 5.1

The Offsite Dose Calculation Manual (ODCM) is still under review and will be submitted when the review is completed.

Duke Power requests an implementation date of January 1, 1984. This will allow more time for certain modifications needed to help keep radioactive effluent levels ALARA, and will allow for a smooth transition of semi-annual surveillance, recording, and reporting requirements.

This submittal for a proposed license amendment to the Oconee Nuclear Station Facility Operating License to incorporate the RETS into the Oconee Technical Specifications completely supersedes the submittal of March 29, 1979. Inasmuch as this proposed amendment is being submitted at the request of the Commission, no license fees are provided.

Very truly yours,



Hal B. Tucker

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Attachment

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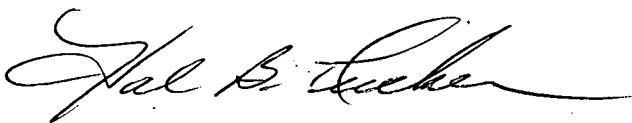
cc: Mr. James P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Mr. E. L. Conner, Jr.  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Mr. J. C. Bryant  
NRC Resident Inspector  
Oconee Nuclear Station

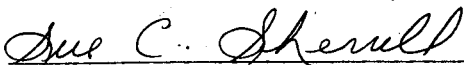
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HAL B. TUCKER, being duly sworn, states that he is Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this request for amendment of the Oconee Nuclear Station Technical Specifications, Appendix A to Facility Operating License DPR-38, DPR-47, and DPR-55; and that all statements and matters set forth therein are true and correct to the best of his knowledge.



\_\_\_\_\_  
Hal B. Tucker, Vice President

Subscribed and sworn to before me this 9th day of February, 1983

  
\_\_\_\_\_  
Notary Public

My Commission Expires:

September 20, 1984

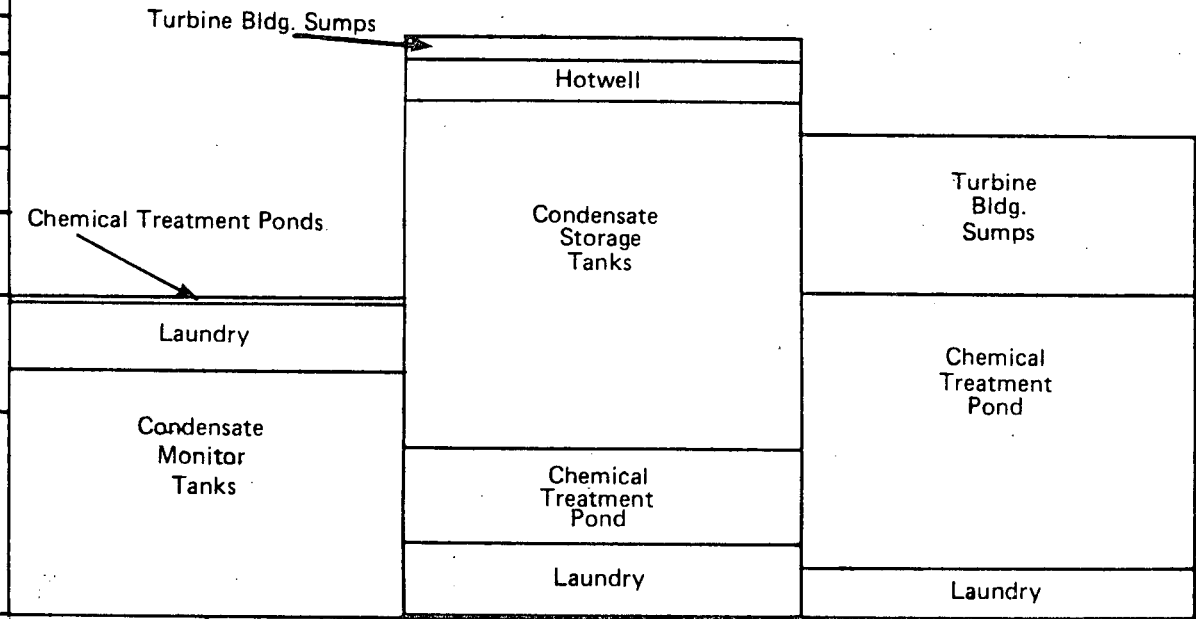
10 CFR 20  
HEALTH AND SAFETY LIMITS

ATTACHMENT 1  
OCONEE NUCLEAR STATION  
LIQUID EFFLUENT RELEASES  
FOR 1980, 1981, AND  
1982  
DPC  
FEBRUARY 1983

DOSE, MREM



10 CFR 50, APPENDIX 1  
Design Objectives



NOTE: DOSE SCALE IS  
LOGRITHMIC

CALENDER YEAR

\* Majority of dose from Steam Generator Leak