



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-33
AMENDMENT NO. 128 TO FACILITY OPERATING LICENSE NO. DPR-52
AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3

DOCKETS NOS. 50-259, 50-260 AND 50-296

1.0 INTRODUCTION

By letter dated September 30, 1986 (TVA BFNP TS-221) the Tennessee Valley Authority (the licensee or TVA) requested amendments to Facility Operating Licenses Nos. DPR-33, DPR-52, and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3.

The proposed amendments would change the Technical Specifications (TS) to add requirements for Radiological Effluent Technical Specifications (RETS) which comply with Section V of Appendix I to 10 CFR Part 50.

Submitted with the RETS was the Radiological Effluent Manual (REM). The REM consists of certain commitments on the part of TVA which were part of the proposed RETS amendment submitted on October 27, 1983. The staff found it acceptable to include them as a document separate from RETS. This is consistent with the conclusions of the meeting with TVA on July 12, 1986 (see meeting summary dated August 12, 1986). The REM is associated with the RETS and is defined and cited therein although it is not a part of the license.

In addition, the Offsite Dose Calculations Manual (ODCM) submitted January 3, 1983, is a document that must be used with the RETS. It too is associated with RETS and is defined and cited therein although it is not a part of the license.

To comply with Section V of Appendix I of 10 CFR Part 50, the Tennessee Valley Authority (TVA) has filed with the Commission plans and proposed Technical Specifications developed for the purpose of keeping releases of radioactive materials to unrestricted areas during normal operation, including expected operational occurrences, as low as is reasonably achievable. TVA originally filed this information with the Commission by letter dated October 27, 1983 and supplemented by a letter dated August 1, 1984, which requested changes to the Technical Specifications appended to Facility Operating Licenses Nos. DPR-33, DPR-52 and DPR-68 for Browns Ferry Nuclear Plant, Units 1, 2 and 3. The Technical Specifications

8702170301 870205
PLR 4DOCK 05000259
P PDR



1000

1000

1000

proposed at that time updated those portions of the Technical Specifications addressing radioactive waste management to make them consistent with the current staff positions as expressed in NUREG-0473.

Those revised Technical Specifications would provide reasonable assurance of compliance, in radioactive waste management, with the provisions of 10 CFR Part 50.36a, as supplemented by Appendix I to 10 CFR Part 50, with 10 CFR Parts 20.105(c), 106(g) and 405(c); with 10 CFR Part 50, Appendix A, General Design Criteria 60, 63 and 64; and with 10 CFR Part 50, Appendix B.

The proposed Technical Specifications were originally submitted October 27, 1983 and supplemented on August 1, 1984. TVA withdrew the Technical Specification change request by a letter dated April 4, 1986, from R. Gridley to D. R. Muller. On September 30, 1986, TVA resubmitted in a revised format the exact same Technical Specification commitments previously withdrawn.

2.0 BACKGROUND AND DISCUSSION

2.1 Regulations

10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Section 50.36a, "Technical Specifications on Effluents from Nuclear Power Reactors," provides that each license authorizing operation of a nuclear power reactor will include Technical Specifications that (1) require compliance with applicable provisions of Part 20.106, "Radioactivity in Effluents to Unrestricted Areas;" (2) require that operating procedures developed for the control of effluents be established and followed; (3) require that equipment installed in the radioactive waste system be maintained and used; and (4) require the periodic submission of reports to the NRC specifying the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents, any quantities of radioactive materials released that are significantly above design objectives, and such other information as may be required by the Commission to estimate maximum potential radiation doses to the public resulting from the effluent releases.

10 CFR Part 20, "Standards for Protection Against Radiation," paragraphs 20.106(c), 20.106(g), and 20.405(c) require that nuclear power plant and other licensees comply with 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations" and submit reports to the NRC when the 40 CFR Part 190 limits have been or may be exceeded. 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," contains Criterion 60, "Control of Releases for Radioactive Materials to the Environment;" Criterion 63, "Monitoring Fuel and Waste Storage;" and Criterion 64, "Monitoring Radioactivity Releases." Criterion 60 requires that the nuclear power unit design include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during

Vertical text or markings on the left side of the page.



normal reactor operation, including anticipated operational occurrences. Criterion 63 requires that appropriate systems be provided in radioactive waste systems and associated handling areas to detect conditions that may result in excessive radiation levels and to initiate appropriate safety actions. Criterion 64 requires that means be provided for monitoring effluent discharge paths and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences and postulated accidents.

10 CFR Part 50, Appendix B, establishes quality assurance requirements for nuclear power plants.

10 CFR Part 50, Appendix I, Section IV, provides guides on Technical Specifications for limiting conditions for operation for light-water-cooled nuclear power reactors licensed under 10 CFR 50.

2.2 Standard Radiological Effluent Technical Specifications

NUREG-0473 provides Radiological Effluent Technical Specifications for boiling water reactors which the staff finds to be an acceptable standard for licensing actions. Further clarification of these acceptable methods is provided in NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants." NUREG-0133 describes methods found acceptable to the staff for the calculation of certain key values required in the preparation of proposed Radiological Effluent Technical Specifications for light-water-cooled nuclear power plants. NUREG-0133 also provides guidance to licensees in preparing requests for changes to existing Radiological Effluent Technical Specifications for operating reactors. It also describes current staff positions on the methodology for estimating radiation exposure due to the release of radioactive materials in effluents and on the administrative control of radioactive waste treatment systems.

The above NUREG documents address all of the Radiological Effluent Technical Specifications needed to assure compliance with the guidance and requirements provided by the regulations previously cited. However, alternative approaches to the preparation of Radiological Effluent Technical Specifications and alternative Radiological Effluent Technical Specifications may be acceptable if the staff determines that the alternatives are in compliance with the regulations and with the intent of the regulatory guidance.

The standard Radiological Effluent Technical Specifications can be grouped under the following categories:

- (1) Instrumentation
- (2) Radioactive effluents
- (3) Radiological environmental monitoring

1954年10月1日

(4) Design features

(5) Administrative controls

Each of the specifications under the first three categories is comprised of two parts: the limiting condition for operation and the surveillance requirements. The limiting condition for operation provides a statement of the limiting condition, the times when it is applicable, and the actions to be taken in the event that the limiting condition is not met.

In general, the specifications established to assure compliance with 10 CFR Part 20 standards provide, in the event the limiting conditions of operation are exceeded, that without delay conditions are restored to within the limiting conditions. Otherwise, the facility is required to effect approved shutdown procedures. In general, the specifications established to assure compliance with 10 CFR Part 50 provide, in the event the limiting conditions of operation are exceeded, that within specified times, corrective actions are to be taken, alternative means of operation are to be employed, and certain reports are to be submitted to the NRC describing these conditions and actions.

The specifications concerning design features and administrative controls contain no limiting conditions of operation or surveillance requirements.

Table 1 indicates the standard radiological effluent technical specifications that are needed to assure compliance with the particular provisions of the regulations described in Section 1.0.

3.0 EVALUATION

The enclosed report (EGG-PBS-6691) was prepared for us by EG&G Idaho, Inc., as part of our technical assistance contract program. Their report provides their technical evaluation of the compliance of the licensee's October 27, 1983 and August 1, 1984 submittals with NRC criteria. The staff reviewed this TER and agreed with the evaluation.

The September 30, 1986 submittal, in revised format, has been compared by the staff, with the earlier submittal that had been given technical approval. It was found that all commitments made in the approved submittal had been transferred in their entirety to the new submittal. The only change was the location of the commitments within the submittal, that is, the relocation of some commitments into the Radiological Effluent Manual (REM). Therefore, the technical evaluation of the contractor in the enclosed EGG-PBS-6691 report is valid in every respect for the September 30, 1986 submittal in revised format.

The Radiological Effluent Manual (REM) has been reviewed in conjunction with the Radiological Effluent Technical Specifications (RETS) review and has been found acceptable for use in with the RETS. The REM is defined and cited in the RETS; however, the REM is not a part of the RETS nor a

1950

1951

1952



part of the license. Changes in REM are subject to prior approval by the NRC, however, such changes do not represent a license amendment.

The licensee has provided, as a reference document dated January 4, 1983, an "Offsite Dose Calculation Manual" (ODCM). The ODCM has also been reviewed in conjunction with the RETS review. We find that this ODCM generally uses documented and approved methods that are consistent with the methodology and guidelines in NUREG-0133 and, therefore, is an acceptable reference for use with the proposed RETS. ODCM is also defined and cited in the RETS and is also not a part of RETS or the license. Changes to the ODCM do not need prior NRC approval but such changes must be periodically reported to the NRC.

3.1 Summary

The proposed changes to the Radiological Effluent Technical Specifications for Browns Ferry Nuclear Plant, Units 1, 2 and 3, have been reviewed, evaluated, and found to be in compliance with NRC regulations and with the intent of NUREG-0133 and NUREG-0473 (the Browns Ferry plant consists of three boiling water reactors). They, along with the REM and ODCM, thereby fulfill all the requirements of the regulations related to Radiological Effluent Technical Specifications.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments involve changes in administrative procedures or requirements. Accordingly, these 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 nor environmental assessment need be prepared in connection with the issuance of these amendments.

5.0 CONCLUSION

The staff has concluded, on the basis of 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 nor to the health and safety of the public.

Principal Contributor: W. Meinke

Dated: February 5, 1987



Table 1. Relation Between Provisions of the Regulations and the Standard Radiological Effluent Technical Specifications for Pressurized Water Reactors and Boiling Water Reactors

● Indicate the specifications that are needed to assure compliance with the identified provision of the regulations.

Provisions of Title 10 Code of Federal Regulations	Standard Radiological Effluent Technical Specifications																										
	Instrumentation	Radioactive Effluents					Rad. Envir. Monitoring	Design Features	Administrative Control																		
		Liquid	Gaseous			Total Dose																					
			PWR/BWR	PWR	BWR																						
	Rad. Liquid Effl. Monitoring	Rad. Gas. Effl. Monitoring	Effluent Concentration	Dose	Liquid Radwaste Treatment	Dose Rate	Dose Noble Gases	Dose I-131, Trit. and Part. Explosive Gas Mixture	Gaseous Radwaste Treatment	Gas Storage Tanks	Gaseous Radwaste Treatment	Ventilation Exhaust Treatment	Main Condenser	Mark I. or II Containment	Solid Radioactive Waste	Rad. Env. Monitoring Program	Land Use Census	Interlab. Comparison Program	Site Boundaries*	Review and Audits	Procedures	Reports	Record Retention	Process Control Program	Offsite Dose Calc. Manual	Major Changes to Rad. Systems	
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
§ 50.36a Technical specifications on effluents from nuclear power reactors Remain within limits of § 20.106 Establish and follow procedures to control effluents Maintain and use radioactive waste system equipment Submit reports, semi-annual and other			●	●	●	●	●	●	●	●	●	●	●	●	●							●			●	●	●
§§ 20.105(c), 20.106(g), 20.405(c) Compliance with 40 CFR 190														●	●	●									●		
Part 50 Appendix A - General Design Criteria																											
Criterion 60 - Control of releases of radioactive materials to the environment	●	●	●	●		●	●	●	●	●	●	●	●	●								●		●	●		
Criterion 61 - Fuel storage and handling and radioactivity control	●	●																									
Criterion 63 - Monitoring fuel and waste storage	●	●																									
Criterion 64 - Monitoring radioactivity releases	●	●										●				●									●		
Part 50 Appendix B - Quality Assurance Criteria	●	●																●			●	●		●			
Part 50 Appendix I - Guides to Meet "As Low As Is Reasonably Achievable (ALARA)"																											
Maintain releases within design objectives			●	●		●	●		●																●		
Establish surveillance & monitoring program to provide data on:																											
(1) quantities of rad. matls. in effluents	●	●				●	●		●																		
(2) radiation & rad. matls. in the environment																●											
(3) changes in use of unrestricted areas																●											
Exert best efforts to keep releases "ALARA"			●	●		●	●		●																		
Submit report if calculated doses exceed the design objective			●			●	●		●																		
Demonstrate conform. to des. obj. by calc. proced.			●			●	●		●																		
Part 100																											

*Note: Needed to fully implement other specifications.