

May 7, 1990
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk

Attachment No. 1
Oconee Nuclear Station
Technical Specification Supplement

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1.8 RADIOLOGICAL EFFLUENT CONTROL

1.8.1 Source Check

A Source Check is the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

1.8.2 Offsite Dose Calculation Manual (ODCM)

The OFFSITE DOSE CALCULATION MANUAL shall contain the methodology and parameters used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the Environmental Radiological Monitoring Program. FSAR Chapter 16 shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.4.6 and 6.4.7 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Semiannual Radioactive Effluent Release Reports required by Specifications 6.6.1.4 and 6.6.1.5.

1.8.3 Process Control Program (PCP)

The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, test, 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 assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

1.8.4 Not Used

1.8.5 Gaseous Radwaste Treatment System

A Gaseous Radwaste Treatment System is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

1.8.6 Ventilation Exhaust Treatment System

A Ventilation Exhaust Treatment System is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal adsorbers and/or HEPA filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to the environment. Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be Ventilation Exhaust Treatment System components.

1.8.7 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.

1.8.8 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 Venting. Vent, used in system names, does not imply a venting process.

1.8.9 Member(s) Of The Public

Member(s) Of The Public shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors or its vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational or other purposes not associated with the plant.

1.8.10 Unrestricted Area

An Unrestricted Area shall be any area at or beyond the site boundary to which access is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials or any area within the site boundary used for residential quarters or industrial, commercial institutional and/or recreational purposes.

1.9 RELOAD DESIGN METHODOLOGY REPORT

The Reload Design Methodology Report shall contain the methodology to develop the cycle specific limits for rod position, power-imbalance, quadrant power tilt, shutdown margin and boron concentration.

Specification 3.10.2 is provided to ensure that the concentration of potentially explosive gas mixtures contained in the Waste Gas Holdup Tanks is maintained below the flammability limits of hydrogen. (Administrative controls are used to prevent the hydrogen concentrations from reaching the flammability limit.) These controls include sampling each tank 5 times a week while in service, and/or once in 24 hours after isolation of the tank; injection of dilutants to reduce the concentration of hydrogen below its flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of GDC 60 of Appendix A to 10CFR Part 50.

4.1 OPERATIONAL SAFETY REVIEW

Applicability

Applies to items directly related to safety limits and limiting conditions for operation.

Objective

To specify the frequency and type of surveillance to be applied to unit equipment and conditions.

Specification

- 4.1.1 The frequency and type of surveillance required for Reactor Protective System and Engineered Safety Feature Protective System instrumentation shall be as stated in Table 4.1-1.
- 4.1.2 The frequency and type of surveillance required for selected equipment shall be as stated in Table 4.1-2.
- 4.1.3 Required sampling should be performed as detailed in Table 4.1-3.
- 4.1.4 The frequency and type of surveillance required for radioactive effluent monitoring instrumentation shall be as stated in FSAR Chapter 16.
- 4.1.5 Using the Incore Instrumentation System, a power map shall be made to verify expected power distribution at periodic intervals not to exceed ten effective full power days.

Bases

Failures such as blown instrument fuses, defective indicators, and faulted amplifiers are, in many cases, revealed by alarm or annunciator action. Comparison of output and/or state of independent channels measuring the same variable supplements this type of built-in surveillance. Based on experience in operation of both conventional and nuclear systems, when the unit is in operation, the minimum checking frequency stated is deemed adequate for reactor system instrumentation.

Calibration is performed to assure the presentation and acquisition of accurate information. The nuclear flux (power range) channels amplifiers are calibrated (during steady-state operating conditions) when indicated neutron power exceeds core thermal power by more than two percent. During non-steady-state operation, the nuclear flux channels amplifiers are calibrated daily to compensate for instrumentation drift and changing rod patterns and core physics parameters. Calibration checks are also performed following significant changes in core conditions (power level and control rod positions) in order to assure that the core thermal power indication during non-steady-state operations does not exceed the indicated neutron power by more than the tolerance (4% FP) assumed in the safety analysis for significant duration (e.g., 4 hours).

Channels subject only to "drift" errors induced within the instrumentation itself can tolerate longer intervals between calibrations. Process system

Superintendent of Integrated Scheduling, as previously designated by the Station Manager.

- f. Incidents reportable pursuant to Technical Specification 6.6.2.1 and violations of Technical Specifications shall be investigated and a report prepared which evaluates the occurrence and which provides recommendations to prevent recurrence. Such reports shall be approved by the Station Manager and transmitted to the Vice President, Nuclear Production Department, or his designee; and to the Director of the Nuclear Safety Review Board.
- g. The Station Manager shall assure the performance of special reviews and investigations, and the preparation and submittal of reports thereon, as requested by the Vice President, Nuclear Production Department.
- h. The station security program, and implementing procedures, shall be reviewed at least once per 12 months. Changes determined to be necessary as a result of such review shall be approved by the Station Manager or Station Services Superintendent and transmitted to the Vice President, Nuclear Production Department, or his designee; and to the Director of the Nuclear Safety Review Board.
- i. The station emergency plan, and implementing procedures, shall be reviewed at least once per 12 months. Changes determined to be necessary as a result of such review shall be approved by the Station Manager and transmitted to the Vice President, Nuclear Production Department, or his designee; and the Director of the Nuclear Safety Review Board.
- j. The Station Manager shall assure that an independent fire protection and loss prevention inspection and audit shall be performed annually utilizing qualified off-site personnel and that an inspection and audit by a qualified fire consultant shall be performed at intervals no greater than three years.
- k. Unplanned onsite releases of radioactive material to the environs shall be investigated and a report prepared which evaluates the occurrence and which provides recommendations to prevent recurrence. Such reports shall be approved by the Station Manager and transmitted to the Vice President, Nuclear Production Department, or designee, and to the Director of the Nuclear Safety Review Board.
- l. Licensee-initiated changes to the Offsite Dose Calculation Manual (ODCM) shall be documented and records of reviews performed shall be retained for the duration of the unit operating license. 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; and,

- 3) Shall become effective upon review and acceptance by the Station Manager and a qualified individual/organization; and,
 - 4) Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM 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 ODCM 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 (e.g., month/year) the change was implemented.
- m. Licensee-initiated changes to the Process Control Program shall be documented and records of reviews performed shall be retained for the duration of the unit license. This documentation shall contain:
- 1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s);
 - 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; and,
 - 3) Changes shall become effective upon review and acceptance by the Station Manager and a qualified individual/organization.

6.1.2.2 Records

Records of the above activities shall be maintained.

6.1.3 Nuclear Safety Review Board

6.1.3.1 Function

The NSRB shall function to provide independent review and audit of designated activities in the areas of:

- a. Nuclear power plant operations
- b. Nuclear Engineering
- c. Chemistry and radiochemistry
- d. Metallurgy
- e. Instrumentation and control
- f. Radiological safety
- g. Mechanical and electrical engineering
- h. Administrative control and quality assurance practices

6.1.3.2 Organization

- a. The Director, members and alternate members of the NSRB shall be formally appointed by the Vice President, Nuclear Production Department, and shall have an academic degree in an engineering or physical science field; and in addition, shall have a minimum of five years technical experience, of which a minimum of three years shall be in one or more areas given in 6.1.3.1.
- b. The NSRB shall be composed of at least five members, including the Director, Members of the NSRB may be from the Nuclear Production Department, from other departments within the Company or from external to the

6.4.2 A respiratory protective program approved by the Commission shall be in force.

6.4.3 Administrative procedures shall be developed and implemented to limit the working hours of station staff who perform safety-related functions, e.g., senior reactor operators, reactor operators, nuclear equipment operators, and certain maintenance personnel.

Any deviations from the above procedures shall be authorized by the Station Manager (or designee) in accordance with established procedures and with documentation of the basis for granting the deviation. Individual overtime shall be periodically reviewed to assure that excessive hours have not been worked. Routine deviation from the above guidelines is not authorized.

6.4.4 The station shall have a program that ensures the capability to obtain and analyze reactor coolant and containment atmosphere samples under accident conditions which includes training of personnel, procedures for sampling and analysis, and provisions for testing and required maintenance of sampling and analysis equipment.

6.4.5 The station shall have a program that ensures the capability to collect and analyze or measure representative samples of radioactive iodines and particulates in plant gaseous effluents during and following an accident which includes training of personnel, procedures for sampling and analysis, and provisions for testing and required maintenance of sampling and analysis equipment.

6.4.6 The station shall have a program conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to MEMBERS OF THE PUBLIC from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in FSAR Chapter 16, (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:

- a. Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and set-point determination in accordance with the methodology in the ODCM,
- b. 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,
- c. 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 ODCM,

- d. Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,
- e. 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 ODCM at least every 31 days.
- f. Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50 as clarified by FSAR Chapter 16.
- g. 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,
- h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- i. 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 from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50; and,
- j. 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.

6.4.7 The station shall have a program 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 FSAR Chapter 16, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- a. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,

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Attachment No. 2
McGuire Nuclear Station
Technical Specification Supplement

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(A)

The ODCM shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Semi-annual Radioactive Effluent Release Reports required by Specifications 6.9.1 and 6.9.2. ~~FSAR Chapter 16.~~

INSERT

(B)

The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, test, 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 assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

INSERT

(C)

§ 4.

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 from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the ~~ODCM~~, FSAR Chapter 16, (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 set-point determination in accordance with the methodology in the ODCM,
- 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 ODCM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,

(continued)

- 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 ODCM 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 are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,
- 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 from each unit 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 radio-nuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50, and
- 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.

g.x. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radio-nuclides 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 ODCM, (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 ODCM,
- 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 a 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.

FSAR Chapter 16,

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Attachment No. 3
Catawba Nuclear Station
Technical Specification Supplement

INSERT (A)

The ODCM shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Semi-annual Radioactive Effluent Release Reports required by Specifications 6.9.1 ~~76~~ and 6.9.1 ~~A-7~~ FSAR Chapter 16.

INSERT (B)

§ 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 from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the ODCM, FSAR Chapter 16, (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 set-point determination in accordance with the methodology in the ODCM,
- 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 ODCM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit 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 ODCM 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 are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,
- 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,

INSERT (B) (continued)

6.8.4 Radioactive Effluent Controls Program (Cont.)

- f) 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit 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 from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50, and
- ~~10) Limitations on venting and purging of the Mark II containment through the Standby Gas Treatment System to maintain releases as low as reasonably achievable (BWRs w/Mark II containments), and~~
- 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.

g) 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 ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

FSAR Chapter 16,

- 1) Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,
- 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 a 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.