



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

VERMONT YANKEE NUCLEAR POWER CORPORATION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 103
License No. DPR-28

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Vermont Yankee Nuclear Power Corporation (the licensee) dated January 24, 1986 as supplemented May 13, 1986, June 9, 1986, January 16, 1987, and February 2, 1987 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 3.B of Facility Operating License No. DPR-28 is hereby amended to read as follows:

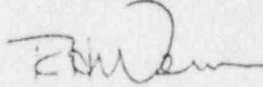
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(B) Technical Specifications

The Technical Specifications, contained in Appendix A, as revised through Amendment No. 103, 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



Richard H. Messman, Acting Director
Project Directorate I-3
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 20, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 103

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

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. - - -

Remove Pages

4a
66
166
167
168
169
172C
218

Insert Pages

4a
66
166
167
168
169
172C
218

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- BB. Source Check - The qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.
- CC. Dose Equivalent I-131 - The dose equivalent I-131 shall be that concentration of I-131 (microcurie/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in NRC Regulatory Guide 1.109, Revision 1, October 1977.
- DD. Solidification - Solidification shall be the conversion of wet wastes into a form that meets shipping and burial ground requirements. Suitable forms include dewatered resins and filter sludges.
- EE. Member(s) of the Public - Members 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 vendors. Also excluded from this category are casual visitors to the plant and persons who enter the site to service equipment or to make deliveries.
- FF. Site Boundary - The site boundary is shown in Figure 2.2-5 in the FSAR.

GG. Deleted

HH. Deleted

II. Off-Site Dose Calculation Manual (ODCM) - A manual containing the current methodology and parameters used in the calculation of off-site doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduction of the environmental radiological monitoring program.

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3.2 (Continued)

standby gas treatment system operation so that none of the activity released during the refueling accident leave the reactor building via the normal ventilation stack but that all activity is processed by the standby gas treatment system. Trip settings for the monitors in the ventilation duct are based upon initiation of the normal ventilation isolation and standby gas treatment system operation at a radiation level equivalent to the maximum site boundary dose rate of 500 mrem/year as given in Specification 3.8.E.1.a. The monitoring system in the plant stack represents a backup to this system to limit gross radioactivity releases to the environs.

The purpose of isolating the mechanical vacuum pump line is to limit release of radioactivity from the main condenser. During an accident, fission products would be transported from the reactor through the main steam line to the main condenser. The fission product radioactivity would be sensed by the main steam line radiation monitors which initiate isolation.

4.2 PROTECTIVE INSTRUMENTATION

The protective instrumentation systems covered by this Specification are listed in Table 4.2. Most of these protective systems are composed of two or more independent and redundant subsystems which are combined in a dual-channel arrangement. Each of these subsystems contains an arrangement of electrical relays which operate to initiate the required system protective action.

The relays in a subsystem are actuated by a number of means, including manually-operated switches, process-operated switches (sensors), bistable devices operated by analog sensor signals, timers, limit switches, and other relays. In most cases, final subsystem relay actuation is obtained by satisfying the logic conditions established by a number of these relay contacts in a logic array. When a subsystem is actuated, the final subsystem relay(s) can operate protective equipment, such as valves and pumps, and can perform other protective actions, such as tripping the main turbine-generator unit.

With the dual-channel arrangement of these subsystems, the single failure of a ready circuit can be tolerated because the redundant subsystem or system (in the case of high pressure coolant injection) will then initiate the necessary protective action. If a failure in one of these circuits occurs in such a way that an action is taken, the operator is immediately alerted to the failure. If the failure occurs and causes no action, it could then remain undetected, causing a loss of the redundancy in the dual channel arrangement. Losses in redundancy of this nature are found by periodically testing the relay circuits in the subsystems to assure that they are operating properly.

It has been the practice in boiling water reactor plants to functionally test protective instrumentation sensors and sensor relays on-line on a monthly frequency. Since logic circuit tests result in the actuation of plant equipment, testing of this nature was done while the plant was shut down for refueling. In this way, the testing of equipment would not jeopardize plant operation. However, a refueling interval could be as long as eighteen months, which is too long a period to allow an undetected failure to exist.

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TABLE 3.9.2

CASEOUS EFFLUENT MONITORING INSTRUMENTATION

Instrument	Minimum Channels Operable	Notes
1. Steam Jet Air Ejector (SJAE) a. Noble Gas Activity Monitor	1	7, 8, 9
2. Augmented Off-Gas System a. Noble Gas Activity Monitor Between the Charcoal Bed System and the Plant Stack (Providing Alarm and Automatic Termination of Release) b. Flow Rate Monitor c. Hydrogen Monitor	1 1 1	2, 5, 6, 7 1, 5, 6 3, 5, 6
3. Plant Stack a. Noble Gas Activity Monitor b. Iodine Sampler Cartridge c. Particulate Sampler Filter d. Sampler Flow Integrator e. Stack Flow Rate Monitor	1 1 1 1 1	5, 7, 10 4, 5 4, 5 1, 5 1, 5

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TABLE 3.9.2
(continued)

TABLE NOTATION

- NOTE 1 - With the number of channels operable less than required by the minimum channels operable requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours.
- NOTE 2 - With the number of channels operable less than required by the minimum channels operable requirement, effluent releases via this pathway may continue for a period of up to 7 days provided that at least one of the stack monitoring systems is operable and off-gas system temperature and pressure are measured continuously.
- NOTE 3 - With the number of channels operable less than required by the minimum channels operable requirement, operation of the AOG System may continue provided gas samples are collected at least once per 24 hours and analyzed within the following 4 hours, or an orderly transfer of the off-gas effluents from the operating recombiner to the standby recombiner shall be made.
- NOTE 4 - With the number of channels operable less than required by the minimum channels operable requirement, effluent releases via the affected pathway may continue provided samples are continuously collected with auxiliary sampling equipment.
- NOTE 5 - With the number of channels operable less than required by the minimum channels operable requirement, exert reasonable efforts to return the instrument(s) to operable status within 30 days.
- NOTE 6 - During releases via this pathway.
- NOTE 7 - The alarm/trip setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the Off-Site Dose Calculation Manual (ODCM). With a gaseous process or effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value which will ensure that the limits of 3.8.E.1.a and 3.8.K.1 are met, immediately take actions to suspend the release of radioactive gaseous effluents monitored by the affected channel, or declare the channel inoperable, or change the setpoint so it is acceptably conservative.

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TABLE 3.9.2
(continued)

TABLE NOTATION

- NOTE 8 - Minimum channels operable required only during operation of the Steam Jet Air Ejector.
- NOTE 9 - With the number of channels operable less than required by the minimum channels operable requirement, gases from the SJAЕ may be released to the environment for up to 72 hours provided:
1. The AOG System is not bypassed; and
 2. The AOG System noble gas activity monitor is operable.
- NOTE 10 - With the number of channels operable less than required by the minimum channels operable requirement, effluent releases via this pathway may continue provided grab samples are taken at least once per 12 hours and these samples are analyzed for gross activity within 24 hours.

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TABLE 3.9.3

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Sample Locations ^a	Sampling and Collection Frequency	Type and Frequency of Analysis
<p>1. AIRBORNE</p> <p>a. Radioiodine and Particulates</p>	<p>Samples from 5 locations:</p> <p>1 sample from up valley, within 4 miles of Site Boundary. (major wind direction)</p> <p>1 sample from down valley, within 4 miles of Site Boundary. (major wind direction)</p> <p>1 sample each from the vicinity of two nearby communities, within 10 miles of Site Boundary.</p> <p>1 sample from a control location.</p>	<p>Continuous operation of sampler with sample collection semimonthly or more frequently as required by dust loading or plant effluent releases^h.</p>	<p>Radioiodine canister: Analyze each sample for I-131.</p> <p>Particulate sampler: Gross beta radioactivity analysis on each sample following filter change^c. Composite (by location) for gamma isotopic^d at least once per quarter.</p>

TABLE 3.9.4

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES^(a)

Reporting Levels

Analysis	Water (pCi/l)	Airborne Particulate or Gases (pCi/m ³)	Fish (pCi/Kg, wet)	Milk (pCi/l)	Vegetation (pCi/Kg, wet)	Sediment (pCi/Kg, dry)
H-3	2×10^4 ^(b)					
Mn-54	1×10^3		3×10^4			
Fe-59	4×10^2		1×10^4			
Co-58	1×10^3		3×10^4			
Co-60	3×10^2		1×10^4			3×10^3 ^(c)
Zn-65	3×10^2		2×10^4			
Zr-Nb-95	4×10^2					
I-131		0.9		3	1×10^2	
Cs-134	30	10	1×10^3	60	1×10^3	
Cs-137	50	20	2×10^3	70	2×10^3	
Ba-La-140	2×10^2			3×10^2		

(a) Reporting levels may be averaged over a calendar quarter. When more than one of the radionuclides in Table 3.9.4 are detected in the sampling medium, the unique reporting requirements are not exercised if the following condition holds:

$$\frac{\text{concentration}(1)}{\text{reporting level}(1)} + \frac{\text{concentration}(2)}{\text{reporting level}(2)} + \dots \leq 1.0.$$

When radionuclides other than those in Table 3.9.4 are detected and are the result of plant effluents, the potential annual dose to a member of the public must be less than or equal to the calendar year limits of Specifications 3.8.B, 3.8.E and 3.8.F.

(b) Reporting level for drinking water pathways. For nondrinking water pathways, a value of 3×10^4 pCi/l may be used.

(c) Reporting level for individual grab samples taken at North Storm Drain Outfall only.

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1. Shall be submitted to the Commission in the semiannual Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:
 - a. Sufficiently detailed information to support the rationale for the change without benefit of additional or supplemental information.
 - b. A determination that the change did not reduce the overall conformance of the dewatered spent resins/filter media waste product to existing criteria for solid waste shipments and disposal.
 - c. Documentation of the fact that the change has been reviewed by PORC and approved by the Manager of Operations (MOO).
2. Shall become effective upon review by PORC and approval by the Manager of Operations (MOO).

6.13 OFF-SITE DOSE CALCULATION MANUAL (ODCM)

An Off-Site Dose Calculation Manual shall contain the current methodology and parameters used in the calculation of off-site 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.

A. Licensee initiated changes to the ODCM:

1. Shall be submitted to the Commission in the semiannual Effluent Release Report for the period in which the change(s) was made effective. This submittal shall contain:
 - a. Sufficiently detailed information to support the rationale for the change without benefit of additional or supplemental information. Information submitted should consist of a package of those pages of the ODCM which were changed with each page numbered and provided with the revision number, together with appropriate analyses or evaluations justifying the change(s).
 - b. A determination that the change will not reduce the accuracy or reliability of dose calculations or setpoint determinations.