JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

Provisional Operating
License No. DPR-16

Technical Specification
Change Request No. 69
Docket No. 50-219

Applicant submits, by this Technical Specification Change Request No. 69 to the Oyster Creek Nuclear Generating Station Technical Specification, changing sections 3.1, 3.6, 4.1, 4.6 and 6 to incorporate the requirements of 10CFR50, Appendix I and associated regulations.

JERSEY CENTRAL POWER & LIGHT COMPANY

BY Ivan R. Finfrock Jr.
Vice President

STATE OF NEW JERSEY
COUNTY OF MORRIS

Sworn and subscribed to before me this 21st day of June, 1979.

Marion M. Breese
Notary Public

MARION M. BREESE
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Sept. 27, 1981

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF)
) DOCKET NO. 50-219
JERSEY CENTRAL POWER & LIGHT COMPANY)

CERTIFICATE OF SERVICE

This is to certify that a copy of Technical Specification Change Request No. 69 for the Oyster Creek Nuclear Generating Station Technical Specifications, filed with the U. S. Nuclear Regulatory Commission on June 1, 1979, has this 1st day of June, 1979 been served on the Mayor of Lacey Township, Ocean County, New Jersey by deposit in the United States mail addressed as follows:

The Honorable Mary Lou Smith
Mayor of Lacey Township
P. O. Box 475
Forked River, New Jersey 08731

JERSEY CENTRAL POWER & LIGHT COMPANY

BY Ivan R. Finfrock
Vice President

DATED: June 1, 1979

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Jersey Central Power & Light Company
Madison Avenue at Punch Bowl Road
Morristown, New Jersey 07960
(201) 455-8200

June 1, 1979

The Honorable Mary Lou Smith
Mayor of Lacey Township
P. O. Box 475
Forked River, New Jersey 08731

Dear Mayor Smith:

Enclosed herewith is one copy of Technical Specification Change Request No. 69 for the Oyster Creek Nuclear Generating Station Technical Specifications.

These documents were filed with the U. S. Nuclear Regulatory Commission on June 1, 1979.

Very truly yours,

Ivan R. Finfrock, Jr.
Vice President

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Enclosure

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JERSEY CENTRAL POWER & LIGHT COMPANY
OYSTER CREEK NUCLEAR GENERATING STATION
(DOCKET NO. 50-219)
PROVISIONAL OPERATING LICENSE NO. DPR-16

Applicant hereby requests the Commission to change Appendix A to the above captioned license as follows:

1. Sections to be changed:

   3.1, 3.6, 4.1, 4.6, and 6.

2. Extent of Changes:

   Incorporate the requirements of 10CFR50 Appendix I and associated regulations.

3. Changes requested:

   See attached pages.

4. Discussion:

   The reason for this change request is discussed in the transmittal letter.

TABLE 3.1.1 PROTECTIVE INSTRUMENTATION REQUIREMENTS (CONTD)

Function	Trip Setting	Reactor Modes in Which Function Must Be Operable: Shutdown	Refuel	Startup	Run	Min. No. of Operable or Operating (Tripped) Trip Systems	Min. No. of Operable Instrument Channels Per Operable Trip Systems	Action Required*
2. Low-Low-Low Reactor Water Level	≥ 4'8" above top of active fuel	X	X	X	X	2	2	See note h
3. AC Voltage	NA			X	X	2	2	Prevent auto depressurization on loss of AC power. See note i
H. Isolation Condenser Isolation								Isolate Affected isolation condenser, comply with Spec. 3.8
1. High Flow Steam Line	≤ 20 psig Δ P	X	X	X	X	2	2	
2. High Flow Condensate Line	≤ 27" Δ P H_2O	X	X	X	X	2	2	
I. DELETED								
J. Reactor Building Isolation and Standby Gas Treatment System Initiation								Isolate Reactor Bldg. & Initiate Standby Gas Treatment System, or Manual Surveillance for not more than 24 hours (total for all instruments under J) in any 30-day period.
1. High Radiation Reactor Building Operation Floor	≤ 100 Mr/Hr	X	X	X	X	1	1	
2. Reactor Bldg. Ventilation Exhaust	≤ 17 Mr/Hr	X	X	X	X	1	1	
3. High Drywell Pressure	≤ 2 psig	X	X	X	X	1(k)	2(k)	
4. Low Low Reactor Water Level	≥ 7'2" above top of active fuel	X	X	X	X	1	2	

TABLE 3.1.1 (CONT'D.)

* Action required when minimum conditions for operation are not satisfied. Also permissible to trip inoperable trip system. When necessary to conduct tests and calibrations, one channel may be made inoperable for up to one hour per month without tripping its trip system.

** See Specification 2.3 for Limiting Safety System Settings.

Notes:

a. Permissible to bypass, with control rod block, for reactor protection system reset in refuel mode.

b. Permissible to bypass below 800 psig in refuel and startup modes.

c. One (1) APRM in each operable trip system may be bypassed or inoperable provided the requirements of specification 3.1.C and 3.10.D are satisfied. Two APRM's in the same quadrant shall not be concurrently bypassed except as noted below:

Any one APRM may be removed from service for up to one hour for test or calibration without inserting trips in its trip system only if the remaining operable APRM's meet the requirements of specification 3.1.B.1 and no control rods are moved outward during the calibration or test. During this short period, the requirements of specifications 3.1.B.2, 3.1.C and 3.10.D need not be met.

When in the Refuel Mode, two APRM's in the same quadrant may be made inoperable during replacement of an LPRM assembly, provided that the Source Range Channel and both Intermediate Range Channels in that quadrant are operable and provided that the Removable Jumpers for Refueling Non-Coincidence have been removed.

d. The (IRM) shall be inserted and operable until the APRM's are operable and reading at least 2/150 full scale.

e. DELETED

f. Unless SRM chambers are fully inserted.

g. Not applicable when IRM on lowest range.

h. One instrument channel in each trip system may be inoperable provided the circuit which it operates in the trip system is placed in a simulated tripped condition. If repairs cannot be completed within 72 hours the reactor shall be placed in the cold shutdown condition. If more than one instrument channel in any trip system becomes inoperable the reactor shall be placed in the cold shutdown condition. Relief valve controllers shall not be bypassed for more than 3 hours (total time for all controllers) in any 30-day period and only one relief valve controller may be bypassed at a time.

3.6 RADIOACTIVE EFFLUENTS

Applicability: Applies to the radioactive effluents of the facility during all modes of operation.

Objective: To define the limits and conditions for controlled release of radioactive materials in liquid and gaseous effluents to the environs to ensure that these releases are as low as is reasonably achievable in conformance with 10 CFR Parts 50.34a and 50.36a, and to ensure that these releases result in concentrations of radioactive materials in liquid and gaseous effluents released to unrestricted areas that are in conformance with 10 CFR Part 20.

To ensure that the releases of radioactive material above background to unrestricted areas are as low as is reasonably achievable, the following design objectives as defined in Appendix I to 10 CFR Part 50.36a apply:

a. The annual total quantity of all radioactive material above background that may be released from the Oyster Creek Nuclear Generating Station to unrestricted areas should not result in an annual dose or dose commitment from liquid effluents for any individual in an unrestricted area from all pathways of exposure in excess of 3 millirems to the total body or 10 millirems to any organ.

b. The annual total quantity of all radioactive material above background that may be released from the Oyster Creek Nuclear Generating Station to the atmosphere should not result in an annual air dose from gaseous effluents at any location near ground level which could be occupied by individuals in unrestricted areas in excess of 10 millirads for gamma radiation or 20 millirads for beta radiation, or that this quantity should not result in an annual external dose from gaseous effluents to any individual in unrestricted areas in excess of 5 millirems to the total body or 15 millirems to the skin.

c. The annual total quantity of all radioactive iodine and radioactive material in particulate form above background that may be released from the Oyster Creek Nuclear Generating Station in effluents to the atmosphere should not result in an annual dose or dose commitment from such radioactive iodine and radioactive material in particulate form for any individual in an unrestricted area from all pathways of exposure in excess of 15 millirems to any organ.

Specifications:

A. GASEOUS WASTE EFFLUENTS

1. The concentration of radioactive materials in gaseous effluents to unrestricted areas except iodines and particulates with half lives longer than eight days shall not exceed the values specified in 10 CFR Part 20.106, as indicated in the following equation:

$$Q = \frac{0.21 \text{ Curies/Sec.}}{\bar{E}}$$

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Where Q is the stack release rate (Curies/Sec) of gross activity and $\bar{E}$ is the average gamma energy per disintegration. (Mev/dis).

The maximum release rate of iodines and particulates with half lives longer tha eight days shall not exceed 4 microcuries/sec.

2. The design objective annual air dose from radioactive noble gases in gaseous effluents to unrestricted areas in each direction sector is 10 mrad for gamma radiation and 20 mrad for beta radiation.

3. The design objective annual dose or dose commitment from radio-iodines, radioactive material in particulate form and radio-nuclides other than noble gases in gaseous effluents to unrestricted areas in each direction sector is 15 mrem to the total body or any organ.

4. Doses due to the release of radioactive materials in gaseous effluents shall be calculated for each calendar quarter of reactor operation and compared with these dose objectives.

5. Radiogases released from the stack shall be continuously monitored except for the short periods of time during monitor filter changes, required surveillance testing, sample system purging, and following unanticipated sample pump trips. If this specification cannot be met, a reactor shutdown shall be initiated within 2 hours and the reactor shall be placed in the isolated condition within 24 hours.

6. The equipment installed in the gaseous radioactive waste system shall be maintained and shall be operated as necessary to meet the design objectives of Specification 3.6.A.2 and 3.

7. If the actual release of radioactive materials in gaseous effluents results in a calculated dose exceeding one-half the design objectives of 3.6 A.2 or 3 above, in any calendar quarter, the following action shall be taken:

a. make an investigation to identify the causes for such release rates,

b. define and initiate a program of action to reduce such rates to Specifiction 3.6.A.2 and 3.6.A.3, and

c. report these actions to the NRC within 30 days from the end of the quarter.

B. LIQUID WASTE EFFLUENTS

1. The concentration of radioactive materials released in liquid effluents to unrestricted areas shall not exceed the values specified in 10 CFR Part 20.106.

2. The design objective annual dose from radioactive materials in liquid effluents to unrestricted areas is 3 mrem to the total body and 10 mrem to any organ. Doses due to the release of radioactive materials in liquid effluents shall be calculated for each calendar quarter of reactor operation and compared with these dose objectives.

the recombiner shall be limited to 4% by volume at all times except as specified in 3.6.F.2, 3.6.F.3, and 3.6.F.4.

2. If the concentration of hydrogen in the operating recombiner train exceeds 4%, the inlet valve in that train shall be tripped closed and the system purged with air. Augmented offgas system operation may continue through the other recombiner train.

3. If the concentration of hydrogen downstream cannot be maintained at 4% or less, then the augmented offgas system shall be bypassed.

4. Operation of a recombiner may continue with a hydrogen monitor out of service for up to 14 days if a grab sample for hydrogen is taken and analyzed at at least every 24 hours.

G. Main Condenser Noble Gas Activity

1. The gross radioactivity rate of noble gases input to the augmented off-gas system as calculated from samples taken at the air ejectors shall be limited to .21/E where E is the average gamma energy per disintegration.

2. With the gross radioactivity rate of noble gases exceeding the above limit, restore the gross radioactivity rate to within its limit within 15 minutes or isolate the reactor.

Bases: Some radioactive material is released from the plant under controlled conditions as part of the normal operation of the facility. Other radioactive material not normally intended for release could be inadvertently released in the event of certain accident conditions within the facility. Therefore, limits have been placed on the above types of radioactive materials to assure not exceeding the limits of 10 CFR 20 for the former type and the guideline limits of 10 CFR 100 for the latter type.

The specifications in Gaseous Waste Effuents are provided to ensure that the dose rate at any time at the exclusion area boundary from gaseous effluents will be within the annual dose limits of 10CFR Part 20 for unrestricted areas. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an unrestricted area, either within or outside the exclusion area boundary, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). The dose restrictions on noble gases are provided to insure the implementation of the guidelines provided by Sections II.B, III.A, and IV.A of Appendix I of 10 CFR Part 50. The dose restrictions on radioiodines, radioactive material in particulate forms and rodionuclides other than noble gases are provided to implement Sections IIc, IIIA and IVA of Appendix I of 40 CFR Part 50.

Continuous monitoring of radiogases provides the means for obtaining information on stack release rate limits In the event continuous monitoring isnot available, the reactor is isolated from the turbine condenser and, therefore, is isolated from the plant stack. The isolation would normally be expected to be completed within 24 hours.

3. The equipment installed in the liquid radioactive waste system shall be maintained and shall be operated as necessary to meet the design objectives of Specifications 3.6.B.2.

4. If the actual release of radioactive materials in liquid effluent results in a calculated dose exceeding one-half the design objectives of 3.6.B.2 in any calendar quarter, the following action shall be taken:

a. make an investigation to identify the causes for such releases,

b. define and initiate a program of action to reduce such releases to Specifiction 3.6.B.2 and,

c. report these actions to the NRC within 30 days from the end of the quarter.

C. Radioactive Liquid Storage

The maximum amount of radioactivity, excluding tritium, noble gases, and those isotopes with half lives shorter than three days, contained in the radwaste storage tanks outside the radwaste building shall not exceed 10.0 curies. If this activity exceed 5.0 curies, then the stored liquid will be recycled to tanks within the radwaste facility until the level is reduced below 5.0 curies.

D. Reactor Coolant Radioactivity

The concentration of the total iodine in the reactor coolant shall not exceed 8 uCi/gm. If this specification cannot be met, the reactor shall be placed in the cold shutdown condition.

E. Dose

1. The dose or dose commitment to a real individual in the unrestricted area from all uranium fuel cycle sources is limited to < 25 mrem to the total body or any organ (except the thyroid, which is limited to <75 mrem) over a period of the current calendar year. Compliance with this specification shall be considered to be met provided that the design objectives of Specifications 3.6.A.2, 3.6.A.3 and 3.6.B.2 are not exceeded by a factor of two.

2. With the calculated dose from the release of radioactive materials in liquid or gaseous effluents exceeding twice the design objectives of Specificatons 3.6.A.2, 3.6.A.3 or 3.6.B.2 , prepare and submit a Special Report to the Commission within 30 days and limit the subsequent releaes such that the dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to <25 mrem to the total body or any organ (except thyroid which is limited to <75 mrem) over the current calendar year. This Special Report shall include an analysis which demonstrates that radiation exposures to all real individuals from all uranium fuel cycle sources are less than the 40 CFR 190 Standard. Otherwise, obtain a variance from the Commission to permit releases which exceeds the 40 CFR Part 190 Standard.

F. Explosive Gas Mixture

1. The concentation of Hydrogen in the augmented offgas system downstream of

It is recognized that a precise determination of environmental dose from a certain emission from the stack is only possible by direct measurement. Such information will be provided by the environmental monitoring program (Section 4.6) conducted at and around the site. If the stack emission ever reaches a level such that it is measureable in the environment, such measurements will provide a basis for adjusting the proposed stack limit long before the effect in the environment is of any concern for permissible dose. In this regard, it is important to realize that not averaging emission rate over a period of one calendar year as permitted by 10 CFR 20 represents a very large safety margin between conditions at any one instant (any minute, hour or day) and the long term dose of interest.

The radioactive liquid effluents from the Oyster Creek Station will be controlled on a batch basis with each batch being processed by such method or methods appropriate for the quality and quantity of materials determined to be present. Those batches in which the radioactivity concentrations are sufficiently low to allow release to the discharge canal are diluted with condenser circulating water and/or dilution water. The radioactive liquids will be sampled and analyzed for radioactivity prior to release to the discharge canal, thus providing means for obtaining information on effluents to be released so that appropriate release rates will be established.

The requirements of the specifications on Liquid Waste Effluents is to insure compliance with Appendix I of 10 CFR Part 50.

Retaining radioactive liquids on-site in order to permit systematic and complete processing is consistent with maintaining radioactive discharges to the environment as low as practicable. Limiting the stored contents to 10.0 curies of activity assures that even in the extremely unlikely event of simultaneous rupture of all the tanks, the total activity discharged to the Bay would be less than half the activity discharged to the Bay in one year if the plant were to discharge continuously with the effluent having a radioactive concentration equal to the 10 CFR 20 MPC for unidentified isotopes.

The main pathway to man for activity deposited in the Bay is through the consumption of aquatic biota since there are no drinking water supplies taken from the Bay. The concentrations that could develop in the canal are reduced rapidly in the Bay (See FDSAR Figure II.4.2). The peak concentrations exist for a relatively short time in the Bay and this combined with the uptake time of the biota could result in only minor increases in the equilibrium levels of radioisotopes in the biota. Isotopes with half lives less than three days are not of concern since there is sufficient delay between production in the plant, discharge by means of this postulated accident and human consumption to preclude their being biologically significant. Tritium and noble gases are excluded also because they are not biologically significant. The requirement to process the tank contents if the activity inventory exceeds 5.0 curies assures action is taken on a timely basis to avoid reaching or exceeding the limit.

The primary coolant radioactivity concentration limit of 8.0 uCi total iodine per gram of water was calculated based on a steamline break accident which is isolated in 10.5 seconds. For this accident analysis, all the iodine in the mass of coolant released in this time period is assumed to be released to the atmosphere at the top of the turbine building (30 meters). By limiting the thyroid dose at the site boundary to a maximum of 30 Rem, the iodine

concentration in the primary coolant is back-calculated assuming fumigation meteorology, Pasquill Type F at 1 m/sec. The iodine concentration in the primary coolant resulting from this analysis is 8.4 uCi/gm.

Restricting the gross radioactivity rate of noble gases to the augmented offgas system provides reasonable assurance that the total body exposure to an individual at the exclusion area boundary will not exceed a small fraction of the limits of 10 CFR Part 100 in the event this effluent is inadvertently discharged directly to the environment without treatment. This specification implements the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50.

The specification on explosive gase mixtures is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas treatment system is maintained below the flammability limits of hydrogen. Automatic control features are included in the system to prevent the hydrogen concentrations from reaching these flammability limits. These automatic control features include isolation of the source of hydrogen and, injection of dilutants to reduce the concentration below the flammability limits. Maintaining the concentration of hydrogen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

References

(1) FDSAR, Volume 1, Section VII-6.2.3.

	Instrument Channel	Check	Calibrate	Test	Remarks (Applies to Test and Calibration)
	APRM Scram Trips	Note 2	1/wk	1/wk	Using built-in calibration equipment during power operation
12.	APRM Rod Blocks	Note 2	1/3 mo	1/mo	Upscale and downscale
13.	a. High Radiation on Main Steamline	1/s	1/3 mo	1/wk	Using built-in calibration equipment during power operation
	b. Sensors for 13(a)	N A	Each Refueling Outage	N A	Using external radiation source
14.	High Radiation in Reactor Building				
	Operating Floor	1/s	1/3 mo.	1/wk.	Using gamma source for calibration
	Ventilation Exhaust	1/s	1/3 mo.	1/wk	Using gamma source for calibration
15.	DELETED				
16.	IRM Level	N A	Each Shutdown	N A	During approach to shutdown only
	IRM Scram	*	*	*	Using built-in calibration equipment
17.	IRM Blocks	N A	Prior to Startup and Shutdown	Prior to startup and Shutdown	Upscale and downscale
18.	Condenser Low Vacuum	N A	Each Refueling outage	Each Refueling outage	

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* Calibrate prior to startup and normal shutdown and thereafter check 1/s and test 1/wk until no longer required.

Legend: N A = Not applicable; 1/s = Once per shift; 1/d = Once per day; 1/3d = Once per 3 days; 1/wk = Once per week; 1/3 mo = Once every 3 months.

4.1-6

4.6 RADIOACTIVE EFFLUENTS

Applicability: Applies to monitoring of the gaseous and liquid radioactive effluents of the facility during all modes of operation.

Objective: To verify that discharge of radioactive effluents to the environment is kept to a practical minimum and, in any event, within the limits of 10 CFR 20.

Specification:

A. Gaseous Waste Effluents

1. Station records of gross stack release rate of noble gaseous activity and meteorological conditions shall be maintained on an hourly basis to assure that the specified rates are not exceeded, to provide data for calculating offsite dose and to yield information concerning general integrity of the fuel cladding.

2. Within one month after issuance of these specifications and within one month following refuelings, an isotopic analysis will be made of a gaseous activity release sample which identifies at least 90 percent of the total activity. From this sample, a ratio of long-lived and short-lived activity will be established.

3. Samples of off-gas will be taken at least every 96 hours and a gross ratio of long-lived and short-lived activity determined.

4. An isotopic analysis of off-gas will be performed monthly unless the ratio determined in 3 above differs from the ratio established by the previous isotopic analysis by more than 20 percent. If this occurs, a new isotopic analysis shall be performed.

5. Gaseous release of tritium shall be measured at least quarterly.

6. Station records of stack release of iodines and particulates with half-lives greater than eight days shall be maintained on the basis of all filter cartridges counted.

7. These cartridges shall be analyzed weekly for gross alpha, beta and gamma isotopic activity when the iodine or particulate release rate is less than 4 percent of the maximum release rate given in Specification 3.6.A.1. Otherwise the cartridges shall be removed for analysis twice a week.

8. When the gross gaseous release rate exceeds 1% of the maximum release rate given in Specification 3.6.A.1 and the average daily gross activity release rate increased by 50% over the previous full operating day, the cartridges shall be analyzed to determine the release rate increase for iodines and particulates.

9. An isotopic analysis of iodines and particulate radionuclides shall be performed at least quarterly.

10. The stack gas radiation monitoring channels shall be checked daily, tested

monthly, and calibrated every 3 months.

B. Liquid Waste Effluents

1. Station records shall be maintained of the radioactive concentration and volume before dilution of each batch of liquid effluent released and of the average dilution flow and length of time over which each discharge occurred.

2. A monthly proportional composite of samples of all batches discharged during the month shall be analyzed for gross alpha and beta tritium and Sr-90.

3. Each batch of liquid effluent released shall be analyzed for gross alpha, beta and gamma activity and the results recorded.

4. The radioactivity in liquid wastes shall be continuously monitored during release. If the effluent radiation monitor on a batch release line is inoperable two independent samples shall be taken and analyzed and two plant personnel shall independently check valving prior to the release.

5. The liquid radwaste effluent monitoring channel shall be checked daily, tested monthly, and calibrated every 3 months.

*A proportional composite is one in which the quantity of liquid added to the composite is proportioned to the quantity of liquid in each batch that was released.

C. Radiological Environmental Monitoring Program

1. The radiological environmental monitoring program shall be conducted as specified in Table 4.6-1.

2. With the radiological environmental monitoring program not being conducted as specified in Table 4.6-1, prepare and submit to the Commission, in the Annual Radiological Operating Report, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence. (Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, or to malfunction of automatic sampling equipment. If the latter, every effort shall be made to complete corrective action prior to the end of the next sampling period).

3. With the level of radioactivity in an environmental sampling medium at one or more of the locations specified in Table 4.6-1 exceeding the limits of Table 6.9-1 when averaged over any calendar quarter, prepare and submit to the Commission within 30 days from the end of the affected calendar quarter, a Special Report which includes an evaluation of any release conditions, environmental factors, or other aspects which caused the limits of Table 6.9-1 to be exceeded. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

4. With broad leaf vegetation samples unavailable, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.3, a Special Report

which identifies locations for obtaining replacement samples.

5. The results of analyses performed on the radiological environmental monitoring samples shall be summarized in the Annual Radiological Environmental Operating Report, pursuant to Specification 6.9.3.

6. A land use census shall be conducted at least once per 12 months between the dates of June 1 and October 1, by door-to-door survey, aerial survey, or by consulting local agriculture authorities and shall identify the location of the nearest residence and the nearest garden of greater than 500 square feet producing broad leaf vegetation in each of the 16 meteorological sectors within a distance of five miles. (For elevated releases as defined in Regulatory Guide 1.111, March 1976. The land use census shall also identify the locations of all gardens of greater than 500 square feet producing fresh leafy vegetables in each of the 16 meteorological sectors within a distance of three miles.) Broad leaf vegetation sampling may be performed at the boundary in the direction sector with the highest X/Q in lieu of the garden census.

7. With a land use census identifying a location(s) which yields a calculated dose or dose commitment greater than values currently being calculated in Specificaton 3.6.A.4, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.3, a Special Report which identifies the new location(s).

8. With a land use census identifying a location(s) which yields a calculated dose or dose commitment (via the same exposure pathway) greater than at a location from which samples are currently being obtained in accordace with Specification 4.6.C.1, prepare and submit to the commission within 30 days, pursuant to Specification 6.9.3, a Special Report which identifies the new location. The new location shall be added to the radiological new environmental monitoring program within 30 days. The sampling location having the lowest calculated dose or dose commitment (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted.

9. The results of the land use census shall be included in the Annual Radiological Environmental Operating Report.

D. A sample of reactor coolant shall be analyzed at least every 72 hours to determine total radioactive iodine content.

F. The operability of systems installed for the treatment of liquid wastes shall be verified at least once per quarter if the system is in use during the quarter to process water released to the environment. In systems having redundant equipment the equipment in service shall be checked.

G. The quantity of radioactive liquid contained in the total of all outside radwaste storage tanks shall be determined to be within the limit of Specification 3.6.C by analyzing a representative sample of the tank's contents at least once per 7 days when radioactive liquids are being added to the tank.

H. The concentation of hydrogen in the augmented offgas treatment system shall be determined to be within the limits of Specification 3.6.F by continuously monitoring the waste gases in the augmented offgas treatment system with the

hydrogen monitors, except as permitted in Specification 3.6.F.4.

I. The gross radioactivity rate of noble gases from the main condenser air ejector shall be determined to be within the limits of Specification 3.6.G at the following frequencies by performing an isotopic analyss of a representative sample of gases taken at the discharge (prior to dilution and/or discharge) of the main condenser air ejector:

1. At least once per 31 days.

2. Within 4 hours following an increase, as indicated by the Condenser Air Ejector Noble Gas Activity Monitor, of greater than 50%, after factoring out increases due to changes in THERMAL POWER level, in the nominal steady state fission gas release from the nuclear steam supply system.

BASES: The bases for the surveillance requirements of this section are to ensure the implementation of Technical Specification 3.6, RADIOACTIVE EFFLUENTS. The specific bases for each requirement of this section is detailed in Section 3.6.

TABLE 4.6-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure and/or sample	Number Of Samples	Sampling and Collection Frequency	Type and Frequency of Analysis
1. AIRBORNE			
a. Radioiodine and Particulates	5	Continuous operation of sampler with sample collection as required by dust loading, but at least once per 15 days.	Radioiodine canister. Analyze at least once per 15 days for I-131.
			Particulate sample . Analyze for gross beta radioactivity ≥24 hours following filter change. Perform gamma isotopic analysis on each sample when gross beta activity is > 10 times the mean of control sample. Perform gamma isotopic analysis on composite (by location) sample at least once per 92 days. if an isotopic analysis is performed on each sample ath 92 day composite is not required.
2. DIRECT RADIATION	18	At least once per 92 days. (Read-out frequencies are determined by type of dosimeters selected).	Gamma dose by TLD. At least once per 92 days.

TABLE 4.6-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

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Exposure Pathway and/or Sample	Number of Samples	Sampling and Collection Frequency	Type and Frequency of Analysis
3. WATERBORNE			
a. Surface	5	Sample collected at least every 31 days.	Gamma isotopic analysis of each sample. Tritium analysis sample at least once per 92 days.
b. Rain Water	5	At least once per 92 days.	Gamma isotopic and tritium analyses of each sample
c. Well Water	5	Sample collected at least every 31 days.	I-131 analysis of each sample and Gross beta and gamma isotopic analysis of each sample. Tritium analysis sample at least once per 92 days.
d. Silt and Sediment	5	At least once per 184 days.	Gamma isotopic analysis of each sample

* Composite samples shall be collected by collecting an aliquot at intervals not exceeding 2 hours.

TABLE 4.6-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Samples	Sampling and Collection Frequency	Type and Frequency of Analysis
4. INGESTION			
a. Fish and Invertebrates	3	One sample in season, or at least once per 184 days if not seasonal. One sample of each of the following species:	Gamma isotopic analysis on edible portions.
		1. Clams	
b. Food Products	3	At time of harvest. One sample of each of the following classes of food products:	Gamma isotopic analysis on edible portion.
		1. Various Food Products in Season	
	5	At time of harvest. One sample of broad leaf vegetation.	I-131 analysis.

Cause reduction of degree of redundancy provided in reactor protection systems or engineered safety feature systems.

4. Abnormal degradation of systems other than those specified in Item 2.a(3) above designed to contain radioactive material resulting from the fission process.

NOTE: Sealed sources or calibration sources are not included under this item. Leakage of valve packing or gaskets within the limits for identified leakage set forth in technical specifications need not be reported under this item.

5. An unplanned offsite release of 1) more than 1 curie of radioactive material in liquid effluents, 2) more than 150 curies of noble gas in gaseous effluents, or 3) more than 0.05 curies of radioiodine in gaseous effluents. The report of an unplanned offsite release of radioactive material shall include the following information:

1. description of the event and equipment involved.

2. Cause(s) for the unplanned release.

3. Actions taken to prevent recurrence.

4. consequences of the unplanned release.

6. Measured levels of radioactivity in an environmental sampling medium determined to exceed the reporting level values of Table 6.9-1 when averaged over any calendar quarter sampling period. When more than one of the radionuclides in Table 6.9.1 are detected in the sampling medium, this report shall be submitted if:

$$\frac{\text{concentration (1)}}{\text{Limit Level (1)}} + \frac{\text{concentration (2)}}{\text{Limit level (2)}} + \ldots > 1.0$$

When radionuclides other than those in Table 6.9-1 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to an individual is equal to or greater than the calendar year limits of specifications 3.6.A, 3.6.B and 3.6.E. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

6.9.3 Unique Reporting Requirements

Special reports shall be submitted to the Director of Regulatory Operations Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification.

a. Materials Radiation Surveillance Specimen Reports (4.3A)

b. Integrated Primary Containment Leakage Rate Tests (4.5)

c. Semiannual Radioactive Effluent Release Report

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1. Routine radioactive effluent release reports covering the operating of the unit during the previous 6 months of operation shall be submitted within 60 days after January 1 and July 1 of each year.

2. The radioactive effluent release reports shall include a summary of the quatities of radioactive liquid and gaseous effluents and solid waste released from the unit as outlined in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants", with data summarized on a quarterly basis following the format of Appendix B thereof.

The radioactive effluent release reports shall include a summary of the meteorological conditions concurrent with the release of gaseous effluens during each quarter as outlined in Regulatory guide 1.21, with data summarized on a quarterly basis following the format of Appendix B thereof.

The radioactive effluent release reports shall include the following information for all unplanned releases to unrestricted areas of radioactive materials in gaseous and liquid effluents:

a. A description of the event and equipment involved.

b. Cause(s) for the unplanned release.

c. Actions taken to prevent recurrence.

d. Consequences of the unplanned release.

The radioactive effluent release reports shall include an assessment of radiation doses from the radioactive liquid and gaseous effluents released from the unit during each calendar quarter as outlined in Regulatory Guide 1.21. In addition, the unrestricted area boundary maximum noble gas gamma air and beta air doses shall be evaluated. The meteorological conditions concurrent with the releases of effluents shall be used for determining the gaseous pathway doses.

d. Inoperable fire protection equipment (3.12)

e. Core Spray Sparger Inservice Inspection (Table 4.3.1-9)

Prior to startup of each cycle, a special report presenting the results of the inservice inspection of the Core Spray Spargers during each refueling outage shall be submitted to the Commission for review.

f. Annaul Radiological Environmental Operating Report

1. Routine radiological environmental operating reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

2. The annual radiological environmental operating reports shall include summaries, interpretations, and statistical evaluation of the report period, operational controls (as appropriate), and previous environmental surveillance reports and an assessment of the observed impacts of the plant operation on the

environment. The reports shall also include the results of the land use census required by Specification 3.6.D if harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.

The annual radiological environmental operating reports shall included summarized and tabulated results in the format of Table 6.9-2 of all radiological environmental samples taken during the report period. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

The reports shall also include the following: a summary description of the radiological environmental monitoring program including sampling methods for each sample type, size and physical characteristics of each sample type, sample preparation methods, analytical methods, and measuring equipment used; a map of all sampling locations keyed to a table giving distances and directions from the reactor; the result of land use censuses required by the Specification 4.6.C.

TABLE 6.9-1

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Analysis	Water (pCi/l)	Airborne Particulate or Gases (pCi/m^3)	Invertebrates (pCi/Kg, wet)	Food Products (pCi/Kg, wet)
	Reporting Levels			
H-3	3×10^4			
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	
Zn-65	3×10^2		2×10^4	
Zr-Nb-95	4×10^2			
I-131	2	0.9		1×10^2
Cs-134	30	10	1×10^3	1×10^3
Cs-137	50	20	2×10^3	2×10^3
Ba-La-140	2×10^2			

TABLE 6.9-2

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

Name of Facility_____ Docket No._____

Location of Facility_____ Reporting Period_____ .
(County, State)

Medium of Pathway Sampled Unit of Measurement	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean Range	Location with Highest Annual Mean Name Distance & Direction	Mean Range	Control Locations Mean Range	Number of REPORTABLE OCCURRENCES

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