

PROPOSED
RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS
POINT BEACH NUCLEAR PLANT

DECEMBER 20, 1984

15.7 RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS (RETS)

RETS do not directly expand the responsibilities of the licensed operators of the Point Beach Nuclear Plant Units 1 and 2, and the material contained in this section of these Technical Specifications will not be the subject of DNU/DG licensing examinations.

15.7.1 DEFINITIONS

The definitions for frequently used terminology in these RETS are stated below. These definitions are supplemental to those definitions provided in Section 15.1.

A. Equivalent Curie

An equivalent Curie is that quantity of a reference isotope that will produce the same dose as the actual amount of a particular isotope in question.

B. Lower Level of Detection (LLD)

The LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a real signal. For a particular measurement system, which may include radiochemical separation:

$$LLD = \frac{2.66 \, Sb}{\epsilon \times V \times 2.22 \times 10^6 \times Y \times exp(-\lambda t)}$$

Where:

LLD = the a priori lower limit of detection as defined above, in microcuries per unit volume or mass as applicable.

Sb = the standard deviation of the background counting rate or the counting rate of a blank sample as appropriate in counts per minute.

ϵ = the counting efficiency in counts per disintegration.

V = the sample size in units of volume or mass as applicable,
 2.22×10^6 = the number of disintegrations per minute per microcurie,
 Y = the fractional radiochemical yield, when applicable,
 λ = the radioactivity decay constant for the particular radionuclide, and
 Δt = for plant effluents, Δt is the elapsed time between the midpoint of sample collection and time of counting; for environmental samples, Δt is the elapsed time between sample collection, or end of the collection period, and the time of counting.

Typical values of E , V , Y , and Δt will be used in the calculation. It should be recognized that the LLB is defined as an *a priori* (before the fact) limit representing the capability of a measurement system and not as an *a posteriori* (after the fact) limit for a particular measurement.

C. Members of the Public

Members of the public 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 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.

D. Offsite Dose Calculation Manual (ODCM)

The Offsite Dose Calculation Manual contains the methodology for the determination of gaseous and liquid effluent monitoring alarm or trip setpoints; the methodology for determining compliance with release limits; and the methodology used in the calculation of offsite doses due to radioactive gaseous and liquid effluents.

E. Radioactive Waste Handling

1. Process Control Program (PCP)

The Process Control Program contains the methodologies used to ensure

that the processing and packaging of solid radioactive waste will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, and all other Federal and State regulations governing the disposal of the radioactive waste.

2. Solidification

The conversion of liquid wastes into a form that meets shipping and burial ground requirements.

F. Source Check

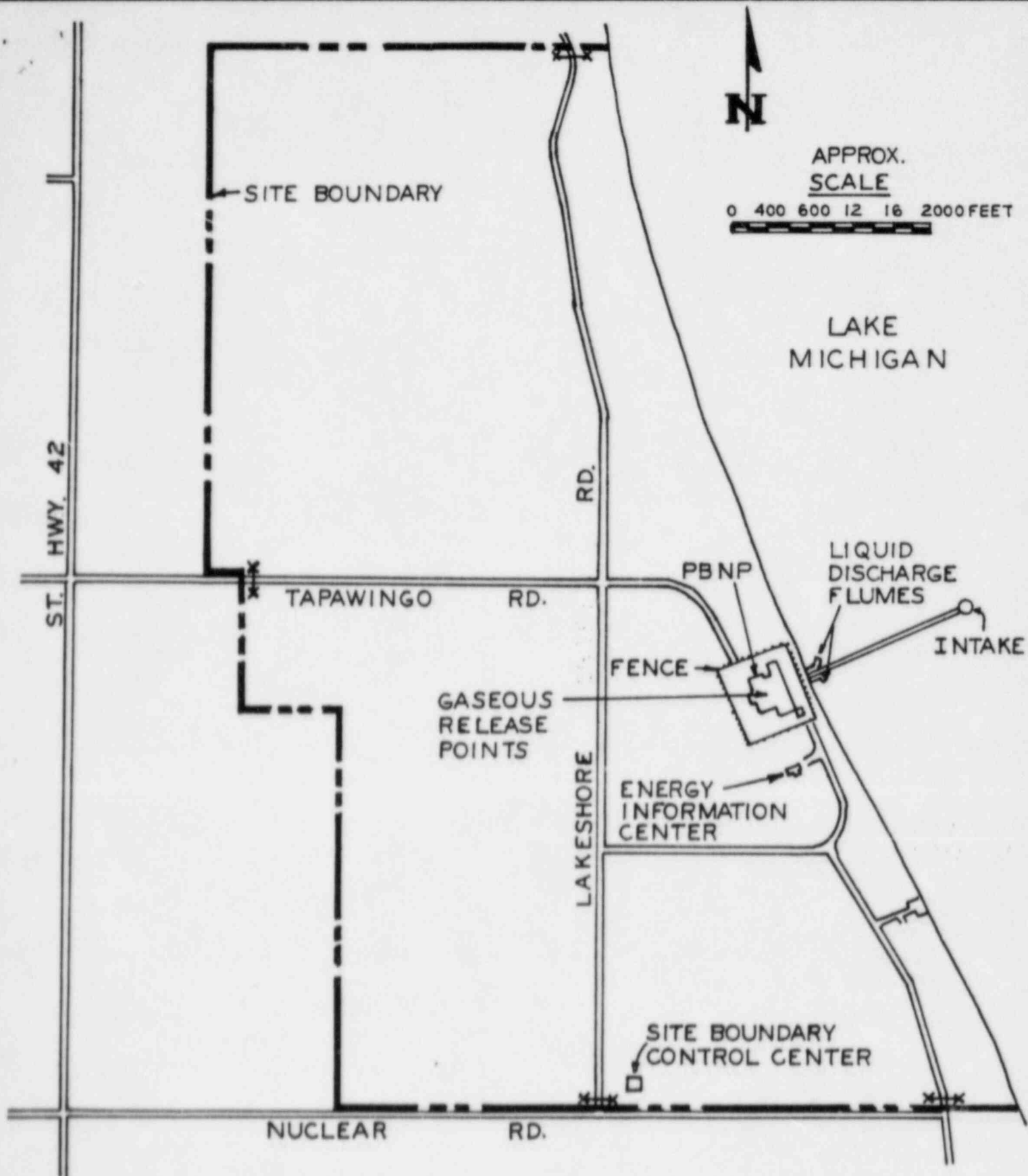
A source check is an assessment of channel response when the channel detector is exposed to a source of increased radiation.

G. Unrestricted Area

An unrestricted area is any area at or beyond the site boundary where access is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials.

15.7.2 SITE DESCRIPTION

Figure 15.7.1-1 is a site map for the Point Beach Nuclear Plant Units 1 and 2. The site map shows the site boundary and points within the site boundary from which gaseous and liquid effluents are released. Fence locations are approximate.



SITE MAP
POINT BEACH NUCLEAR PLANT

15.7.3 RADIOACTIVE EFFLUENT MONITORING INSTRUMENTATION OPERABILITY REQUIREMENTS

Applicability

Applies to the operability and alarm or trip setpoint requirements for liquid and gaseous effluent monitoring instrumentation.

Objective

To ensure liquid and gaseous radioactive effluents are adequately monitored and to ensure that alarm or trip setpoints are established such that effluent releases do not exceed the limits specified in Specification 15.7.5.

Specifications

A. Radioactive Liquid Effluent Monitoring Instrumentation

1. The radioactive liquid effluent monitoring instrumentation channels listed in Table 15.7.3-1 shall be operable. The alarm or trip setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the ODCM.
2. If fewer than the minimum number of radioactive liquid effluent monitoring channels are operable, the action statement listed in Table 15.7.3-1 opposite the channel shall be taken. Best effort shall be made to return an inoperable channel to operable status within 30 days. If the channel is not returned to an operable status within 30 days, the circumstances of the instrument failure and schedule for repair shall be reported to the NRC Resident Inspector.
3. If a radioactive liquid effluent monitoring instrumentation channel alarm or trip setpoint is found less conservative than required by the ODCM, the channel shall be declared inoperable or the setpoint shall be changed to the ODCM value or a more conservative value.

B. Radioactive Gaseous Effluent Monitoring Instrumentation

1. The radioactive gaseous effluent monitoring instrumentation channels listed in Table 15.7.3-2 shall be operable. The alarm or trip setpoints

of these channels shall be determined and adjusted in accordance with the methodology and parameters in the ODCM.

2. If fewer than the minimum number of radioactive gaseous effluent monitoring channels are operable, the action statement listed in Table 15.7.3-2 opposite the channel shall be taken. Best effort shall be made to return an inoperable channel to operable status within 30 days. If the channel is not returned to an operable status within 30 days, the circumstances of the instrument failure and schedule for repair shall be reported to the NRC Resident Inspector.
3. If the radioactive gaseous effluent monitoring instrumentation channel alarm or trip setpoint is found less conservative than required by the ODCM, the channel shall be declared inoperable or the setpoint shall be changed to the ODCM determined value or a more conservative value.

TABLE 15.7.3-1

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels Operable</u>	<u>Action</u>
1. Liquid Radwaste System		
a. RE-223, Waste Distillate Tank Discharge, or RE-229, Service Water Discharge (for applicable unit)	1	Note 1
b. RE-218, Waste Condensate Tank Discharge, or RE-229, Service Water Discharge (for applicable unit)	1	Note 1
c. Waste Condensate Tank Discharge Flow Meter	1	Note 4
d. Waste Distillate Tank Flow Rate Recorder	1	Note 4
2. Steam Generator Blowdown System		
a. For Each Unit; RE-219, Steam Generator Blowdown Liquid Discharge, or RE-222, Blowdown Tank Monitor, or RE-229, Service Water Discharge	1	Note 2
b. Steam Generator Blowdown Flow Indicators (1 per steam generator)	1	Note 9
3. Service Water System		
a. RE-229, Service Water Discharge (1 per unit)	1	Note 3
b. For Each Unit; RE-216, Containment Cooling Fan Service Water Return, or RE-229, Service Water Discharge	1	Note 3
c. RE-220, Spent Fuel Pool Heat Exchanger Service Water Outlet or RE-229, Service Water Discharge (for applicable unit)	1	Note 3
4. Retention Pond Discharge System		
a. RE-230, Retention Pond Discharge	1	Note 3
b. Retention Pond Discharge Composite Sampler	1	Note 8
c. Retention Pond Discharge Flow Determination	NA	*

* Retention pond discharge flow may be determined from pump run time and pump performance curves.

TABLE 15.7.3-2
RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels Operable</u>	<u>Action</u>
1. Gas Decay Tank System		
a. RE-214, Noble Gas (Auxiliary Building Vent Stack), or RE-315 Noble Gas (Auxiliary Building Vent SPING)	1	Note 1
b. Gas Decay Tank Flow Measuring Meter	1	Note 4
2. Auxiliary Building Ventilation System		
a. RE-214, Noble Gas (Auxiliary Building Vent Stack) or Re-315, Noble Gas (Auxiliary Building Vent SPING)	1	Note 6
b. Isokinetic Iodine and Particulate - Continuous Air Sampling System	1	Note 5
3. Condenser Air Ejector System		
a. RE-225, Noble Gas (Combined Air Ejector Discharge Monitor); or RE-215, Noble gas (Air Ejector Monitors - 1 per unit); or RE-214, Noble Gas (Auxiliary Building Vent Stack); or RE-315, Noble Gas (Auxiliary Building Vent SPING)	1	Note 6
b. Flow Rate Monitor - Air Ejectors	1	Note 9
4. Containment Purge and Forced Vent System		
a. RE-212, Noble Gas Monitors (1 per unit); or RE-305, Noble Gas (Purge Exhaust SPING - 1 per unit)	1	Note 6
b. 30 cfm Forced Vent Path Flow Indicators	1	Note 9

TABLE 15.7.3-2 (CONTINUED)

<u>Instrument</u>	<u>Minimum Channels Operable</u>	<u>Action</u>
c. Iodine and Particulate - Continuous Air Samplers	1	Note 5
d. Sampler Flow Rate Measuring Device	1	Note 9
5. Fuel Storage and Drumming Area Ventilation System		
a. RE-221, Noble Gas (Drumming Area Stack), or RE-325, Noble Gas (Drumming Area SPING)	1	Note 6
b. Isokinetic Iodine and Particulate - Continuous Air Sampling System	1	Note 5
6. Gas Stripper Building Ventilation		
a. RE-224, Noble Gas (Gas Stripper Building), or RE-305, (Unit 2 Purge Exhaust SPING)	1	Note 6
b. Iodine and Particulate - Continuous Air Sampler	1	Note 5
c. Sampler Flow Rate Measuring Device	1	Note 9
7. Waste Gas Holdup System Explosive Gas Monitoring System		
a. Oxygen Monitor	1	Note 7

NOTATIONS FOR TABLES 15.7.3-1 AND 15.7.3-2

- Note 1: If the number of channels operable is fewer than the minimum required, effluent releases via this pathway may continue provided that prior to initiating a release, two separate samples are analyzed by two technically qualified people in accordance with the applicable part of Tables 15.7.6-1 and 15.7.6-2 and the release rate is reviewed by two technically qualified people.
- Note 2: If the number of channels operable is fewer than the minimum required, effluent releases via this pathway may continue provided grab samples are analyzed for gamma radioactivity in accordance with Table 15.7.6-1 at least once every 24 hours when the secondary coolant specific activity is less than 0.01 $\mu\text{Ci/cc}$ dose equivalent I-131 or once every 12 hours when the activity is greater than 0.01 $\mu\text{Ci/cc}$ dose equivalent I-131.
- Note 3: If the number of channels operable is fewer than the minimum required, effluent releases via this pathway may continue provided that at least once every 12 hours grab samples are collected and analyzed in accordance with Table 15.7.6-1.
- Note 4: If the number of channels operable is fewer than the minimum required, effluent releases via this pathway may continue provided the flow rate is estimated at least once every four hours during actual gaseous or liquid batch releases.
- Note 5: If the number of channels operable is fewer than the minimum required, effluent releases via the affected pathway may continue provided samples are continuously collected with auxiliary sampling equipment.
- Note 6: If the number of channels operable is fewer than the minimum required, effluent releases via this pathway may continue provided grab samples are collected at least once per 12 hours and are analyzed in accordance with Table 15.7.6-2.
- Note 7: If the number of channels operable is fewer than the minimum required, addition of waste gas to the Waste Gas Holdup System may continue for up to 14 days, provided grab samples are taken from the on-service gas decay tank and analyzed either daily during normal operations or every four hours when the

primary system is being degassed (other than normal gas stripping of the letdown flow). If the monitoring system is out of service for greater than 14 days, in addition to the above sampling, a report of the cause and corrective action for failure and repair of the gas monitor shall be included in the Semiannual Monitoring Report.

Note 8: If the number of channels operable is fewer than the minimum required, effluent releases via this pathway may continue provided grab samples are collected twice per week and analyzed in accordance with Table 15.7.6-1.

Note 9: If the number of channels operable is fewer than the minimum required, effluent releases via this pathway may continue provided the flow is estimated or determined with auxiliary indication at least once every 24 hours.

15.7.4 RADIOACTIVE EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Applicability

Applies to the periodic inspection, testing, calibration and verification of operability requirements for radioactive liquid and gaseous effluent monitoring instrumentation.

Objective

To verify that radioactive liquid and gaseous effluent monitoring instrumentation are periodically demonstrated to be operable.

Specifications

A. Radioactive Liquid Monitoring Instrumentation Surveillance Requirements

1. Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated operable by performance of the channel check, calibration, functional test, and source check at the frequencies shown in Table 15.7.4-1.

B. Radioactive Gaseous Monitoring Instrumentation Surveillance Requirements

1. Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated operable by performance of the channel check, calibration, functional test, and source check at the frequencies shown in Table 15.7.4-2.

TABLE 15.7.4-1

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument Description</u>	<u>Channel</u> <u>Check</u>	<u>Calibrate</u>	<u>Functional</u> <u>Test</u>	<u>Source</u> <u>Check</u>
1. Liquid Radwaste System				
a. RE-223, Waste Distillate Tank Discharge	D	R	Q	P
b. RE-218, Waste Condensate Tank Discharge	D	R	Q	P
c. Waste Condensate Tank Discharge Flow Meter	P/D	R	NA	NA
d. Waste Distillate Tank Flow Rate Recorder	P/D	R	NA	NA
2. Steam Generator Blowdown System				
a. RE-219, Steam Generator Blowdown Liquid Discharge (1 per unit)	D	R	Q	M
b. RE-222, Blowdown Tank Monitor (1 per unit)	D	R	Q	M
c. Steam Generator Blowdown Flow Indicator (1 per steam generator)	D	R	NA	NA
3. Service Water System				
a. RE-229, Service Water Discharge (1 per unit)	D	R	Q	M
b. RE-226, Containment Cooling Fan Service Water Return (1 per unit)	D	R	Q	M
c. RE-228, Spent Fuel Pool Heat Exchanger Service Water Outlet	D	R	Q	M
4. Refentian Pond Discharge System				
a. RE-206, Refentian Pond Discharge	D	R	Q	M
b. Refentian Pond Discharge Composite Sampler	W	NA	NA	NA
c. Refentian Pond Discharge Effluent Sump Pumps	W	R	NA	NA

TABLE 25.7.4-7

AUXILIARY GAS SUPPLIES, EQUIPMENT MONITORING INSTRUMENTATION SUPPLEMENTAL REQUIREMENTS

Channel Description	Channel Check	Cell Number	Functional Test	Source Check
1. Gas Supply Tank System				
a. HE-2204, Mobile Gas (Auxiliary Backfilling Vent. Station)	1	8	1	8
b. Gas Supply Tank Flow Measuring Device	9	8	805	805
c. Auxiliary Backfilling Ventilation System				
a. HE-2204, Mobile Gas (Auxiliary Backfilling Vent. Station)	1	8	1	8
b. HE-2205, Mobile Gas (Auxiliary Backfilling Vent. Station)	1	8	1	8
c. Ventilation Inlet and Specialized Ventilation Over Sampling System	4	8	805	805
d. Combustion Over (Leakage) System				
a. HE-2205, Mobile Gas (Combustion Over (Leakage) Ventilation)	1	8	1	8
b. HE-2205, Mobile Gas (Over (Leakage) -- 11 per cent)	1	8	1	8
c. Flow Rate Monitor -- Over (Leakage) (11 per cent)	1	8	805	805
d. Combustion, Over and Ventilation Vent. System				
a. HE-2205, Mobile Gas (11 per cent)	1	8	1	805
b. HE-2205, Mobile Gas (11 per cent)	805	8	805	805

TABLE 15.7.4-2 (Continued)

<u>Instrument Description</u>	<u>Channel Chr.</u>	<u>Calibrate</u>	<u>Functional Test</u>	<u>Source Check</u>
c. RE-305, Noble Gas (Purge Exhaust SPING - 1 per unit)	D	R	Q	M*
d. Iodine and Particulate Continuous Air Sampler	P/W	NA	NA	NA
e. Sampler Flow Rate Measuring Device	P/D	R	NA	NA
5. Fuel Storage and Drumming Area Ventilation Stack				
a. RE-221, Noble Gas (Drumming Area Vent Stack)	D	R	Q	M
b. RE-325, Noble Gas (Drumming Area SPING)	D	R	Q	M
c. Isokinetic Iodine and Particulate Continuous Air Sampling System	W	NA	NA	NA
6. Gas Stripper Building Ventilation System				
a. RE-224 Noble Gas	D	R	Q	M
b. Iodine and Particulate Continuous Air Sampler	W	NA	NA	NA
c. Sampler Flow Rate Measuring Device	W	R	NA	NA
7. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Oxygen Monitor	D	Q**	Q	NA

NOTATIONS FOR TABLES 15.7.4-1 AND 15.7.4-2

D = Daily

W = Weekly

M = Monthly

Q = Quarterly

R = Each Refueling Interval (but not to exceed 18 months)

P/D = Prior to or immediately upon initiation of a release or daily if a release continues for more than one day

P/W = Prior to or immediately upon initiation of a release or weekly if a release continues for more than one week

P = Prior to or immediately upon initiation of a release

* = Source check required prior to containment purge

** = The channel calibration shall include the use of standard gas samples appropriate to the recommendations of the manufacturer of the gas analyzer equipment in use and include calibration points in the range of interest.

15.7.5 RADIOACTIVE EFFLUENT RELEASE LIMITS

Applicability

Applies to the controlled release of radioactive materials in liquid and gaseous effluents to unrestricted areas.

Objective

To ensure controlled releases of radioactive materials in liquid and gaseous effluents to unrestricted areas are within concentration limits specified in 10 CFR 20 and to ensure the quantities of radioactive material released during any calendar year are such that resulting radiation exposures do not exceed limits corresponding to the 10 CFR 50 Appendix I dose objectives.

Specifications

A. Radioactive Liquid Effluent Concentrations

1. Alarm setpoints for liquid effluent monitors shall be determined and adjusted utilizing the methodologies and parameters given in the ODCM.
2. The liquid effluent monitor setpoints shall be established to ensure that radioactive materials released as effluents shall not result in concentrations to unrestricted areas in excess of the values specified in 10 CFR 20, Appendix B, Table II.
3. During release of radioactive liquid effluents, at least one condenser circulating water pump shall be in operation and the service water return header shall be lined up only to the unit whose circulating water pump is operating.

B. Radioactive Liquid Effluent Release Limits

1. The annual calculated total quantity of radioactive material above background released from PBNP in liquid effluents shall not result in an unrestricted area estimated annual dose or dose commitment from all exposure pathways to any individual in excess of 6 millirem to the total body or 20 millirem to any organ.

2. Quarterly limits are defined as one quarter (1/4) of the annual limits.
3. Compliance with these release limits will be demonstrated by periodic calculations utilizing either of the following methods:
 - a. the calculation of doses based on actual releases; or
 - b. the calculation and comparison of equivalent Curies released to equivalent Curie release limits, which would result in the above described dose limits, as described in the ODCM.

The methodology for converting actual activity to equivalent activity is provided in the ODCM and is based upon dose conversion factors contained in Regulatory Guide 1.109, Revision 1, October 1977.

C. Radioactive Gaseous Effluent Concentrations

1. Alarm setpoints for the gaseous effluent monitors shall be determined and adjusted utilizing the methodologies and parameters given in the ODCM.
2. The gaseous effluent monitor setpoints are established to ensure that radioactive materials released shall not result in concentrations to unrestricted areas in excess of the values specified in 10 CFR 20, Appendix B, Table II.
3. Gaseous wastes shall have a minimum seven days of decay time, except for low radioactivity gaseous wastes resulting from purge and fill operations associated with refueling and reactor startup.
4. During the release of radioactive gaseous effluents from the gas decay tanks through the auxiliary building vent, at least one auxiliary building exhaust fan shall be in operation.

D. Radioactive Gaseous Effluent Release Limits

1. The annual calculated total quantity of radioactive materials above background released from PBNP to the atmosphere shall not result in an unrestricted area estimated annual dose or dose commitment from all exposure pathways to any individual in excess of the following:
 - a. 10 millirem to the total body or 30 millirem to the skin from gaseous effluents near ground level; and

- b. 30 millirem to any organ from all radioiodines and radioactive material in particulate form.
- 2. Quarterly limits are defined as one quarter (1/4) of the annual limits.
- 3. Compliance with these release limits will be demonstrated by periodic calculations utilizing either of the following methods:
 - a. the calculation of doses based on actual releases, or
 - b. the calculation and comparison of equivalent Curies released to the equivalent Curie release limits, which would result in the above dose limits, as described in the ODCM.

The methodology for converting actual activity to equivalent activity is provided in the ODCM and is based upon dose conversion factors contained in Regulatory Guide 1.109, Revision 1, October 1977.

E. Tritium Adjustment

The release limit for tritium in liquid effluents may be increased, provided it is accompanied by a proportional decrease in the release limit for tritium in gaseous effluents. Similarly, the release limit for tritium in gaseous effluents may be increased, provided it is accompanied by a proportional decrease in the release limit for tritium in liquid effluents. The tritium adjustment will be made in accordance with the following formula:

$$\frac{\text{Annual Liquid Tritium Releases}}{\text{Annual Liquid Tritium Limit}} + \frac{\text{Annual Gaseous Tritium Releases}}{\text{Annual Gaseous Tritium Limit}} \leq 2.0$$

F. Quarterly Summary

- 1. A summary of radioactive effluent releases shall be made on a quarterly basis as described in the ODCM.
- 2. If the calculations required by B.3 or D.3 of this specification exceed the corresponding quarterly limit during any calendar quarter, a summary of radioactive effluent releases shall be made monthly until it is determined that release quantities are within the annual limits.
- 3. If the calculations required by B.3 or D.3 of this specification exceed twice the corresponding quarterly limit during any calendar quarter, actual doses will be calculated as described in the ODCM, and a special report will be prepared and submitted per Specification 15.7.8.4.E.

4. If the calculations required by B.3 or D.3 of this specification demonstrate that quarterly releases exceed the quarterly limit, corrective actions shall be taken to ensure that subsequent releases in that calendar year will be in compliance with quarterly and annual limits.

G. Radioactive Effluent Waste Treatment

1. Appropriate portions of the radioactive liquid radwaste treatment system shall be used to reduce the radioactive materials in liquid wastes prior to their discharge whenever such effluents require treatment to meet the release limits.
2. Appropriate portions of the gaseous radwaste treatment and ventilation exhaust treatment systems shall be used to reduce radioactive materials in gaseous wastes prior to their discharge whenever such effluents require treatment to meet the release limits.

H. Total Dose

1. Compliance with the provisions of Appendix I to 10 CFR 50 is adequate demonstration of conformance to the standards set forth in 40 CFR 190.
2. If the calculations required by B.3 or D.3 of this specification exceed twice the annual limits as specified in Specifications 15.7.5.B.1 and 15.7.5.D.1, dose calculations shall be performed as described in the ODCM and shall include exposures from effluent pathways and direct radiation contributions from the reactor units and from any outside storage tanks.
3. A report will be submitted to the Commission within 30 days upon completion of the dose calculations required by Specification 15.7.5.H.2, if the calculated dose to any member of the general public exceeds the 40 CFR 190 annual dose limits.

I. Explosive Gas Mixture

The concentration of oxygen in the on-service gas decay tank shall be limited to less than or equal to 4% by volume.

1. If the concentration of oxygen in the on-service gas decay tank is greater than 4% by volume, immediately suspend all additions of waste gases to the on-service gas decay tank.
2. Reduce the oxygen concentration to less than 4% oxygen by volume as soon as possible. If the on-service gas decay tank is at or

near capacity and the tank must be isolated to permit the required seven day decay time, it will not be possible to immediately reduce the oxygen concentration. In this case, the tank will be isolated and the oxygen concentration reduced as soon as the gas decay requirements are satisfied.

J. Solid Radioactive Waste

The solid radwaste system shall be used in accordance with the Process Control Program to process radioactive wastes to meet all shipping and burial ground requirements. If the provisions of the Process Control Program are not satisfied, shipments of defectively processed or defectively packaged radioactive waste from the site will be suspended. The Process Control Program shall be used to verify solidification of radwaste.

Basis

Liquid wastes from the radioactive waste disposal system are diluted by the circulating water system prior to release to Lake Michigan⁽¹⁾. With two pumps operating per unit, the rated flow of the circulating water system is approximately 356,000 gpm per unit. Operation of a single circulating water pump per unit reduces the nominal flow rate by about 40%. Liquid waste from the waste disposal system may be discharged to the circulating water system of either unit via the service water return header. Because of the low radioactivity levels in the circulating water discharge, the concentrations of liquid radioactive effluents at this point are not measured directly. The concentrations in the circulating water discharge are calculated from the measured concentration of the liquid effluent, the discharge flow rate of the effluent and the nominal flow in the circulating water system.

The concentration of liquid radioactive wastes in the circulating water discharge does not exceed 10 CFR 20 MPC values. The average concentrations at the intake of the nearest public water supply are well below the MPC values of 10 CFR 20, Appendix B⁽²⁾. Thus, discharge of liquid wastes not exceeding the design release limits will not result in significant exposure to members of the public as a result of consumption of drinking water from the lake, even if the effect of potable water treatment systems on reducing radioactive concentrations of the water supply is conservatively neglected.

Prior to release to the atmosphere, gaseous wastes are mixed in the auxiliary building vent with the flow from at least one of two auxiliary building exhaust fans. Further dilution then occurs in the atmosphere.

The limits prescribed in these Specifications take atmospheric dilution into account and ensure that at the point of maximum ground concentration (site boundary) the requirements of 10 CFR 20 will not be exceeded at any time and that the design objectives of Appendix I to 10 CFR 50 will not be exceeded on an annual basis. The limits and objectives are based on the highest long term values of X/Q that occur at the nearest portion of the site boundary.

The release of radioactive materials in liquid effluents to unrestricted areas will not exceed the limits set forth in Section 15.7.5.B.1 and will be as low as is reasonably achievable in accordance with the requirements of 10 CFR Part 50.34a and 50.36a. These Specifications provide reasonable assurance that the resulting average annual dose or dose commitment from liquid effluents from each unit of the Point Beach Nuclear Plant for any individual in an unrestricted area from all pathways of exposure will not exceed 3 mrem to the total body or 10 mrem to any organ. These Specifications also provide reasonable assurance that no individual in an unrestricted area will receive an annual dose to the total body greater than 5 mrem or an annual dose to the skin greater than 15 mrem from these gaseous effluents.

At the same time, these Specifications permit the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided with a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such numerical guides for design objectives but still within levels that assure that the average population exposure is equivalent to small fractions of doses from natural background radiation.

The release limits set forth in this Specification are derived from the dose evaluation performed in accordance with Appendix I to 10 CFR Part 50. In the evaluation, certain maximum calculated doses to an individual result from the calculated effluent releases. Release limits are defined by scaling calculated

releases upward to the point at which corresponding doses reach the applicable limit specified in Appendix I to 10 CFR Part 50.

The radioactive liquid and gaseous effluent instrumentation is provided to monitor and control the releases of radioactive materials in liquid and gaseous effluents during actual or potential releases. The trip setpoints for these instruments are calculated utilizing the methodology in the Offsite Dose Calculation Manual.

The requirement that the appropriate portions of the liquid and gaseous radwaste treatment systems be used when specified provides assurance that the releases of radioactive materials in liquid and gaseous effluents will be kept "as low as is reasonably achievable".

Compliance with the provisions of Appendix I to 10 CFR Part 50 constitutes adequate demonstration of conformance to the standards set forth in 40 CFR Part 190 regarding the dose commitment to individuals from the uranium fuel cycle. The Specifications require that if actual quantities of radioactive materials released exceed twice the quantities associated with the design dose objective of Appendix I to 10 CFR Part 50, actual doses will be calculated and a special report will be submitted.

References:

- (1) FSAR, Section 10.2
- (2) FSAR, Section 2, Appendix 2A
- (3) FSAR, Sections 2.6 and 2.7

15.7.6 RADIOACTIVE EFFLUENT SAMPLING AND ANALYSIS REQUIREMENTS

Applicability

Applies to the sampling frequency, analysis frequency, and analysis requirements for radioactive liquid and gaseous effluents.

Objectives

To verify that the concentrations and quantities of radioactive material released from the site in liquid and gaseous effluents do not exceed the limits specified in Specification 15.7.5.

Specifications

A. Radioactive Liquid Waste Sampling and Analysis

1. The concentration of radioactivity in liquid waste shall be determined by sampling and analysis in accordance with Table 15.7.6-1.

B. Radioactive Gaseous Waste Sampling and Analysis

1. The concentration of radioactivity in gaseous wastes shall be determined by sampling and analyses in accordance with Table 15.7.6-2.

TABLE 15.7.6-1

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

<u>Liquid Release Type</u>	<u>Sampling Frequency</u>	<u>Minimum Analysis Frequency</u>	<u>Type of Activity Analysis</u> ⁵	<u>Lower Level of Detection</u> ¹ ($\mu\text{Ci/cc}$)
1. Batch Releases ²				
a. Waste Condensate Tank	Prior to Release	Prior to Release	Gamma Emitters	5×10^{-7}
b. Waste Distillate Tank			I-131	1×10^{-6}
c. Monitor Tanks		Monthly on composites obtained from batches released during the current month	Gross Alpha	1×10^{-7}
d. Other tanks containing radioactivity to be discharged.			Tritium	1×10^{-5}
		Quarterly on composites obtained from batches released during the current quarter	Sr-89/90	5×10^{-8}
2. Continuous Releases ³				
a. Steam Generator Blowdown	Grab Samples Twice Weekly	Twice Weekly	Gamma Emitters	5×10^{-7}
			I-131	1×10^{-6}
b. Service Water		Monthly on Grab Composites	Gross Alpha	1×10^{-7}
			Tritium	1×10^{-5}
		Quarterly on Grab Composites	Sr-89/90	5×10^{-8}
c. Retention Pond	Continuous Composite ⁴	Weekly	Gamma Emitters	5×10^{-7}
			I-131	1×10^{-6}
		Monthly on Weekly Composite	Gross Alpha	1×10^{-7}
			Tritium	1×10^{-5}
		Quarterly on Monthly Composites.	Sr-89/90	5×10^{-8}

NOTES FOR TABLE 15.7.6-1

1. The principal gamma emitter for which the gamma isotopic LID applies is Cs-137. Because gamma isotopic analyses are performed, the LIDs for all other gamma emitters are inherently determined by the operating characteristics of the counting system. All identifiable gamma emitters will be reported in the Semiannual Monitoring Report.
2. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses each batch shall be isolated and mixed to assure representative sampling.
3. A continuous release is the discharge of liquid wastes of a non-discrete volume; e.g., from a volume of a system that has an input flow during the release.
4. A continuous composite is one in which the method of sampling employed results in a specimen that is representative of the liquids released.
5. Identified entrained noble gases shall be reported as gaseous effluents.

TABLE 15.7.4-2

RAILROAD-TYPE CARBONIS WASTE SAMPLING AND ANALYSIS PROCEDURE

Common Reference Type	Sampling Frequency ¹	Minimum Analysis Frequency ²	Type of Analytical Analysis	Lower Level of Detection ³ (µCi/cc)
1. Gas Decay Tank	Periodic to Reference	Periodic to Reference	Gamma Spectrometry	1 x 10 ⁻⁶
2. Containment Purge or Continuous Vent	Periodic to Purge or Vent	Periodic to Purge or Vent	Gamma Spectrometry Tritium	1 x 10 ⁻⁶ 1 x 10 ⁻⁶
3. Continuous References: a. Unit 1 Containment Vent b. Unit 2 Containment Vent c. Draining Area Vent d. Gas Storage Building Vent e. Auxiliary Building Vent	Continuous ⁴	Weekly Analysis of Chemical and Particulate Samplers Monthly Composite of Particulate Sampler Quarterly Composite of Particulate Sampler	Gamma Spectrometry 1-131 Gamma Alpha Sr-90/Y-90 Noble Gas Monitor Noble Gas Monitor Gamma Spectrometry Gamma Beta or gamma	1 x 10 ⁻¹¹ 1 x 10 ⁻¹¹ 1 x 10 ⁻¹¹ 1 x 10 ⁻¹¹ 1 x 10 ⁻⁶ 1 x 10 ⁻⁶
	Monthly ⁴ (Grab)	Monthly	Gamma Spectrometry	1 x 10 ⁻⁶
	Monthly	Monthly	Tritium	1 x 10 ⁻⁶

NOTES FOR TABLE 15.7.6-2

1. The principal gamma emitters for which the LLO specification applies are Cs-137 in particulates and Xe-133 in gases. Because gamma isotopic analyses are performed, the LLOs for all other gamma emitters are inherently determined by the operating characteristics of the counting system. All identifiable gamma emitters will be reported in the Semi-annual Monitoring Report.
2. Tritium grab samples will be taken every 24 hours when the refueling cavity is flooded.
3. The ratio of the sample flow rate to the release flow rate shall be known or estimated for the time period covered by each sampling interval.
4. Tritium grab samples will be taken every seven days from the drumming area ventilation exhaust/spent fuel pool area whenever there is spent fuel in the spent fuel pool.

15.7.7 OPERATIONAL ENVIRONMENTAL MONITORING PROGRAM

Applicability

This section applies to operational environmental radioactivity monitoring and sampling.

Objective

To verify that plant operations have no significant radiological effects on the environment.

Specifications

A. Environmental Monitoring Program

1. Environmental monitoring samples shall be taken at locations specified in the FBNP Environmental Manual according to the sampling and collection frequencies given in Table 15.7.7-1.
2. Deviations from the required sampling schedule as specified in Table 15.7.7-1, are permitted if hazardous conditions, seasonal unavailability, automatic sampling equipment malfunctions, and other legitimate reasons make the sample unobtainable. If the radiological environmental monitoring program is not being conducted as specified in Table 15.7.7-1, a description of the reasons for not conducting the program and the plans for preventing a recurrence will be submitted with the next Semiannual Monitoring Report.
3. If milk or vegetation samples become unavailable from one or more of the sample locations specified in the FBNP Environmental Manual, identify locations for obtaining replacement samples and add them to the radiological environmental monitoring program within 30 days. The specific locations from which samples were unavailable may then be deleted from the monitoring program. The cause of the unavailability of samples and replacement samples shall be

identified in the next Semiannual Monitoring Report. Figures and tables in the Environmental Manual are to be revised reflecting the new sample locations.

B. Detection Capabilities

1. Environmental samples shall be analyzed as specified in Table 15.7.7-2.
2. The required detection capabilities for environmental sample analyses are tabulated in terms of the lower limits of detection (LLDs).
3. If circumstances render the stated LLDs in Table 15.7.7-2 unachievable, the contributing factors shall be identified and described in next Semiannual Monitoring Report.

C. Notification Levels

1. If a measured level of radioactivity in any environmental medium exceeds the notification level listed in Table 15.7.7-3, resampling and/or reanalysis for confirmation shall be completed within 30 days of the determination of the anomalous result. If the confirmed measured level of radioactivity remains above the notification level, a written report shall be submitted to the NRC in accordance with Section 15.7.8.4.B within thirty days of the confirmation. This report is not required if the measured level of radioactivity was not the result of plant effluents.
2. If more than one of the radionuclides listed in Table 15.7.7-3 are detected in any environmental medium, a weighted sum calculation shall be performed if the measured concentration of a detected radionuclide is greater than 25% of the notification levels. For those radionuclides with LLDs in excess of 25% of the notification level, a weighted sum calculation need only be performed if the reported value exceeds the LLD.

The weighted sum is calculated as follows:

$$\frac{\text{concentration (1)}}{\text{notification level (1)}} + \frac{\text{concentration (2)}}{\text{notification level (2)}} + \dots = \text{weighted sum}$$

If the calculated weighted sum is equal to or greater than 1, resampling and/or reanalysis for confirmation shall be completed within 30 days of the determination of the anomalous result. If

the confirmed calculated weighted sum remains equal to or greater than 1, a written report shall be submitted to the NRC in accordance with Section 15.7.8.4.B within thirty (30) days of the confirmation. This calculation requirement and report is not required if the measured level of radioactivity was not the result of plant effluents.

3. All detected radionuclides shall be reported in the Semiannual Monitoring Reports. Naturally occurring nuclides such as Be-7, K-40, and the U-238 and Th-232 decay series radionuclides shall not be included in this requirement.

D. Land Use Census

1. The milk sampling program shall be reviewed annually, including a visual verification of animals grazing in the vicinity of the site boundary, to ensure that sampling locations remain as conservative as practicable.

E. Interlaboratory Comparison Program

1. The environmental sampling analyses shall be performed by a laboratory participating in an Interlaboratory Comparison Program.
2. If the analytical laboratory is not participating in the Interlaboratory Comparison Program, a description of the corrective actions to be taken to preclude a recurrence shall be submitted in the Semiannual Monitoring Report.

Basis

The operational radiological environmental monitoring program as outlined in Table 15.7.7-1 provides sufficient sample types and locations to detect and to evaluate changes in environmental radioactivity. Although radioactivity in plant effluents is continuously monitored and releases are well below levels which are considered safe upper limits, radiological environmental monitoring is a conservative measure undertaken to determine whether the operation of the Point Beach Nuclear Plant produces any significant radiological change in the surrounding environment.

Radioactivity is released in liquid and gaseous effluents. Air particulate samples and thermoluminescent dosimeters placed at various locations provide means of detecting changes in environmental radioactivity as a result of plant releases to the atmosphere.

The land in the area of Point Beach Nuclear Plant is used primarily for farming and dairy operations. Therefore, radiological environmental sampling of vegetation is conducted to detect changes in radiological conditions at the base of the food chain. Sampling of area-produced milk is carried out because dairy farming is a major industry in the area.

Water, periphyton, and fish are analyzed to monitor radionuclide levels in Lake Michigan in the vicinity of PBNP. Periphyton, attached algae, concentrate radionuclides from the surrounding lake water. Therefore, algae samples, along with lakewater samples, provide a means of detecting changes which may have a potential impact on the radionuclide concentrations in Lake Michigan fish. Because of the migratory behavior of fish, fish sampling is of minimal value for determining radiological impact specifically related to the operation of the Point Beach Nuclear Plant. However, fish sampling is carried out as a conservative measure with emphasis on species which are of intermediate trophic level and which exhibit minimal migration in order to monitor the status of radioactivity in fish.

Vegetation, algae, and fish sampling frequencies are qualified on an "as available" basis recognizing that certain biological samples may occasionally be unavailable due to environmental conditions.

TABLE 15.7.7-1

OPERATIONAL RADIOLOGICAL ENVIRONMENTAL PROGRAM

SAMPLE TYPE	NUMBER & LOCATION OF SAMPLES	COLLECTION FREQUENCY	ANALYSIS TYPE AND FREQUENCY
Direct environmental	<p>23 TLDs are distributed as follows: (Each TLD contains 2 chips)</p> <p>9 - In the general area of the site boundary in the nine meteorological sectors around the Point Beach Nuclear Plant</p> <p>1 - On the Lake Michigan side of PBNP</p> <p>11 - In a ring around PBNP at a distance of 3 to 6 miles from the plant</p> <p>1 - Background reference in a low D/Q area greater than 16 miles from PBNP</p> <p>1 - Transport control</p>	Quarterly	Gamma dose quarterly
Vegetation	<p>8 samples of vegetation obtained as follows:</p> <p>1 - Background reference as described above</p> <p>4 - In the general area of the site boundary</p> <p>3 - At locations N, W and S of PBNP at 3-6 miles from the plant</p>	3x/yr as available	Radioiodine and gamma isotopic analysis performed 3x/yr as samples are available

TABLE 15.7.7-1 (Continued)

SAMPLE TYPE	NUMBER & LOCATION OF SAMPLES	COLLECTION FREQUENCY	ANALYSIS TYPE AND FREQUENCY
Well water	1 - Onsite well	Quarterly	H-3 quarterly with gamma isotopic analysis performed quarterly on total solids
Lake water	1 - Discharge flume 2 - N of discharge 0.5 to 5 miles from PBNP 2 - S of discharge 0.5 to 5 miles from PBNP	Monthly (discharge flume is collected weekly and composited for monthly analysis)	Monthly gross beta and gamma isotopic analysis of total solids. H-3 analysis quarterly on composite
Air filters	1 - Reference location as described above 4 - In the general area of the site boundary 1 - About 6 miles W of PBNP	Weekly by continuous air sampler	Radioiodine weekly on charcoal canisters. Gross beta weekly on particulate filters after at least 24 hours decay. Gamma isotopic analysis quarterly on particulate filter composites.
Milk	3 - Dairy farms about 2-6 miles N, W, and S of PBNP	Monthly	Monthly gamma isotopic analysis and radiiodine analysis
Fish	1 - Travelling screens	3x/yr as available	Gamma isotopic analysis 3x/yr as available. Analysis of edible portions only
Algae	2 - Along shore within 5 miles N and S of discharge	3x/yr as available	Gross beta and gamma isotopic analysis 3x/yr as available

TABLE 15.7.7-2 RADIOLOGICAL ENVIRONMENTAL MONITORING ANALYSIS¹LOWER LIMIT OF DETECTION (LLD)²

<u>Analysis</u>	<u>Vegetation</u> (pCi/g wet)	<u>Airborne</u> (pCi/m ³)	<u>Milk</u> (pCi/l)	<u>Well Water & Lake Water</u> ³ (pCi/l)-T.S. ⁴	<u>Algae</u> (pCi/g wet)	<u>Fish</u> (pCi/g wet)
Gross Beta		0.01		4	0.25	
H-3				3,000		
Gamma Scan						
I-131	0.06	0.07	0.5	100		
Cs-137	0.08	0.06	18	18	0.25	0.15
Cs-134	0.06	0.05	15	15	0.25	0.13
Co-58				15	0.25	0.13
Co-60				15	0.25	0.13
Ba-La-140			15	15		
Zr-Nb-95				15		
Fe-59				30		0.26
Zn-65				30		0.26
Mn-54				15		0.13

NOTES FOR TABLE 15.7.7-2

1. For gamma isotopic analysis of environmental samples, the spectrum is scanned over the energy range of 80 to 2048 KeV for gamma ray emitting radionuclides which may be attributable to Point Beach Nuclear Plant effluents. The analysis specifically includes, but is not limited to Mn-54, Fe-59, Zn-65, Co-58, Co-60, Zr-Nb-95, Ru-103, Ru-106, I-131, Ba-La-140, Cs-134, Cs-137, Ce-141, and Ce-144.
2. The environmental TLDs have an LLD of 1 mrem/chip.
3. No drinking water
4. T.S. = total solids

TABLE 15.7.7-3 RADIOLOGICAL ENVIRONMENTAL MONITORING ANALYSIS

NOTIFICATION LEVELS

<u>Analysis</u>	<u>Vegetation</u> (pCi/g wet)	<u>Airborne</u> (pCi/m ³)	<u>Milk</u> (pCi/l)	<u>Well Water & Lake Water</u> (pCi/l)-T.S.	<u>Algae</u> (pCi/g wet)	<u>Fish</u> (pCi/g wet)
H-3				30,000		
I-131	0.1	0.9	3	1,000		
Cs-137	2	20	70	50	10	2
Cs-134	1	10	60	30	10	1
Co-58				1,000	10	30
Co-60				300	10	10
Ba-La-140			300	200		
Zr-Nb-95				400		
Fe-59				400		10
Zn-65				300		20
Mn-54				1,000		30

15.7.8 ADMINISTRATIVE CONTROLS

15.7.8.1 Responsibilities of the Manager's Supervisory Staff

The responsibilities of the Manager's Supervisory Staff with respect to these radiological effluent technical specifications are listed in specification 15.6.5.2.6 at items k and l.

15.7.8.2 Audits

- A. An audit of the activities encompassed by the Offsite Dose Calculation Manual and the Process Control Program and its implementing procedures shall be performed at least once every 24 months utilizing either offsite licensee personnel or a consulting firm.
- B. An audit of the radiological environmental monitoring program and the results thereof shall be performed at least once every 12 months utilizing either offsite licensee personnel or a qualified consulting firm.
- C. The results of the audits in A and B above shall be transmitted to the Vice-President - Nuclear Power and the Chairman of the Offsite Review Committee.

15.7.8.3 Plant Operating Procedures

The ODCM and the PCP shall be established and maintained in accordance with the provisions of specification 15.6.8. Effluent and environmental monitoring shall be addressed in the Quality Assurance Program.

15.7.8.4 RETS Reporting Requirements

The following written reports shall be submitted to the Administrator, U.S. Nuclear Regulatory Commission Region III with a copy to the Director, Office of Inspection and Enforcement, USNRC, Washington, D.C. 20555 within the time periods specified.

A. Semiannual Monitoring Report

A report within 60 days after January 1 and July 1 each year for the six month period or fraction thereof, ending June 30 and December 31 containing:

- 1. Information relative to the quantities of liquid, gaseous and solid radioactive effluents released from the facility, and effluent volumes used in maintaining the releases

within the limits of 10 CFR 20 shall be provided (summarized on a monthly basis) as follows:

a. Liquid Releases

- (1) Total radioactivity (in Curies) released, other than tritium, and average diluted discharge concentrations.
- (2) Total tritium (in Curies) discharged, and average diluted discharge concentrations.
- (3) Total volume (in gallons) of liquid waste released into circulating water discharge.
- (4) Total volume (in gallons) of dilution water used.
- (5) The maximum concentration released (averaged over the period of a single release).
- (6) Estimated total radioactivity (in Curies) released, by nuclide (other than tritium), based on representative isotopic analyses performed.

b. Gaseous Releases

- (1) Total radioactivity (in Curies) released of:
 - (a) Noble Gases.
 - (b) Halogens.
 - (c) Particulates
 - (d) Tritium.
- (2) Maximum release rate (for any one-hour period).
- (3) Estimated total radioactivity (in Curies) released by nuclide (other than tritium) based on representative isotopic analyses performed.

c. Solid Waste

- (1) The total amount of solid waste shipped (in cubic feet).
- (2) Estimated total radioactivity (in Curies) involved.
- (3) The dates of shipment.

2. New and Spent Fuel Receipts and Shipments

- a. Number and type of new fuel assemblies received during the reporting period, if any.

- b. Number of spent fuel assemblies shipped off site during the reporting period, if any.
- 3. Environmental Monitoring
 - a. A summary of pertinent environmental monitoring activities performed during the reporting period, including:
 - (1) The number and types of samples taken and the types of analytical measurements made on the samples.
 - (2) Any changes made in sample types or locations during the reporting period and criteria for these changes.
 - b. A summary of survey results during the reporting period including a comment on any significant portion of the Operational Environmental Monitoring Program not conducted.

4. Leak Testing of Sealed Sources

Results of required leak tests performed on sealed sources if the tests reveal the presence of 0.005 microcuries or more of removable contamination.

5. Meteorological Data

Meteorological data shall be kept in file on site for review by the NRC upon request. The data available will include wind speed, wind direction, atmospheric stability, and precipitation (if measured). The data will be in the form of strip charts, hour-by-hour averages listed on magnetic tape or joint frequency distributions of each of the parameters except precipitation. The magnetic tape and joint frequency distributions will be available following the installation and operation of the new plant process computer and software (approximately 1987).

6. ODCM and PCP Changes

A description of changes to the ODCM or PCP which were implemented and became effective during the reporting period. The description shall include sufficient information to support the rationale for the changes

and a determination that the change will not reduce the overall effectiveness of the PCP or ODCM. For the ODCM, this submittal shall include revised ODCM pages affected by the change identified with a revision number and approval date.

7. Special Circumstance Reports

- a. In accordance with note 7 to Table 15.7.3-1, if the Waste Gas Holdup System Explosive Gas Monitor is out of service for greater than 14 days.
- b. In accordance with 15.7.7.B.3, factors which render the LLDs stated in Table 15.7.7-2 unachievable.
- c. In accordance with 15.7.7.E.2, failure of the analytical laboratory to participate in an Interlaboratory Comparison Program.

B. Measured Radioactivity Above Notification Levels

If the confirmed level of radioactivity remains above the notification levels specified in Table 15.7.7-3 of specification 15.7.7 "Operational Environmental Monitoring Program", a written report describing the circumstance shall be prepared and submitted within thirty days of the confirmation that a notification level was exceeded.

C. Radioactive Liquid Effluent Waste Treatment

If the radioactive liquid waste treatment system is inoperable and liquid radwaste is being discharged for 31 days without the treatment required to meet the release limits specified in Section 15.7.5, a special report shall be prepared and submitted to the Commission within thirty days which includes the following information:

1. Identification of the inoperable equipment or subsystem and the reason for inoperability.
2. Actions taken to restore the inoperable equipment to operable status.

3. Summary description of actions taken to prevent a recurrence.

D. Radioactive Gaseous Effluent Waste Treatment

If the radioactive gaseous waste treatment system and the ventilation exhaust treatment system are inoperable and gaseous radwaste is being discharged for 31 days without the treatment required to meet the release limits specified in Section 15.7.3, a special report shall be prepared and submitted to the Commission within thirty days which includes the following information:

1. Identification of the inoperable equipment or subsystem and the reason for inoperability.
2. Actions taken to restore the inoperable equipment to operable status.
3. Summary description of actions taken to prevent a recurrence.

E. Radioactive Effluent Release

If the quantity of radioactive material actually released in liquid or gaseous effluents during any calendar quarter exceeds twice the quarterly limit as specified in Section 15.7.3, a special report shall be prepared and submitted to the Commission within thirty days of determination of the release quantity.

15.7.4.5 Major Change in Radioactive Liquid, Gaseous and Solid Waste Treatment Systems

Licenses initiated major changes to the radioactive waste treatment systems (liquid, gaseous, and solid) shall be reported to the U.S. Nuclear Regulatory Commission with the annual update to the FHR for the period in which the major change was complete. The discussion of each change shall include:

- A. A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR Part 15.39;
- B. Information necessary to support the reason for the change;

- C. A description of the equipment, components and processes involved and the interfaces with other plant systems;
- D. An evaluation of the change, which shows how the predicted releases of radioactive materials in liquid effluents and gaseous effluents and/or quantity of solid waste will differ from those previously predicted in the license application and amendments thereto;
- E. An evaluation of the change, which shows the expected maximum exposures to an individual in the unrestricted area and to the general population that differ from those previously estimated in the license application and amendments thereto;
- F. An estimate of the exposure to plant operating personnel as a result of the change.

RETS RELATED
CHANGES TO EXISTING
TECHNICAL SPECIFICATIONS

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15.3.9 Effluent Release

Radioactive Effluent Release limits are contained in
specification 15.7.5.

15.4.10 OPERATIONAL ENVIRONMENTAL MONITORING

Radioactive effluent sampling and analysis requirements and operational environmental monitoring requirements are specified in 15.7.6 and 15.7.7 respectively.

- b) Review all proposed tests and experiments related to safety and the results thereof when applicable.
- c) Review all proposed changes to Technical Specifications.
- d) Review all proposed changes or modifications to plant systems or equipment where changes would require a change in operating or emergency procedures or that affect nuclear safety.
- e) Periodically review plant operations for industrial and nuclear safety hazards.
- f) Investigate violations or suspected violations of Technical Specifications, such investigations to include reports, evaluations, and recommendations to prevent recurrence, to the Executive Vice President and to the Chairman of the Off-Site Review Committee.
- g) Perform special reviews and investigations and prepare reports thereon as requested by the Chairman of the Off-Site Review Committee.
- h) Investigate, review, and report on all reportable events.
- i) Cause to be conducted periodic drills on emergency procedures, including evacuation (partial or complete) of the site and check adequacy of communications with off-site support groups.
- j) Review the Facility Fire Protection Program and implementing procedures at least once per 24 months.
- k) Review every release of radioactive material to the environment in excess of the limits specified in Section 15.7.5. Such review will include a summary of evaluation, recommendation and disposition of corrective action to prevent recurrence.
- l) Review all changes to the PCP and ODCM.

AUTHORITY

- 15.6.5.2.7 a) The Supervisory Staff shall serve as advisory to the Manager - Nuclear Operations.
- b) The Supervisory Staff shall recommend to the Manager approval or disapproval of proposals under items a) through d) above. In the event of disagreement between a majority of the

Supervisory Staff and decisions by the Manager, the course of action will be determined by the Manager and the disagreement recorded in the Staff minutes. Records of the disagreement will be included in the minutes sent for review to the Off-Site Review Committee and the Executive Vice President.

- c) The Supervisory Staff shall make tentative recommendations as to whether or not proposals considered by the Staff involve unreviewed safety questions. These recommendations shall be subject to review and further recommendations by the Off-Site Review Committee. Minutes shall be kept of all meetings of the Staff and copies shall be sent to the Executive Vice President and to the Chairman of the Off-Site Review Committee.
- d) The Supervisory Staff shall review and approve the contents of a report for each reportable event. This report shall be prepared and submitted pursuant to the requirements of Section 50.73 to 10 CFR Part 50. Copies of all such reports shall be submitted to the Executive Vice President and to the Off-Site Review Committee.

RECORDS

- 15.6.5.2.8 The Manager's Supervisory Staff shall maintain written minutes of each meeting and copies shall be provided to the Executive Vice President and Chairman, Off-Site Review Committee.

15.6.9.2 Unique Reporting Requirements

The following written reports shall be submitted to the Director, Office of Nuclear Reactor Regulation, USNRC:

A. Integrated Leak Rate Test

Each integrated leak test shall be the subject of a summary technical report, including results of the local leak rate tests and isolation valve leak rate tests since the last report. The report shall include analysis and interpretations of the results which demonstrate compliance with specified leak rate limits.

B. Poison Assembly Removal From Spent Fuel Storage Racks

Plans for removal of any poison assemblies from the spent fuel storage racks shall be reported and described at least 14 days prior to the planned activity. Such report shall describe neutron attenuation testing for any replacement poison assemblies, if applicable, to confirm the presence of boron material.

C. Overpressure Mitigating System Operation

In the event the over pressure mitigating system is operated to relieve a pressure transient which, by licensee's evaluation, could have resulted in an overpressurization incident had the system not been operable, a special report shall be prepared and submitted to the Commission within 30 days. The report shall describe the circumstances initiating the transient, the effect of the system on the transient and any corrective action necessary to prevent recurrence.

D. Dose Equivalent I-131

With total cumulative operating time at a primary coolant specific activity greater than 1.0 microcurie per gram Dose Equivalent I-131 exceeding 500 hours in any consecutive 6-month period, submit a report within 30 days indicating the number of hours above this limit.

TABLE 15.4.1-1 (2 of 4)

<u>No.</u>	<u>Channel Description</u>	<u>Check</u>	<u>Calibration</u>	<u>Test</u>	<u>Remarks</u>
10.	Rod Position Bank Counters	S (1)**	N.A.	N.A.	1) With analog rod position
11.	Steam Generator Level	S **	R	M(1)**	1) Includes test of logic for reactor trip on low-low level and automatic actuation logic for auxiliary feedwater pumps
12.	Steam Generator Flow Mismatch	S **	R	M**	
13.	Charging Flow	N.A.	R	N.A.	
14.	Residual Heat Removal Pump Flow	N.A.	R	N.A.	
15.	Boric Acid Tank Level	D	R	N.A.	
16.	Refueling Water Storage Tank Level	N.A.	R	N.A.	
17.	Volume Control Tank Level	N.A.	R	N.A.	
18.	Reactor Containment Pressure	D	R	B/W (1)**	1) Isolation valve signal
19.	Radiation Monitoring System	D	R	M	1) Radioactive Effluent Monitoring Instrumentation Surveillance Requirements are specified in 15.7.4.
20.	Boric Acid Control	N.A.	R	N.A.	
21.	Containment Sump Level	N.A.	R	N.A.	
22.	Turbine Overspeed Trip*	N.A.	R	M (1)**	1) Block trip
23.	Accumulator Level and Pressure	S	R	N.A.	

* Overspeed Trip Mechanism, and Independent Turbine Speed Detection and Valve Trip System.

** Not required during periods of refueling shutdown, but must be performed prior to starting up if it has not been performed during the previous surveillance period.

- M. Test results, in units of microcuries, for leak tests performed pursuant to Specification 15.4.12.
- N. Record of annual physical inventory verifying accountability of sources subject to Specification 15.4.12.
- O. *Records of training and qualification for current plant NRC licensed staff and key personnel.
- P. *Records of inservice inspections performed pursuant to these Technical Specifications.
- Q. *Records of Quality Assurance activities required by the QA Manual.
- R. *Records of reviews performed pursuant to 10 CFR 50.59.
- S. *Records of meetings of the Manager's Supervisory Staff and the Offsite Review Committee.
- T. *Records of Environmental Qualification which are covered under the provisions of paragraph 15.6.12.
- U. *Records of the service life of all snubbers in accordance with Specification 15.4.13.4.
- V. *Record of analyses for radiological environmental monitoring.

*Items will be permanently retained.