2.0 ENVIRONMENTAL PROTECTION CONDITIONS

2.5.2 Gaseous Waste Effluents (cont'd)

(2) The release rate limit of I-131 and radioactive materials in particulate form with half-lives greater than eight days, released to the environs as part of the gaseous wastes from the site shall be:

$$[3.7 \times 10^4]Q_s + [5.8 \times 10^6]Q_v \leq 1$$

where Q_s = release rate from the main stack in Ci/sec (as elevated release)

Q_v = release rate from the vents in Ci/sec (ground release)

b. Should any of the conditions of Specifications 2.5.2.b(1) or 2.5.2.b(2) listed below be exceeded, the licensee shall make an investigation to identify the causes of the release rates, define and initiate a program of action to reduce the release rates to design objective levels listed in Sections 2.5.a and 2.5.b for gaseous wastes and report these actions to the Commission within 30 days from the end of the calendar year during which the releases occurred.

(1) The calculational method for determining the average release rate of noble gases from the site during any calendar year shall be:

$$\sum_{i+1}^{n} DAB_i[(4.0 \times 10^2)Q_{si} + (1.6 \times 10^5)Q_{vi}] \leq 1$$

and

$$\sum_{i+1}^{n} [DETA_i(1.9 \times 10^5)Q_{si} + DAG_i(3.2 \times 10^5)Q_{vi}] \leq 1$$

where Q_{si} = release rate of radioisotope i from the main stack in Ci/sec.

Q_{vi} = release rate of radioisotope i from the vents of each reactor in Ci/sec.

3.0 SURVEILLANCE REQUIREMENTS

3.5.2 Gaseous Waste Effluents (cont'd)

(2) within 1 month, following each refueling outage.

(3) within 72 hours, if the gaseous waste monitors indicate an increase of greater than 50% in the steady state fission gas release after factoring out increases due to powe changes.

d. All waste gas effluent monitors shall b calibrated at least quarterly by means of a known radioactive source which has been calibrated to a National Bureau of Standards source. Each monitor shall have a functional test at least monthly and an instrument check at least daily excluding days of no discharge.

e. Sampling and analysis of radioactive material in gaseous waste, particulate form, and radioiodine shall be performe in accordance with Table 3.5-2.

2.0 ENVIRONMENTAL PROTECTION CONDITIONS	3.0 SURVEILLANCE REQUIREMENTS
2.5.2 Gaseous Waste Effluents (cont'd)	3.5.2 Gaseous Effluents (cont'd)
DAB_i = The beta air dose factor from Table 3.5-5 in mrad-m^3/pCi-yr	
$DETA_i$ = Gamma air elevated release dose factor from Table 3.5-5 in mrad/Ci	
DAG_i = The gamma air dose factor from Table 3.5-5 in mrad-m^3/pCi-yr	
(2) The calculational method for determining the average release rate from the site of I-131 and radioactive materials in particulate form with half-lives greater than eight days during any calendar year shall be:	f. Calculations for meeting the requirements of Specifications 2.5.2.b(1) and (2) shall be performed at least once every 31 days.
$(6.56 \times 10^6 Q_S) + (7.46 \times 10^7 Q_V) \leq 1$	
(If no teen, child or infant milk consumption)	
The consumption of milk must be demonstrated by the Radiological Environmental Monitoring Program 4.2.7. If the Radiological Environmental Monitoring Program determines the consumption of milk by teen, child, or infant the above equation shall be modified by the appropriate coefficient (Dose Factors) of Regulatory Guide 1.109.	
c. Should any of the conditions of Specifications 2.5.2.c(1) or 2.5.2.c(2) listed below be exceeded, the licensee shall make an investigation to identify the causes of the release rates, define and initiate a program of action to reduce the release rates to design objective levels listed in Sections 2.5.a and 2.5.b for gaseous wastes and report these actions to the Commission within 30 days from the end of the calendar quarter during which the releases occurred.	

infant via the cow-milk-infant pathway to less than or equal to 1500 mrem/year for the nearest cow to the plant.

For Specification 2.5.2.a(2), dose calculations have been made for the critical sectors and critical pathways for I-131 and radioactive material in particulate form with half-lives greater than eight days. The calculations consider site meteorology for these releases.

Specification 2.5.2.b establishes upper site levels for the releases of noble gases, iodines and particulates with half lives greater than eight days, and iodine-131 at the design objective annual quantity during any calendar year. Since BSEP does not have an AOG that has been demonstrated to be continuously operable, the content of these limiting conditions for operation assumes that the design objectives of 2.5a and b for gaseous wastes can be met. This specification does not limit the instantaneous gaseous radioactive release rate, but permits the licensee the flexibility of operation to assure that the public is provided a dependable source of power under unusual operating conditions which may temporarily result in higher releases than the objectives and yet remain below annual design objective releases. The equation limiting radioactivity releases was established based on on-site meteorological data and methodology of Regulatory Guides 1.109 and 1.111, and methods provided in Meteorology and Atomic Energy (1968).

For iodine-131 and radioactive material in particulate form with half-lives greater than eight days, the critical location for ground releases is the SSE sector distance of 1464 meters where $^{\chi}/_{Q}$ is 6.5×10^{-6} sec/m^3 for the dose due to inhalation. The critical location for elevated releases is the SSE sector at a distance of 1464 meters where the $^{\chi}/_{Q}$ is 3.45×10^{-8} sec/m^3 for the dose, due to inhalation. The assumptions for the grass-cow-milk-thyroid chain are listed in Table 3.5-6. The grass-cow-milk-thyroid chain is controlling.

The reporting requirements of 2.5.2.b and 2.5.2.c delineate that the cause be identified whenever the release of gaseous effluents exceeds the annual objective during any calendar year or one-half the annual objective quantity during any calendar quarter, and describe the proposed program of action to reduce such release rates to the design objectives.

Specifications 2.5.2.d and 2.5.2.e assure compliance with NRC general design criterion 64. The 24-hour period will allow an investigation of several hours to determine the cause of the monitor inoperability and possible repair prior to initiating the hot-shutdown.

Specification 2.5.2.f is to monitor the performance of the core. A sudden increase in the activity levels of gaseous releases may be the result of defective fuel. Since core performance is of utmost importance in the resulting doses, a report must be filed within 10 days following the specified increase in gaseous radioactive releases.

Specification 2.5.2.g requires that the primary containment atmosphere receive treatment for the removal of gaseous iodine and particulates prior to its release.

Specification 2.5.2.h requires that hydrogen concentration in the system shall be monitored at all times during AOG operation to prevent buildup of combustible concentrations.

The sampling and monitoring requirements given under Specification 3.5.2 provide assurance that radioactive materials released in gaseous wastes are properly controlled and monitored in conformance with the requirements of Design Criteria 60 and 64. These requirements provide the data for the licensee and the Commission to evaluate the plant's performance relative to radioactive wastes released to the environment. Reports on the quantities of radioactive materials released in gaseous effluents are furnished to the Commission on the basis of Section 5.4 of these Technical Specifications and in conformance with Regulatory Guide 1.21. On the basis of such reports and any additional information the Commission may obtain from the licensee or others, the Commission may from time to time require the licensee to take such action as the Commission deems appropriate.

2.0 ENVIRONMENTAL PROTECTION CONDITIONS

2.5.2 Gaseous Waste Effluents (cont'd)

(2) The release rate limit of I-131 and radioactive materials in particulate form with half-lives greater than eight days, released to the environs as part of the gaseous wastes from the site shall be:

$$[3.7 \times 10^4]Q_s + [5.8 \times 10^6]Q_v \leq 1$$

where Q_s = release rate from the main stack in Ci/sec (as elevated release)

Q_v = release rate from the vents in Ci/sec (ground release)

b. Should any of the conditions of Specifications 2.5.2.b(1) or 2.5.2.b(2) listed below be exceeded, the licensee shall make an investigation to identify the causes of the release rates, define and initiate a program of action to reduce the release rates to design objective levels listed in Sections 2.5.a and 2.5.b for gaseous wastes and report these actions to the Commission within 30 days from the end of the calendar year during which the releases occurred.

(1) The calculational method for determining the average release rate of noble gases from the site during any calendar year shall be:

$$\sum_{i+1}^{n} DAB_i[(4.0 \times 10^2)Q_{si} + (1.6 \times 10^5)Q_{vi}] \leq 1$$

and

$$\sum_{i+1}^{n} [DETA_i(1.9 \times 10^5)Q_{si} + DAG_i(3.2 \times 10^5)Q_{vi}] \leq 1$$

where Q_{si} = release rate of radioisotope i from the main stack in Ci/sec.

Q_{vi} = release rate of radioisotope i from the vents of each reactor in Ci/sec.

3.0 SURVEILLANCE REQUIREMENTS

3.5.2 Gaseous Waste Effluents (cont'd)

(2) within 1 month, following each refueling outage.

(3) within 72 hours, if the gaseous waste monitors indicate an increase of greater than 50% in the steady state fission gas release after factoring out increases due to powe changes.

d. All waste gas effluent monitors shall b calibrated at least quarterly by means of a known radioactive source which has been calibrated to a National Bureau of Standards source. Each monitor shall have a functional test at least monthly and an instrument check at least daily excluding days of no discharge.

e. Sampling and analysis of radioactive material in gaseous waste, particulate form, and radioiodine shall be performe in accordance with Table 3.5-2.

2.0 ENVIRONMENTAL PROTECTION CONDITIONS	3.0 SURVEILLANCE REQUIREMENTS
2.5.2 Gaseous Waste Effluents (cont'd)	3.5.2 Gaseous Effluents (cont'd)

DAB_i = The beta air dose factor from Table 3.5-5 in mrad-m^3/pCi-yr

$DETA_i$ = Gamma air elevated release dose factor from Table 3.5-5 in mrad/Ci

DAG_i = The gamma air dose factor from Table 3.5-5 in mrad-m^3/pCi-yr

(2) The calculational method for determining the average release rate from the site of I-131 and radioactive materials in particulate form with half-lives greater than eight days during any calendar year shall be:

$$(6.56 \times 10^6 Q_S) + (7.46 \times 10^7 Q_V) \leq 1$$

(If no teen, child or infant milk consumption)

The consumption of milk must be demonstrated by the Radiological Environmental Monitoring Program 4.2.7. If the Radiological Environmental Monitoring Program determines the consumption of milk by teen, child, or infant the above equation shall be modified by the appropriate coefficient (Dose Factors) of Regulatory Guide 1.109.

c. Should any of the conditions of Specifications 2.5.2.c(1) or 2.5.2.c(2) listed below be exceeded, the licensee shall make an investigation to identify the causes of the release rates, define and initiate a program of action to reduce the release rates to design objective levels listed in Sections 2.5.a and 2.5.b for gaseous wastes and report these actions to the Commission within 30 days from the end of the calendar quarter during which the releases occurred.

f. Calculations for meeting the requirements of Specifications 2.5.2.b(1) and (2) shall be performed at least once every 31 days.

infant via the cow-milk-infant pathway to less than or equal to 1500 mrem/year for the nearest cow to the plant.

For Specification 2.5.2.a(2), dose calculations have been made for the critical sectors and critical pathways for I-131 and radioactive material in particulate form with half-lives greater than eight days. The calculations consider site meteorology for these releases.

Specification 2.5.2.b establishes upper site levels for the releases of noble gases, iodines and particulates with half lives greater than eight days, and iodine-131 at the design objective annual quantity during any calendar year. Since BSEP does not have an AOG that has been demonstrated to be continuously operable, the content of these limiting conditions for operation assumes that the design objectives of 2.5a and b for gaseous wastes can be met. This specification does not limit the instantaneous gaseous radioactive release rate, but permits the licensee the flexibility of operation to assure that the public is provided a dependable source of power under unusual operating conditions which may temporarily result in higher releases than the objectives and yet remain below annual design objective releases. The equation limiting radioactivity releases was established based on on-site meteorological data and methodology of Regulatory Guides 1.109 and 1.111, and methods provided in Meteorology and Atomic Energy (1968).

For iodine-131 and radioactive material in particulate form with half-lives greater than eight days, the critical location for ground releases is the SSE sector distance of 1464 meters where $^{\chi}/_{Q}$ is 6.5×10^{-6} sec/m^3 for the dose due to inhalation. The critical location for elevated releases is the SSE sector at a distance of 1464 meters where the $^{\chi}/_{Q}$ is 3.45×10^{-8} sec/m^3 for the dose, due to inhalation. The assumptions for the grass-cow-milk-thyroid chain are listed in Table 3.5-6. The grass-cow-milk-thyroid chain is controlling.

The reporting requirements of 2.5.2.b and 2.5.2.c delineate that the cause be identified whenever the release of gaseous effluents exceeds the annual objective during any calendar year or one-half the annual objective quantity during any calendar quarter, and describe the proposed program of action to reduce such release rates to the design objectives.

Specifications 2.5.2.d and 2.5.2.e assure compliance with NRC general design criterion 64. The 24-hour period will allow an investigation of several hours to determine the cause of the monitor inoperability and possible repair prior to initiating the hot-shutdown.

Specification 2.5.2.f is to monitor the performance of the core. A sudden increase in the activity levels of gaseous releases may be the result of defective fuel. Since core performance is of utmost importance in the resulting doses, a report must be filed within 10 days following the specified increase in gaseous radioactive releases.

Specification 2.5.2.g requires that the primary containment atmosphere receive treatment for the removal of gaseous iodine and particulates prior to its release.

Specification 2.5.2.h requires that hydrogen concentration in the system shall be monitored at all times during AOG operation to prevent buildup of combustible concentrations.

The sampling and monitoring requirements given under Specification 3.5.2 provide assurance that radioactive materials released in gaseous wastes are properly controlled and monitored in conformance with the requirements of Design Criteria 60 and 64. These requirements provide the data for the licensee and the Commission to evaluate the plant's performance relative to radioactive wastes released to the environment. Reports on the quantities of radioactive materials released in gaseous effluents are furnished to the Commission on the basis of Section 5.4 of these Technical Specifications and in conformance with Regulatory Guide 1.21. On the basis of such reports and any additional information the Commission may obtain from the licensee or others, the Commission may from time to time require the licensee to take such action as the Commission deems appropriate.