

ATTACHMENT I

TSP 940002

LIST OF AFFECTED PAGES

AND

MARKED - UP TECHNICAL SPECIFICATIONS

**TSP 940002 -- SCE&G**

<u>PAGE</u>	<u>Affected Section</u>	<u>Bar #</u>	<u>Description of Change</u>	<u>Reason for Change</u>
3/4 11-1	3.11.1.1 3.11.1.2 3.11.1.3	1	Insert A: Added 3.11.1.1, 3.11.1.2, and 3.11.1.3 back in.	This was added back in to eliminate confusion as to why page 3/4 11-1, LCO started with Section 3.11.1.4 instead of 3.11.1.1.
	3.11.1.4 Action a	2	Third line, "or" was changed to "of".	To correct a typo from a previous amendment.
	4.11.1.1 4.11.1.2 4.11.1.3	3	Insert B: Added 4.11.1.1, 4.11.1.2, and 4.11.1.3 back in.	This was added back in to eliminate confusion as to why the Surveillance Requirements started with Section 4.11.1.4.
3/4 11-2	3.11.1.5 equation	1	Added "10" beside "C <sub>j</sub> ".	The Part 20 Rule lowered C <sub>j</sub> values by a factor of 10. The factor of 10 maintains allowable limits.
	A <sub>j</sub>	2	Changed "curie" to "curies".	Typographical error.
	4.11.1.5 equation	3	Changed "0.6" to "6".	The Part 20 Rule lowered C <sub>j</sub> values by a factor of 10. The factor of 10 maintains existing level of controls.
3/4 11-3	Q <sub>j</sub>	1	Added comma after "half-life".	Punctuation correction.
3/4 11-4	3.11.2.1 3.11.2.2 3.11.2.3 3.11.2.4	1	Insert C: Added 3.11.2.1, 3.11.2.2, 3.11.2.3, and 3.11.2.4 back in.	This was added back in to eliminate confusion as to why page 3/4 11-4, LCO started with Section 3.11.2.5 instead of 3.11.2.1.
	4.11.2.1 4.11.2.2 4.11.2.3 4.11.2.4	2	Insert D: Added 4.11.2.1, 4.11.2.2, 4.11.2.3, and 4.11.2.4 back in.	This was added back in to eliminate confusion as to why the Surveillance Requirements started with Section 4.11.2.5 instead of 4.11.2.1.
3/4 11-5	N/A	N/A	There were no changes. This page was included because a new font is being used.	There were no changes. This page was included because a new font is being used.
B 3/4 11-1	3/4.11.1.1 3/4.11.1.2 3/4.11.1.3	1	Insert E: Added 3/4.11.1.1, 3/4.11.1.2, and 3/4.11.1.3 back in.	This was added back in to eliminate confusion as to why page B 3/4 11-1, started with Section 3/4.11.1.4 instead of 3/4.11.1.1.
	3/4.11.1.4	2	Added the words "10 times" to the third line between "than" and "the".	The Part 20 Rule lowered values by a factor of 10. The factor of 10 maintains allowable limits.
	3/4.11.1.5	3	Paragraph 1, Line 4: Changed the word "uncontrolled" to "unrestricted".  Paragraph 1, Line 4: Changed the word "Note 1" to "Note 4".	This was an administrative change to more clearly define the area consistent with Part 20 Rule terminology.  Note 4 is now the applicable note. The Part 20 Rule renumbered Note 1 as Note 4.

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<u>PAGE</u>	<u>Affected Section</u>	<u>Bar #</u>	<u>Description of Change</u>	<u>Reason for Change</u>
	3/4.11.1.5	4	Paragraph 2, first line: removed words "...of slurry to the chemical treatment ponds..."	Removed words to ensure consistency in definition of "settling ponds".
	3/4.11.1.5	5	Paragraph 2, last two lines: changed words "...total body level to the 10 CFR 20, 105(a), whole body dose limitation, or that:" to "... total body level given in 10 CFR 50 Appendix I, Section II.A, to the Total Effective Dose Equivalent dose represented by the concentration in 10 CFR 20, Appendix B, Table II, Column 2., or that:"	Reflects new Part 20 Rule dose terminology.
	3/4.11.1.5	6	Changed equation: "500 mrem/yr" changed to "50 mrem/yr" and "0.006" changed to "0.06"	Specification limits the consequence of an uncontrolled release of slurry offsite by establishing a limit relative to 10 CFR 50 Appendix I design criteria. This limit is established by ratioing the dose corresponding to Appendix I whole body limits to the dose corresponding to 10 CFR 20 Appendix B Table II, Column 2, concentrations. Since the dose corresponding to the revised Part 20 Appendix B, Table II, Column 2, concentrations was lowered by a factor of 10, the 500 mrem value used previously was revised to 50 mrem and the resulting calculated limit was revised accordingly.
	3/4.11.1.5	7	Last paragraph: Added comma after "area".	Punctuation correction.
	3/4.11.1.5	8	Last paragraph: Added comma after "wet".	Punctuation correction.
B 3/4 11-2	3/4 11.1.5	1	Paragraph 1, line 1: spelled out "gr/ml" to "gram per milliliter".	"gr/ml" was an incorrect notation.
	First Equation	2	Changed "Q <sub>J</sub> " to "Q <sub>J</sub> ". Changed "0.006" to "0.06". Changed "gm" to "g".	"Q <sub>J</sub> " was a typographical error. "0.006" was changed because the Part 20 Rule lowered values by a factor of 10. The factor of 10 maintains allowable limits. "gm" was incorrect notation for gram.
	Second Equation	3	Changed ".6" to "6". Changed "gm" to "g".	".6" revised because the Part 20 Rule lowered values by a factor of 10. The factor of 10 maintains allowable limits. "gm" was incorrect notation for gram.

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<u>PAGE</u>	<u>Affected Section</u>	<u>Bar #</u>	<u>Description of Change</u>	<u>Reason for Change</u>
	3/4.11.2.1 3/4.11.2.2 3/4.11.2.3 3/4.11.2.4	4	Insert F: Added 3/4.11.2.1, 3/4.11.2.2, 3/4.11.2.3, and 3/4.11.1.4 back in.	This was added back in to eliminate confusion as to why page B 3/4 11-2, started with Section 3/4.11.2.5 instead of 3/4.11.2.1.
6-11	6.8.4.a.1) 6.8.4.a.2) 6.8.4.b.1) 6.8.4.b.2) 6.8.4.b.3)	1	Renumbered subheadings 6.8.4.a.(i), 6.8.4.a.(ii), 6.8.4.b.(i), 6.8.4.b.(ii), and 6.8.4.b.(iii).	Restructured subheads throughout Section 6 to achieve consistent outline format.
6-12	6.8.4.c.1) 6.8.4.c.2) 6.8.4.c.3) 6.8.4.c.4) 6.8.4.c.5) 6.8.4.c.6)	1	Renumbered subheadings 6.8.4.c.(i), 6.8.4.c.(ii), 6.8.4.c.(iii), 6.8.4.c.(iv), 6.8.4.c.(v), and 6.8.4.c.(vi).	Restructured subheads throughout Section 6 to achieve consistent outline format.
	6.8.4.d.1) 6.8.4.d.2) 6.8.4.d.3)	2	Renumbered subheadings 6.8.4.d.(i), 6.8.4.d.(ii), and 6.8.4.d.(iii).	Restructured subheads throughout Section 6 to achieve consistent outline format.
	6.8.4.e.1)	3	Changed punctuation at the end of the sentence from a comma to a semi-colon.	Typographical error.
	6.8.4.e.2)	4	Added "10 times the concentration values in " between "conforming to" and "10 CFR".	The Part 20 Rule lowered values by a factor of 10. The factor of 10 maintains allowable dose limits.
6-12a	6.8.4.e.3)	1	Changed "20.106" to "Part 20.1302".	Part 20 rule relocated the requirements.
	6.8.4.e.7)	2	Insert G	Established the gaseous effluent dose rate limits. These limits, in conjunction with 10 CFR 50 Appendix I limits, maintain 10 CFR 20 dose limits.
6-12b	6.8.4.f and 6.8.4.f.1)	N/A	Repagination moved 6.8.4.f and 6.8.4.f.1) to page 6-12b.	Repagination.
6-13	6.9.1.4	1	"March 1" was changed in two places to "March 31"	Reflects proposed generic letter changes to reporting requirements.
	6.9.1.5	2	Fourth line: Changed "manrem-expoure" to "collective deep dose equivalent (reported in person-rem)".	Reflects new 10 CFR 20 Rule terminology.
	1/	3	Changed "§20.407" to "§20.2206".	Part 20 Rule relocated requirements.
6-14	6.9.1.8	1	Paragraph 1, Line 2: Changed "12 months of operations" to "fiscal year".  Paragraph 1, Line 3: Changed "within 60 days after January 1" to "prior to May 1".	To clarify reporting criteria to mean January 1 through December 31.  To provide for allowable report preparation time, specified in 10 CFR 50.36(a) limits, maintains 10 CFR 20 dose limits.



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<u>PAGE</u>	<u>Affected Section</u>	<u>Bar #</u>	<u>Description of Change</u>	<u>Reason for Change</u>
6-18 6-18a 3-18b	Section 6.12	1	Insert H: Replace entire Section 6.12 (6.12.1 and 6.12.2) with "Insert H".	To reflect Part 20 Rule changes and to annotate the measurement distance changes for high radiation areas.
6-19	n/a	1, 2	Repagination from Section 6.12 above.	Repagination from Section 6.12 above.
6-20	6.14.2.a.2)	1	Changed "20.106" to "20.1302".	Part 20 Rule relocated requirements.

## RADIOACTIVE EFFLUENTS

### 3/4.11.1 LIQUID EFFLUENTS

#### LIQUID HOLDUP TANKS

#### LIMITING CONDITION FOR OPERATION

Insert  
A →

3.11.1.4 The quantity of radioactive material contained in each of the following tanks shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

- a. Condensate Storage Tank
- b. Outside Temporary Storage Tank

APPLICABILITY: At all times.

#### ACTION:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

## SURVEILLANCE REQUIREMENTS

Insert  
B →

4.11.1.4 The quantity of radioactive material contained in each of the above listed tanks shall be determined to be within the above limit by analyzing a representative sample of the tank's contents at least once per 7 days when radioactive materials are being added to the tank.

Insert A    3.11.1.1    Deleted by Amendment 104.  
              3.11.1.2  
              3.11.1.3

Insert B    4.11.1.1  
              4.11.1.2  
              4.11.1.3



## RADIOACTIVE EFFLUENTS

### SETTLING POND

#### LIMITING CONDITION FOR OPERATION

3.11.1.5 The quantity of radioactive material contained in each settling pond shall be limited by the following expression:

$$\frac{264}{V} \cdot \sum_j \frac{A_j}{C_j} < 1.0$$

excluding tritium and dissolved or entrained noble gases, where,

$A_j$  = Pond inventory limit for single radionuclide "j", in curies<sup>s</sup>

$C_j$  = 10 CFR 20, Appendix B, Table II, column 2, concentration for single radionuclide "j", microcuries/ml.

$V$  = design volume of liquid and slurry in the pond, in gallons.

264 = Conversion unit, microcuries/curie per milliliter/gallon.

APPLICABILITY: At all times.

ACTION:

- With the quantity of radioactive material in the settling pond exceeding the above limit, immediately suspend all additions of radioactive material to the pond and within 48 hours reduce the pond contents to within the limit.
- The provisions of specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.11.1.5 The quantity of radioactive material contained in each batch of slurry (used powdex resin) to be transferred to the settling ponds shall be determined to be within the above limit by analyzing a representative sample of the slurry, and batches to be transferred to the settling ponds shall be limited by the expression:

$$\sum_j \frac{Q_j}{C_j} < 0.66$$

## RADIOACTIVE EFFLUENTS

### SURVEILLANCE REQUIREMENTS (Continued)

---

where

$Q_j$  = concentration of radioactive materials in wet, drained slurry (used powdex resin) for radionuclide "j" excluding tritium, dissolved or entrained noble gas and radionuclides with less than 8 day half-life, in microcuries per gram. The analysis shall include at least Ce-144, Cs-134, Cs-137, Sr-89, Sr-90, Co-58 and Co-60. Estimates of Sr-89, Sr-90, batch concentrations shall be based on the most recently available quarterly composite analyses.

$C_j$  = 10 CFR 20, Appendix B, Table II column 2 concentration for single radionuclide "j", in microcuries/milliliter.



## RADIOACTIVE EFFLUENTS

### 3/4.11.2 GASEOUS EFFLUENTS

#### EXPLOSIVE GAS MIXTURE

#### LIMITING CONDITION FOR OPERATION

Insert  
C →

3.11.2.5 The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

#### ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, restore the concentration of oxygen to within the limit within 48 hours.
- b. With the concentration of oxygen in the waste gas holdup system greater than 4% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than 4% by volume within 1 hour and less than or equal to 2% by volume within 48 hours.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

Insert  
D →

4.11.2.5 The concentration of hydrogen and oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.9.

Insert C

3.11.2.1

3.11.2.2

3.11.2.3

3.11.2.4

Insert D

4.11.2.1

4.11.2.2

4.11.2.3

SUMMER - UNIT 1

4.11.2.4

3/4 11-4

Amendment No. 104

Deleted by Amendment 104.

## RADIOACTIVE EFFLUENTS

### GAS STORAGE TANKS

#### LIMITING CONDITION FOR OPERATION

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3.11.2.6 The quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to 160,000 curies noble gases (considered as Xe-133).

APPLICABILITY: At all times.

ACTION:

- a. With the quantity of radioactive material in any gas storage tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.11.2.6 The quantity of radioactive material contained in each gas storage tank shall be determined to be within the above limit at least once per 24 hours when radioactive materials are being added to the tank.

## 3/4.11 RADIOACTIVE EFFLUENTS

### BASES

#### 3/4.11.1 LIQUID EFFLUENTS

Insert E 3/4.11.1 Deleted by Amendment 10

Insert  
E

~~3/4.11.1.3 Not Used~~

3/4.11.1.2

3/4.11.1.3

#### 3/4.11.1.4 LIQUID HOLDUP TANKS

10 times

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix B, Table II, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area.

#### 3/4 11.1.5 SETTLING PONDS

unrestricted The inventory limits of the settling ponds (SP) are based on limiting the consequences of an uncontrolled release of the pond inventory. The expression in Specification 3.11.1.5 assumes the pond inventory is uniformly mixed, that the pond is located in an uncontrolled area as defined in 10 CFR 20, and that the concentration limit in Note 4 to Appendix B of 10 CFR 20 applies.

The batch limits of slurry to the chemical treatment ponds assure that radioactive material in the slurry transferred to the SP are "as low as is reasonably achievable" in accordance with 10 CFR 50.36a. The expression in Specification 4.11.1.5 assures no batch of slurry will be transferred to the SP unless the sum of the ratios of the activity of the radionuclides to their respective concentration limitation is less than the ratio of the 10 CFR 50, Appendix I, Section II.A, total body level to the 10 CFR 20, 105(a), whole body dose limitation, or that: total body level given in 10 CFR 50, Appendix I, Section II.A, to the Total Effective Dose Equivalent dose represented by the concentration in 10 CFR 20, Appendix B, Table II, Column 2, or that:

$$\sum_j \frac{C_j}{C_j} < \frac{3 \text{ mrem/yr}}{50 \text{ mrem/yr}} = \frac{0.006}{0.06}$$

where

$C_j$  = radioactive slurry concentration for radionuclide "j" entering the unrestricted area SP, in microcuries/milliliter

$C_j$  = 10 CFR 20, Appendix B, Table II, Column 2, concentration for single radionuclide "j", in microcuries/milliliter.

For the design of filter/demineralizers using powder resin, the slurry wash volume and the weight of resin used per batch is fixed by the cell surface area, and the slurry volume to resin weight ratio is constant at 100 milliliters/gram of wet, drained resin with a moisture content of approximately 55 to 60% (bulk density of about 58 pounds per cubic feet). The wet, drained slurry density is

## RADIOACTIVE EFFLUENTS

### BASES

#### 3/4 11.1.5 SETTLING PONDS (Continued)

approximately 1 <sup>gram per milliliter</sup> ~~gr/ml~~ and the absorption characteristic for gamma radiation is essentially that of water. Therefore,

$$\sum_j \frac{C_j}{C_j} = \sum_j \frac{Q_j}{C_j (10^2 \text{ ml/gal})} < \frac{0.06}{0.006}, \text{ and}$$
$$\sum_j \frac{Q_j}{C_j} < \frac{6 \mu\text{Ci/gal}}{\mu\text{Ci/ml}}$$

Where the terms are defined in Specification 4.11.1.5.

The batch limits provide assurance that activity input to the SP will be minimized, and a means of identifying radioactive material in the inventory limitation of Specification 3.11.1.5.

Insert F 3/4.11.2.1 Deleted by Amendment 104

#### 3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.2

3/4.11.2.3

3/4.11.2.4

Insert F →

#### 3/4.11.2.5 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below the flammability limits of hydrogen and oxygen. Automatic control features are included in the system to prevent the hydrogen and oxygen concentrations from reaching these flammability limits. These automatic control features include isolation of the source of hydrogen and/or oxygen to reduce the concentration below the flammability limits. Maintaining the concentration of hydrogen and oxygen 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.

#### 3/4.11.2.6 GAS STORAGE TANKS

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem. This is consistent with Standard Review Plan 15.7.1, "Waste Gas System Failure".



## ADMINISTRATIVE CONTROLS

- d. Critical operation of the unit shall not be resumed until authorized by the Commission.

### 6.8 PROCEDURES AND PROGRAMS

6.8.1 Written procedures shall be established, implemented and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978.
- b. Refueling operations.
- c. Surveillance and test activities of safety-related equipment.
- d. Security Plan.
- e. Emergency Plan.
- f. Fire Protection Program.
- g. PROCESS CONTROL PROGRAM.
- h. OFFSITE DOSE CALCULATION MANUAL.
- i. Effluent and environmental monitoring program using the guidance in Regulatory Guide 4.15, Revision 1, February 1979.

6.8.2 Each procedure of 6.8.1 above, and changes thereto, shall be reviewed prior to implementation as set forth in 6.5 above.

6.8.3 NOT USED.

6.8.4 The following programs shall be established, implemented and maintained:

#### a. Primary Coolant Sources Outside Containment

A program to reduce leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. The systems include the chemical and volume control, letdown, safety injection, residual heat removal, nuclear sampling, liquid radwaste handling, gas radwaste handling and reactor building spray system. The program shall include the following:

- 1) ~~(1)~~ Preventive maintenance and periodic visual inspection requirements, and
- 2) ~~(1)~~ Integrated leak test requirements for each system at refueling cycle intervals or less.

#### b. In-Plant Radiation Monitoring

- 1) ~~(1)~~ Training of personnel,
- 2) ~~(1)~~ Procedures for monitoring, and
- 3) ~~(1)~~ Provisions for maintenance of sampling and analysis equipment.

## ADMINISTRATIVE CONTROLS

### c. Secondary Water Chemistry

A program for monitoring of secondary water chemistry to inhibit steam generator tube degradation. This program shall include:

- 1) (H) Identification of a sampling schedule for the critical variables and control points for these variables,
- 2) (H) Identification of the procedures used to measure the values of the critical variables,
- 3) (H) Identification of process sampling points, including monitoring the discharge of the condensate pumps for evidence of condenser in-leakage,
- 4) (H) Procedures for the recording and management of data,
- 5) (H) Procedures defining corrective actions for all off-control point chemistry conditions,
- 6) (H) A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective action.

### d. Postaccident Sampling

A program which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

- 1) (H) Training personnel,
- 2) (H) Procedures for sampling and analysis,
- 3) (H) Provisions for maintenance of sampling and analysis equipment.

### e. Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the ODCM, (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determinations in accordance with the methodology in the ODCM/;
- 2) Limitations on the concentration of radioactive material released in liquid effluents to unrestricted areas conforming to 10 CFR Part 20, Appendix B, Table II, Column 2;

10 times the concentration values in

## ADMINISTRATIVE CONTROLS

### e. Radioactive Effluent Controls Program (Continued) -

- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM; 1302
- 4) Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released to unrestricted areas conforming to Appendix I to 10 CFR Part 50;
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases or radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual or dose commitment conforming to Appendix I to 10 CFR Part 50;
- ~~7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary conforming to the doses associated with 10 CFR Part 20, Appendix B, Table II, Column 1;~~
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents to areas beyond the site boundary conforming to Appendix I to 10 CFR Part 50;
- 9) Limitations on the annual and quarterly doses to a member of the public from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate from with half-lives greater than 8 days in gaseous effluents released to areas beyond the site boundary conforming to Appendix I to 10 CFR Part 50;
- 10) Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

Insert G →

### f. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measures of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

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

INSERT G

- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be limited to the following:
- (a) For noble gases: Less than or equal to a dose rate of 500 mrem/yr to the total body and less than or equal to a dose rate of 3000 mrem/yr to the skin; and
  - (b) For Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/yr to any organ;



## ADMINISTRATIVE CONTROLS

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### f. Radiological Environmental Monitoring Program (Continued)

- 2) A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring program are made if required by the results of the census; and
- 3) Participation in an Inter-laboratory Comparison Program to ensure that independent checks on the precision and accuracy of measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring..

## ADMINISTRATIVE CONTROLS

### 6.9 REPORTING REQUIREMENTS

#### ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator Office of Inspection and Enforcement unless otherwise noted.

#### STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the Final Safety Analysis Report and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial operation) supplementary reports shall be submitted at least every three months until all three events have been completed.

#### ANNUAL REPORT

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March ~~1~~ of each year. The initial report shall be submitted prior to March ~~1~~ of the year

Collective deep dose  
equivalent (reported  
in person-rem)

6.9.1.5 Reports required on an annual basis shall include a tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) receiving exposures greater than 1.0 mrem/yr and their associated ~~person exposure~~ according to work and job functions, e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignments to various duty functions may be estimated based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total whole body dose received from external sources should be assigned to specific major work functions.

<sup>1/</sup> This tabulation supplements the requirements of §20.107 of 10 CFR Part 20.

## ADMINISTRATIVE CONTROLS

This report shall also include the results of specific activity analysis in which the primary coolant exceeded the limits of specification 3.4.8. The following information shall be included: (1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded; (2) Results of the last isotopic analysis for radioiodine performed prior to exceeding the limit, results of analysis while limit was exceeded and results of one analysis after the radioiodine activity was reduced to less than limit. Each result should include date and time of sampling and the radioiodine concentrations; (3) Clean-up system flow history starting 48 hours prior to the first sample in which the limit was exceeded; (4) Graph of the I-131 concentration and one other radioiodine isotope concentration in microcuries per gram as a function of time for the duration of the specific activity above the steady-state level; and (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

### ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

6.9.1.6 The annual radiological environmental operating report covering the operation of the unit during the previous calendar year shall be submitted before May 1 of each year.

The report shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in (1) the ODCM and (2) Sections IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR Part 50.

6.9.1.7 Not used.

### ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

6.9.1.8 Annual radioactive effluent release report covering the operation of the unit during the previous ~~12 months of operations~~ shall be submitted ~~within 60 days after January 1 of each year.~~ <sup>fiscal year</sup> ~~prior to May~~

The report shall include a summary of the quantities of radioactive liquid and gaseous effluent, and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

## ADMINISTRATIVE CONTROLS

- e. Records of transient or operational cycles for those unit components identified in Table 5.7-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the unit staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities as specified in the NRC's approved SCE&G position on Regulatory Guide 1.88, Rev. 2, October 1976.
- j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PSRC and the NSRC.
- l. Records of the service lives of all hydraulic and mechanical snubbers defined in Section 3.7.7 including the date at which the service life commences and associated installation and maintenance records.
- m. Records of secondary water sampling and water quality.
- n. Records of analysis required by the radiological environmental monitoring program.
- o. Records of reviews performed for changes made to the Offsite Dose Calculation Manual and the Process Control Program.

### 6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

### 6.12 HIGH RADIATION AREA

Insert H → 6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area in which the intensity of radiation is greater than 100 mrem/hr but less than 1000 mrem/hr shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP).<sup>\*</sup> Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.

~~\*Health Physics personnel or personnel escorted by Health Physics personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they otherwise comply with approved radiation protection procedures for entry into high radiation areas.~~



## ADMINISTRATIVE CONTROLS

- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.
- c. A health physics qualified individual (i.e., qualified in radiation protection procedures) with a radiation dose rate monitoring device who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the Radiation Work Permit.

6.12.2 In addition to the requirements of 6.12.1, areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour a dose greater than 1000 mrem shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the Shift Foreman on duty and/or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work area. The maximum allowable stay time for individuals in that area shall be established prior to entry. For individual areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour a dose in excess of 1000 mrem\*\* that are located within large areas, such as PWR containment, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device. In lieu of the stay time specification of the RWP direct or remote (such as use of closed circuit TV cameras) continuous surveillance shall be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities within the area.

### 6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 The PCP shall be approved by the Commission prior to implementation.

6.13.2 Changes to the PCP:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.o. This documentation shall contain:
  - 1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s); and
  - 2) A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
- b. Shall become effective after review and acceptance by the PSRC and approval of the General Manager, Nuclear Plant Operations.

~~\*\*\*Measurement made at 18" from source of radioactivity.~~

## 6.12 HIGH RADIATION AREAS

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

### 6.12.1 High radiation areas with dose rates not exceeding 1.0 rem/hour\*:

- a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be breached only during periods of personnel entry or exit.
- b. Access to, and activities in, each such area shall be controlled by means of a Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- c. Individuals qualified in radiation protection procedures (e.g., health physics technicians) and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual (whether alone or in a group) entering such an area shall possess:
  - 1) A radiation monitoring device that continuously displays radiation dose rates in the area ("radiation monitoring and indicating device"), or
  - 2) A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached ("alarming dosimeter"), with an appropriate alarm setpoint, or
  - 3) A radiation monitoring device that continuously transmits dose rate and cumulative dose to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or
  - 4) A self-reading dosimeter and,
    - (a) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual at the work site, qualified in radiation protection procedures, equipped with a radiation monitoring and indicating device who is responsible for controlling personnel radiation exposure within the area, or

- (b) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area.
- e. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

6.12.2 High radiation areas with dose rates greater than 1.0 rem/hour\*, but less than 500 rads/hour\*\*:

- a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked door or gate that prevents unauthorized entry, and in addition:
  - 1) All such door and gate keys shall be maintained under the administrative control of the Shift Foreman or the health physics supervisor on duty.
  - 2) Doors and gates shall remain locked except during periods of personnel entry or exit.
- b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual (whether alone or in a group) entering such an area shall possess:
  - 1) An alarming dosimeter with an appropriate alarm setpoint, or
  - 2) A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or

- 3) A self-reading dosimeter and,
  - (a) Be under the surveillance, as specified in the RWP or equivalent, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring and indicating device who is responsible for controlling personnel exposure within the area, or
  - (b) Be under the surveillance, as specified in the RWP or equivalent, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.
- e. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.
- f. Such individual areas that are within a larger area that is controlled as a high radiation area, where no enclosure exists for purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, but shall be barricaded and conspicuously posted as a high radiation area, and a conspicuous, clearly visible flashing light shall be activated at the area as a warning device.

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\* At 30 centimeters from the radiation source or from any surface penetrated by the radiation.

\*\* At 1 meter from the radiation source or from any surface penetrated by the radiation.



## ADMINISTRATIVE CONTROLS

### 6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 The ODCM shall be approved by the Commission prior to implementation.

6.14.2 Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.o. This documentation shall contain:
  - 1) Sufficient information to support the change together with appropriate analyses or evaluations justifying the change(s); and
  - 2) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent dose or setpoint calculations. 1302
- b. Shall become effective after review and acceptance by the PSRC and the approval of the General Manager, Nuclear Plant Operations.
- c. Shall be submitted to the Commission in the form of a complete legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

### 3/4.11 RADIOACTIVE EFFLUENTS

#### 3/4.11.1 LIQUID EFFLUENTS

##### LIQUID HOLDUP TANKS

#### LIMITING CONDITION FOR OPERATION

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3.11.1.1 Deleted by Amendment 104.

3.11.1.2 Deleted by Amendment 104.

3.11.1.3 Deleted by Amendment 104.

3.11.1.4 The quantity of radioactive material contained in each of the following tanks shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

- a. Condensate Storage Tank
- b. Outside Temporary Storage Tank

APPLICABILITY: At all times.

#### ACTION:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.11.1.1 Deleted by Amendment 104.

4.11.1.2 Deleted by Amendment 104.

4.11.1.3 Deleted by Amendment 104.

4.11.1.4 The quantity of radioactive material contained in each of the above listed tanks shall be determined to be within the above limit by analyzing a representative sample of the tank's contents at least once per 7 days when radioactive materials are being added to the tank.

## RADIOACTIVE EFFLUENTS

### SETTLING POND

#### LIMITING CONDITION FOR OPERATION

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3.11.1.5 The quantity of radioactive material contained in each settling pond shall be limited by the following expression:

$$\frac{264}{V} \cdot \sum_j \frac{A_j}{10 C_j} < 1.0$$

excluding tritium and dissolved or entrained noble gases, where,

$A_j$  = Pond inventory limit for single radionuclide "j", in curies.

$C_j$  = 10 CFR 20, Appendix B, Table II, column 2, concentration for single radionuclide "j", microcuries/ml.

$V$  = design volume of liquid and slurry in the pond, in gallons.

264 = Conversion unit, microcuries/curie per milliliter/gallon.

APPLICABILITY: At all times.

#### ACTION:

- a. With the quantity of radioactive material in the settling pond exceeding the above limit, immediately suspend all additions of radioactive material to the pond and within 48 hours reduce the pond contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.11.1.5 The quantity of radioactive material contained in each batch of slurry (used powdex resin) to be transferred to the settling ponds shall be determined to be within the above limit by analyzing a representative sample of the slurry, and batches to be transferred to the settling ponds shall be limited by the expression:

$$\sum_j \frac{Q_j}{C_j} < 6$$

## RADIOACTIVE EFFLUENTS

### SURVEILLANCE REQUIREMENTS (Continued)

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where

- $Q_j$  = concentration of radioactive materials in wet, drained slurry (used powdex resin) for radionuclide "j" excluding tritium, dissolved or entrained noble gas and radionuclides with less than 8 day half-life, in microcuries per gram. The analysis shall include at least Ce-144, Cs-134, Cs-137, Sr-89, Sr-90, Co-58 and Co-60. Estimates of Sr-89, Sr-90, batch concentrations shall be based on the most recently available quarterly composite analyses.
- $C_j$  = 10 CFR 20, Appendix B, Table II, column 2, concentration for single radionuclide "j", in microcuries/milliliter.

## RADIOACTIVE EFFLUENTS

### 3/4.11.2 GASEOUS EFFLUENTS

#### EXPLOSIVE GAS MIXTURE

#### LIMITING CONDITION FOR OPERATION

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- 3.11.2.1 Deleted by Amendment 104.
- 3.11.2.2 Deleted by Amendment 104.
- 3.11.2.3 Deleted by Amendment 104.
- 3.11.2.4 Deleted by Amendment 104.

3.11.2.5 The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

#### ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, restore the concentration of oxygen to within the limit within 48 hours.
- b. With the concentration of oxygen in the waste gas holdup system greater than 4% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than 4% by volume within 1 hour and less than or equal to 2% by volume within 48 hours.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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- 4.11.2.1 Deleted by Amendment 104.
- 4.11.2.2 Deleted by Amendment 104.
- 4.11.2.3 Deleted by Amendment 104.
- 4.11.2.4 Deleted by Amendment 104.

4.11.2.5 The concentration of hydrogen and oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3 3.9.



## RADIOACTIVE EFFLUENTS

### GAS STORAGE TANKS

#### LIMITING CONDITION FOR OPERATION

---

3.11.2.6 The quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to 160,000 curies noble gases (considered as Xe-133).

APPLICABILITY: At all times.

#### ACTION:

- a. With the quantity of radioactive material in any gas storage tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.11.2.6 The quantity of radioactive material contained in each gas storage tank shall be determined to be within the above limit at least one per 24 hours when radioactive materials are being added to the tank.

### 3/4.11 RADIOACTIVE EFFLUENTS

#### BASES

#### 3/4.11.1 LIQUID EFFLUENTS

3/4.11.1.1 Deleted by Amendment 104.

3/4.11.1.2 Deleted by Amendment 104.

3/4.11.1.3 Deleted by Amendment 104.

#### 3/4.11.1.4 LIQUID HOLDUP TANKS

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than 10 times the limits of 10 CFR Part 20, Appendix B, Table II, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area.

#### 3/4.11.1.5 SETTLING PONDS

The inventory limits of the settling ponds (SP) are based on limiting the consequences of an uncontrolled release of the pond inventory. The expression in Specification 3.11.1.5 assumes the pond inventory is uniformly mixed, that the pond is located in an unrestricted area as defined in 10 CFR 20, and that the concentration limit in Note 4 to Appendix B of 10 CFR 20 applies.

The batch limits assure that radioactive material in the slurry transferred to the SP are "as low as is reasonably achievable" in accordance with 10 CFR 50.36a. The expression in Specification 4.11.1.5 assures no batch of slurry will be transferred to the SP unless the sum of the ratios of the activity of the radionuclides to their respective concentration limitation is less than the ratio of the total body level given in 10 CFR 50, Appendix I, Section II.A, to the Total Effective Dose Equivalent dose represented by the concentrations in 10 CFR 20, Appendix B, Table II, Column 2., or that:

$$\sum_j \frac{c_j}{C_j} < \frac{3 \text{ mrem/yr}}{50 \text{ mrem/yr}} = 0.06$$

where

$c_j$  = radioactive slurry concentration for radionuclide "j" entering the unrestricted area SP, in microcuries/milliliter

$C_j$  = 10 CFR 20, Appendix B, Table II, Column 2, concentration for single radionuclide "j", in microcuries/milliliter.

For the design of filter/demineralizers using powder resin, the slurry wash volume and the weight of resin used per batch is fixed by the cell surface area, and the slurry volume to resin weight ratio is constant at 100 milliliters/gram of wet, drained resin with a moisture content of approximately 55 to 60% (bulk density of about 58 pounds per cubic feet). The wet, drained slurry density is

## RADIOACTIVE EFFLUENTS

### BASES

#### 3/4.11.1.5 SETTLING PONDS (Continued)

approximately 1 gram per milliliter and the absorption characteristic for gamma radiation is essentially that of water. Therefore,

$$\sum_j \frac{c_j}{C_j} = \sum_j \frac{Q_j}{C_j (10^2 \text{ ml/g})} < 0.06, \text{ and}$$

$$\sum_j \frac{Q_j}{C_j} < 6 \frac{\mu\text{Ci/g}}{\mu\text{Ci/ml}}$$

Where the terms are defined in Specification 4.11.1.5.

The batch limits provide assurance that activity input to the SP will be minimized, and a means of identifying radioactive material in the inventory limitation of specification 3.11.1.5.

#### 3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 Deleted by Amendment 104.

3/4.11.2.2 Deleted by Amendment 104.

3/4.11.2.3 Deleted by Amendment 104.

3/4.11.2.4 Deleted by Amendment 104.

#### 3/4.11.2.5 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below the flammability limits of hydrogen and oxygen. Automatic control features are included in the system to prevent the hydrogen and oxygen concentrations from reaching these flammability limits. These automatic control features include isolation of the source of hydrogen and/or oxygen to reduce the concentration below the flammability limits. Maintaining the concentration of hydrogen and oxygen 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.

#### 3/4.11.2.6 GAS STORAGE TANKS

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem. This is consistent with Standard Review Plan 15.7.1, "Waste Gas System Failure".

## ADMINISTRATIVE CONTROLS

- d. Critical operation of the unit shall not be resumed until authorized by the Commission.

### 6.8 PROCEDURES AND PROGRAMS

6.8.1 Written procedures shall be established, implemented and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978.
- b. Refueling operations.
- c. Surveillance and test activities of safety-related equipment.
- d. Security Plan.
- e. Emergency Plan.
- f. Fire Protection Program.
- g. PROCESS CONTROL PROGRAM.
- h. OFFSITE DOSE CALCULATION MANUAL.
- i. Effluent and environmental monitoring program using the guidance in Regulatory Guide 4.15, Revision 1, February 1979.

6.8.2 Each procedure of 6.8.1 above, and changes thereto, shall be reviewed prior to implementation as set forth in 6.5 above.

6.8.3 NOT USED.

6.8.4 The following programs shall be established, implemented and maintained:

- a. Primary Coolant Sources Outside Containment

A program to reduce leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. The systems include the chemical and volume control, letdown, safety injection, residual heat removal, nuclear sampling, liquid radwaste handling, gas radwaste handling and reactor building spray system. The program shall include the following:

- 1) Preventive maintenance and periodic visual inspection requirements, and
- 2) Integrated leak test requirements for each system at refueling cycle intervals or less.

- b. In-Plant Radiation Monitoring

- 1) Training of personnel,
- 2) Procedures for monitoring, and
- 3) Provisions for maintenance of sampling and analysis equipment.

c. Secondary Water Chemistry

A program for monitoring of secondary water chemistry to inhibit steam generator tube degradation. This program shall include:

- 1) Identification of a sampling schedule for the critical variables and control points for these variables,
- 2) Identification of the procedures used to measure the values of the critical variables,
- 3) Identification of process sampling points, including monitoring the discharge of the condensate pumps for evidence of condenser in-leakage,
- 4) Procedures for the recording and management of data,
- 5) Procedures defining corrective actions for all off-control point chemistry conditions,
- 6) A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective action.

d. Postaccident Sampling

A program which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

- 1) Training personnel,
- 2) Procedures for sampling and analysis,
- 3) Provisions for maintenance of sampling and analysis equipment.

e. Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the ODCM, (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determinations in accordance with the methodology in the ODCM;
- 2) Limitations on the concentration of radioactive material released in liquid effluents to unrestricted areas conforming to 10 times the concentration values in 10 CFR Part 20, Appendix B, Table II, Column 2;



## ADMINISTRATIVE CONTROLS

### e. Radioactive Effluent Controls Program (Continued)

- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;
- 4) Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released to unrestricted areas conforming to Appendix I to 10 CFR Part 50;
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases or radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual or dose commitment conforming to Appendix I to 10 CFR Part 50;
- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be limited to the following:
  - (a) For noble gases: Less than or equal to a dose rate of 500 mrem/yr to the total body and less than or equal to a dose rate of 3000 mrem/yr to the skin; and
  - (b) For Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/yr to any organ;
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents to areas beyond the site boundary conforming to Appendix I to 10 CFR Part 50;
- 9) Limitations on the annual and quarterly doses to a member of the public from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released to areas beyond the site boundary conforming to Appendix I to 10 CFR Part 50;
- 10) Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

## ADMINISTRATIVE CONTROLS

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f. Radiological Environmental Monitoring Program.

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measures of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- 1) Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM;
- 2) A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring program are made if required by the results of the census; and
- 3) Participation in an Inter-laboratory Comparison Program to ensure that independent checks on the precision and accuracy of measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

## ADMINISTRATIVE CONTROLS

### 6.9 REPORTING REQUIREMENTS

#### ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator Office of Inspection and Enforcement unless otherwise noted.

#### STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the Final Safety Analysis Report and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial operation) supplementary reports shall be submitted at least every three months until all three events have been completed.

#### ANNUAL REPORT

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 31 of each year. The initial report shall be submitted prior to March 31 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include a tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated collective deep dose equivalent (reported in person-rem) according to work and job functions, <sup>1/</sup> e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignments to various duty functions may be estimated based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total whole body dose received from external sources should be assigned to specific major work functions.

<sup>1/</sup> This tabulation supplements the requirements of §20.2206 of 10 CFR Part 20.

## ADMINISTRATIVE CONTROLS

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This report shall also include the results of specific activity analysis in which the primary coolant exceeded the limits of specification 3.4.8. The following information shall be included: (1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded; (2) Results of the last isotopic analysis for radioiodine performed prior to exceeding the limit, results of analysis while limit was exceeded and results of one analysis after the radioiodine activity was reduced to less than limit. Each result should include date and time of sampling and the radioiodine concentrations; (3) Clean-up system flow history starting 48 hours prior to the first sample in which the limit was exceeded; (4) Graph of the I-131 concentration and one other radioiodine isotope concentration in microcuries per gram as a function of time for the duration of the specific activity above the steady-state level; and (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

### ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

6.9.1.6 The annual radiological environmental operating report covering the operation of the unit during the previous calendar year shall be submitted before May 1 of each year.

The report shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in (1) the ODCM and (2) Sections IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR Part 50.

6.9.1.7 Not used.

### ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

6.9.1.8 Annual radioactive effluent release report covering the operation of the unit during the previous fiscal year shall be submitted prior to May 1 of each year.

The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.



## ADMINISTRATIVE CONTROLS

- e. Records of transient or operational cycles for those unit components identified in Table 5.7-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the unit staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities as specified in the NRC's approved SCE&G position on Regulatory Guide 1.88, Rev. 2, October 1976.
- j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PSRC and the NSRC.
- l. Records of the service lives of all hydraulic and mechanical snubbers defined in Section 3.7.7 including the date at which the service life commences and associated installation and maintenance records.
- m. Records of secondary water sampling and water quality.
- n. Records of analysis required by the radiological environmental monitoring program.
- o. Records of reviews performed for changes made to the Offsite Dose Calculation Manual and the Process Control Program.

### 6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

### 6.12 HIGH RADIATION AREAS

As provided in paragraph 20.1601(c) of 10 CFR Part 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraph 20.1601(a) and (b) of 10 CFR Part 20:

#### 6.12.1 High radiation areas with dose rates not exceeding 1.0 rem/hour:\*

- a. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be breached only during periods of personnel entry or exit.

\* At 30 centimeters from the radiation source or from any surface penetrated by the radiation.



## ADMINISTRATIVE CONTROLS

- b. Access to, and activities in, each such area shall be controlled by means of a Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- c. Individuals qualified in radiation protection procedures (e.g., health physics technicians) and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual (whether alone or in a group) entering such an area shall possess:
  - 1) A radiation monitoring device that continuously displays radiation dose rates in the area ("radiation monitoring and indicating device"), or
  - 2) A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached ("alarming dosimeter"), with an appropriate alarm setpoint, or
  - 3) A radiation monitoring device that continuously transmits dose rate and cumulative dose to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or
  - 4) A self-reading dosimeter and,
    - (a) Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual at the work site, qualified in radiation protection procedures, equipped with a radiation monitoring and indicating device who is responsible for controlling personnel radiation exposure within the area, or
    - (b) Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area.
- e. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

\* At 30 centimeters from the radiation source or from any surface penetrated by the radiation.

## ADMINISTRATIVE CONTROLS

6.12.2 High radiation areas with dose rates greater than 1.0 rem/hour,\* but less than 500 rads/hour:\*\*

- a. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked door or gate that prevents unauthorized entry, and in addition:
  - 1) All such door and gate keys shall be maintained under the administrative control of the Shift Foreman or the health physics supervisor on duty.
  - 2) Doors and gates shall remain locked except during periods of personnel entry or exit.
- b. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
- c. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are following plant radiation protection procedures for entry to, exit from, and work in such areas.
- d. Each individual (whether alone or in a group) entering such an area shall possess:
  - 1) An alarming dosimeter with an appropriate alarm setpoint, or
  - 2) A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or
  - 3) A self-reading dosimeter and,
    - (a) Be under the surveillance, as specified in the RWP or equivalent, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring and indicating device who is responsible for controlling personnel exposure within the area, or

\* At 30 centimeters from the radiation source or from any surface penetrated by the radiation.

\*\* At 1 meter from the radiation source or from any surface penetrated by the radiation.

## ADMINISTRATIVE CONTROLS

- (b) Be under the surveillance, as specified in the RWP or equivalent, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.
- e. Entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.
- f. Such individual areas that are within a larger area that is controlled as a high radiation area, where no enclosure exists for purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, but shall be barricaded and conspicuously posted as a high radiation area, and a conspicuous, clearly visible flashing light shall be activated at the area as a warning device.

### 6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 The PCP shall be approved by the Commission prior to implementation.

6.13.2 Changes to the PCP:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.o. This documentation shall contain:
  - 1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change (s); and
  - 2) A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
- b. Shall become effective after review and acceptance by the PSRC and approval of the General Manager, Nuclear Plant Operations.

\* At 30 centimeters from the radiation source or from any surface penetrated by the radiation.

\*\* At 1 meter from the radiation source or from any surface penetrated by the radiation.

## ADMINISTRATIVE CONTROLS

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### 6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 The ODCM shall be approved by the Commission prior to implementation.

6.14.2 Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.o. This documentation shall contain:
  - 1) Sufficient information to support the change together with appropriate analyses or evaluations justifying the change(s); and
  - 2) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.
- b. Shall become effective after review and acceptance by the PSRC and the approval of the General Manager, Nuclear Plant Operations.
- c. Shall be submitted to the Commission in the form of a complete legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.



DESCRIPTION OF AMENDMENT REQUEST  
and the supporting  
SAFETY EVALUATION

Description of Proposed Change and Safety Evaluation

South Carolina Electric & Gas Company proposes to modify the Virgil C. Summer Nuclear Station (VCSNS) Technical Specifications (TS) to reflect changes to 10 CFR 20, including Appendix B, Table II concentrations, and provide additional administrative corrections. This Tech Spec change will:

1. Amend references from the old 10 CFR 20.106 requirements to the new 10 CFR 20.1302,
2. Amend references from the old 10 CFR 20.203(c)(2) requirements to the new 10 CFR 20.1601(a),
3. Amend references from the old 10 CFR 20.407 requirements to the new 10 CFR 20.2206(b),
4. Revise the liquid release rate limit,
5. Revise the gaseous release rate limit,
6. Revise the settling pond radioactive material quantity,
7. Revise the TS Bases for the Liquid Holdup Tank activity limit, and
8. Revise the distance at which dose rates are measured to determine whether an area will be posted as a High Radiation Area.

Items 1 through 3 are administrative changes to reflect that the new 10 CFR 20 sections are relocated requirements from the old 10 CFR 20 sections.

Items 4, 5, and 7 are being revised to maintain the existing level of effluent control by reflecting changes in the dose rate associated with the new 10 CFR 20 Appendix B concentrations.

Item 6 is being revised to reflect administrative changes to the algorithm used to calculate the radioactive material quantity in the settling pond due to 10 CFR 20, Appendix B, Table II concentration changes.

Item 8 is being revised to reflect a change in the distance from the source or surface, as required by 10 CFR 20.1601, at which dose rates are measured to determine whether an area will be posted as a High Radiation Area.



### Safety Evaluation

1. Amend references from the old 10 CFR 20.106 requirements to the new 10 CFR 20.1302,

This administrative change is being made to reflect that the requirements in the old 10 CFR 20.106 are now located in the new 10 CFR 20.1302.

2. Amend references from the old 10 CFR 20.203(c)(2) requirements to the new 10 CFR 20.1601(a),

This administrative change is being made to reflect that the requirements in the old 10 CFR 20.203(c)(2) are now located in the new 10 CFR 20.1601(a).

3. Amend references from the old 10 CFR 20.407 requirements to the new 10 CFR 20.2206(b),

This administrative change is being made to reflect that the requirements in the old 10 CFR 20.407 are now located in the new 10 CFR 20.2206(b).

4. Revise the liquid release rate limit,

The proposed change to the liquid release rate limit is being made in order to accommodate needed operational flexibility to facilitate implementation of the new 10 CFR 20 requirements.

The basic requirements for Technical Specifications/Selected Licensee Commitments (TS/SLCs) concerning effluents from nuclear power reactors are stated in 10 CFR 50.36a. These requirements indicate that compliance with effluent TS/SLCs will keep average annual release of radioactive effluents to small percentages of the limits specified in the old 10 CFR 20.106 (new 10 CFR 20.1302). These requirements further indicate that the operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than small percentages, but still within the limits specified in the old 10 CFR 20.106, which references Appendix B, Table II concentrations (MPCs). These referenced concentrations are specific values which relate to an annual dose of 500 mrem. It is further indicated in 10 CFR 50.36a that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive materials in effluents as low as is reasonably achievable (ALARA) as set forth in 10 CFR 50, Appendix I.

As stated in the introduction to Appendix B of the new 10 CFR 20, the liquid effluent concentration (EC) limits given in Appendix B, Table II, Column 2, are based on an annual dose of 50 mrem. Since a release concentration corresponding to a limiting dose rate of 500 mrem/year has been acceptable as a TS/SLC limit for liquid effluents, which applies at all times as an assurance that the limits of 10 CFR 50, Appendix I are not likely to be exceeded, it should not be necessary to reduce this limit by a factor of ten.

Operational history at V. C. Summer has demonstrated that the use of the concentration values associated with the old 10 CFR 20.106 as TS/SLC limits has resulted in calculated maximum doses to a member of the public that are small

percentages of the limits of 10 CFR 50, Appendix I. Therefore, the use of concentration values which correspond to an annual dose of 500 mrem (ten times the concentration values stated in the new 10 CFR 20, Appendix B, Table II, Column 2) should not have a negative impact on the ability to continue to operate within the limits of 10 CFR 50, Appendix I and 40 CFR 190.

Having sufficient operational flexibility is especially important in establishing a basis for effluent monitor setpoint calculations. As discussed above, the concentrations stated in the new 10 CFR 20, Appendix B, Table II, Column 2, relate to a dose of 500 mrem in a year. When applied on an instantaneous basis, this corresponds to a dose rate of 50 mrem/year. This low value is impractical upon which to base effluent monitor setpoint calculations for many liquid effluent release situations when monitor background, monitor sensitivity, and monitor performance are taken into account.

Therefore, to accommodate operational flexibility needed for effluent releases, the limits associated with the liquid release rate TS/SLC are based on ten times the concentrations stated in the new 10 CFR 20, Appendix B, Table II, Column 2, to apply at all times. The multiplier of ten is proposed because the annual dose of 500 mrem, upon which the concentrations in the old 10 CFR 20, Appendix B, Table II, Column 2, are based, is a factor of ten higher than the annual dose of 50 mrem, upon which the concentrations in the new 10 CFR 20, Appendix B, Table II, Column 2, are based.

Compliance with the limits of the new 10 CFR 20.1301 will be demonstrated by operating within the limits of 10 CFR 50, Appendix I and 40 CFR 190.

5. Revise the gaseous release rate limit,

The proposed change to the gaseous release rate limit is being made in order to accommodate needed operational flexibility to facilitate implementation of the new 10 CFR 20 requirements.

The basic requirements for Technical Specifications/Selected Licensee Commitments (TS/SLCs) concerning effluents from nuclear power reactors are stated in 10 CFR 50.36a. These requirements indicate that compliance with effluent TS/SLCs will keep average annual release of radioactive effluents to small percentages of the limits specified in the old 10 CFR 20.106 (new 10 CFR 20.1301). These requirements further indicate that the operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than small percentages, but still within the limits specified in the old 10 CFR 20.106, which references Appendix B, Table II concentrations (MPCs). These referenced concentrations are specific values which relate to an annual dose of 500 mrem. It is further indicated in 10 CFR 50.36a that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive materials in effluents as low as is reasonably achievable (ALARA) as set forth in 10 CFR 50, Appendix I.

As stated in the introduction to Appendix B of the new 10 CFR 20, the gaseous effluent concentration (EC) limits given in Appendix B, Table II, Column 1, are based on an annual dose of 50 mrem for isotopes for which inhalation or ingestion is limiting or 100 mrem for isotopes for which submersion (noble gases) is limiting. Since release concentrations corresponding to limiting dose

rates less than or equal to 500 mrem/year to the whole body, 3000 mrem/year to the skin from noble gases, and 1500 mrem/year to any organ from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than eight days at the site boundary has been acceptable as a TS/SLC limit for gaseous effluents to assure that the limits of 10 CFR 50, Appendix I and 40 CFR 190 are not likely to be exceeded, it should not be necessary to restrict the operational flexibility by incorporating the dose rate associated with the EC value for isotopes based on inhalation/ingestion (50 mrem/year) or the dose rate associated with the EC value for isotopes based on submersion (100 mrem/year).

Having sufficient operational flexibility is especially important in establishing a basis for effluent monitor setpoint calculations. As discussed above, the concentrations stated in the new 10 CFR 20, Appendix B, Table II, Column 1, relate to a dose of 50 or 100 mrem in a year. When applied on an instantaneous basis, this corresponds to a dose rate of 50 or 100 mrem/year. These low values are impractical upon which to base effluent monitor setpoint calculations for many gaseous effluent release situations when monitor background, monitor sensitivity, and monitor performance must be taken into account.

Therefore, to accommodate operational flexibility needed for effluent releases, the limits associated with the gaseous release rate TS/SLCs will be maintained at the current instantaneous dose rate limit for noble gases of 500 mrem/year to the whole body and 3000 mrem/year to the skin; and for Iodine-131, for Iodine-133, for tritium, and for all radionuclides in particulate form with half-lives greater than eight days, an instantaneous dose rate limit of 1500 mrem/year to any organ.

Compliance with the limits of the new 10 CFR 20.1301 will be demonstrated by operating within the limits of 10 CFR 50, Appendix I and 40 CFR 190. Operational history at V. C. Summer has demonstrated that the use of the dose rate values listed above (i.e., 500 mrem/year, 3000 mrem/year, 1500 mrem/year) as TS/SLC limits has resulted in calculated maximum individual doses to members of the public that are small percentages of the limits of 10 CFR 50, Appendix I and 40 CFR 190.

6. Revise the settling pond radioactive material quantity,

The proposed revision to the radioactive material quantity in the settling pond will not change the types and amounts of effluents that will be released, nor cause an increase in individual or cumulative occupational radiation exposures. This is only a change to the method of (algorithm) determining the quantity of radioactive material in the settling pond due to 10 CFR 20, Appendix B, Table II concentration changes and will not change net limits. There are no equipment or operational procedure changes due to the proposed revision.

The proposed change to the quantity of radioactive material in the settling pond revises the reference to the acceptance criteria contained in the new 10 CFR 20. Currently, the settling pond limit is based on that quantity which would not exceed the maximum permissible concentration limits of 10 CFR 20, Appendix B, Table II, Column 2, at the nearest potable water supply if an uncontrolled release of settling pond inventory should occur. As discussed in the justification for the liquid release rate limit, in order to allow for sufficient operational flexibility, the new settling pond limit is based on that quantity which would not exceed 10



times the effluent concentration limits (ECLs) of 10 CFR 20, Appendix B, Table II, Column 2, at the nearest potable water supply if an uncontrolled release of settling pond inventory should occur.

An evaluation was performed to determine the activity that could be released from a failure based on 10 times the ECL values. The evaluation provided a larger allowable pond activity using 10 times the ECL values as a basis. Since 10 times the ECL concentration in 10 CFR 20, Appendix B, Table II, Column 2, represent the same dose as the MPC concentration in the old 10 CFR 20, Appendix B, Table II, Column 2, it is no less conservative to base the settling pond limit on 10 times the new 10 CFR 20, Appendix B, Table II, Column 2 concentrations.

7. Revise the TS Bases for the Liquid Holdup Tank activity limit,

The proposed change to the activity limit bases for the Liquid Holdup Tanks revises the reference to the acceptance criteria contained in the new 10 CFR 20. Currently, the Liquid Holdup Tank curie limit is based on that quantity which would not exceed the maximum permissible concentration limits of 10 CFR 20, Appendix B, Table II, Column 2, at the nearest potable water supply if the tank and components should fail, or will be limited to 10 curies. As discussed in the justification for the liquid release rate limit, in order to allow for sufficient operational flexibility, the new Liquid Holdup Tank curie limit is based on that quantity which would not exceed 10 times the effluent concentration limits (ECLs) of 10 CFR 20, Appendix B, Table II, Column 2, at the nearest potable water supply if the tank and components should fail, or will be limited to 10 curies. The tank curie content is not changed, therefore, the existing level of effluent control is maintained.

8. Revise the distance at which dose rates are measured to determine whether an area will be posted as a High Radiation Area.

The proposed change to the distance at which dose rates are measured in order to determine whether the intensity of radiation is equal to or less than 1000 mrem/hour is being made as a result of the new 10 CFR 20.1601 requirements. The distance from the radiation source or from any surface which radiation penetrates is being changed from 45 cm (18 in.) to 30 cm (12 in.). This change is more conservative in its effect on worker protection in that it reduces the threshold for classification as a High Radiation Area.

DESCRIPTION OF AMENDMENT REQUEST  
and the associated  
NO SIGNIFICANT HAZARDS EVALUATION

Description of Proposed Change and No Significant Hazards Analysis

South Carolina Electric & Gas Company proposes to modify the Virgil C. Summer Nuclear Station (VCSNS) Technical Specifications (TS) to reflect changes to 10 CFR 20, including Appendix B, Table II concentrations, and provide additional administrative corrections. This Tech Spec change will:

1. Amend references from the old 10 CFR 20.106 requirements to the new 10 CFR 20.1302,
2. Amend references from the old 10 CFR 20.203(c)(2) requirements to the new 10 CFR 20.1601(a),
3. Amend references from the old 10 CFR 20.407 requirements to the new 10 CFR 20.2206(b),
4. Revise the liquid release rate limit,
5. Revise the gaseous release rate limit,
6. Revise the settling pond radioactive material quantity,
7. Revise the TS Bases for the Liquid Holdup Tank activity limit, and
8. Revise the distance at which dose rates are measured to determine whether an area will be posted as a High Radiation Area.

Items 1 through 3 are administrative changes to reflect that the new 10 CFR 20 sections are relocated requirements from the old 10 CFR 20 sections.

Items 4, 5, and 7 are being revised to maintain the existing level of effluent control by reflecting changes in the dose rate associated with the new 10 CFR 20 Appendix B concentrations.

Item 6 is being revised to reflect administrative changes to the algorithm used to calculate the radioactive material quantity in the settling pond due to 10 CFR 20, Appendix B, Table II concentration changes.

Item 8 is being revised to reflect a change in the distance from the source or surface, as required by 10 CFR 20.1601, at which dose rates are measured to determine whether an area will be posted as a High Radiation Area.



### No Significant Hazards Analysis

10 CFR 50.91 requires that the following analysis be provided concerning whether the proposed amendment request involves a significant hazards consideration as defined in 10 CFR 50.92. SCE&G has evaluated the proposed change to the VCSNS TS described above and has determined that the changes do not involve any significant hazards for the following reasons:

1. The probability or consequences of an accident previously evaluated does not involve a significant increase.

The proposed TS changes showing the relocation of the old 10 CFR 20.106 requirements to the new 10 CFR 20.1302, the old 10 CFR 20.203(c)(2) requirements to the new 10 CFR 20.1601(a), and the old 10 CFR 20.407 requirements to the new 10 CFR 20.2206(b) will not involve a significant increase in the probability or consequences of an accident previously evaluated because there will be no change in the types and amounts of effluents that will be released, nor will there be an increase in individual or cumulative occupational radiation exposures.

The proposed revision to the liquid and gaseous release rate limits will not involve a significant increase in the probability or consequences of an accident previously evaluated because there will be no change in the types and amounts of effluents that will be released, nor will there be an increase in individual or cumulative occupational radiation exposures. This is only a change to the method of (algorithm) determining release rate limits and will not change net limits or change the more restrictive 10 CFR 50 Appendix I dose limits.

The proposed revision to the radioactive material quantity in the settling pond will not involve a significant increase in the probability or consequences of an accident previously evaluated because there will be no change in the types and amounts of effluents that will be released, nor will there be an increase in individual or cumulative occupational radiation exposures. This is only a change to the method of (algorithm) determining the quantity of radioactive material in the settling pond and will not change net limits.

The proposed revision to the TS bases for the Liquid Holdup Tank activity limit will not involve a significant increase in the probability or consequences of an accident previously evaluated because there will be no change in the types and amounts of effluents that will be released, nor will there be an increase in individual or cumulative occupational radiation exposures. The curie limit is not affected, therefore, the change does not represent a decrease in the level of control previously evaluated.

The proposed revision to the distance at which dose rates are measured from the radiation source or surface will not involve a significant increase in the probability or consequences of an accident previously evaluated because there will be no increase in the individual or cumulative occupational radiation exposures. The change in distance is conservative in its effect on worker protection and is in conformance with 10 CFR 20.1601 requirements.

2. The possibility of a new or different kind of accident from any previously evaluated is not created.

The proposed TS changes showing the relocation of the old 10 CFR 20.106 requirements to the new 10 CFR 20.1302, relocation of the old 10 CFR 20.203(c)(2) requirements to the new 10 CFR 20.1601(a), and relocation of the old 10 CFR 20.407 requirements to the new 10 CFR 20.2206(b) will not create the possibility of a new or different kind of accident from any previously evaluated because the revisions are administrative and will not change the types and amounts of effluents that will be released.

The proposed revision to the liquid and gaseous release rate limits will not create the possibility of a new or different kind of accident from any previously evaluated because the revision is administrative and will not change the types and amounts of effluents that will be released.

The proposed revision to the quantity of radioactive material in the settling pond will not create the possibility of a new or different kind of accident from any previously evaluated because the revision is administrative and will not change the types and amounts of effluents that will be released.

The proposed revision to the TS bases for the Liquid Holdup Tank activity limit will not create the possibility of a new or different kind of accident from any previously evaluated because the revision is administrative and will not change the types and amounts of effluents that will be released.

Implementation of the more conservative distance at which dose rates are measured will not create the possibility of a new or different kind of accident from any previously evaluated.

3. A significant reduction in a margin of safety is not involved.

The proposed revisions due to the location of requirements will not reduce a margin of safety because they are administrative in nature. No equipment or procedural changes are postulated. There is no impact on any margin of safety.

The proposed revision to liquid and gaseous release rate limits will not reduce a margin of safety because it is administrative in nature. These revisions preserve the existing level of effluent control. No changes to the more restrictive 10 CFR 50 Appendix I dose limits are made. There are no equipment or operational procedure changes, therefore, no accidents of any kind will be created by this change.

The proposed revision to the quantity of radioactive material in the settling pond will not reduce a margin of safety because it is administrative in nature and preserve the existing level of effluent control. There are no equipment or operational procedure changes, therefore, no accidents of any kind will be created by this change.

The proposed revision to the TS bases for the Liquid Holdup Tank activity limit will not reduce a margin of safety because it is administrative in nature and preserve the existing level of effluent control. No equipment or procedural changes are postulated. There is no impact on any margin of safety.

The change in distance for a High Radiation Area classification from 18 in.(45 cm) to (30 cm)12 in. from the radiation source or surface will not reduce the margin of safety because this change will reduce the worker's stay time in the area and therefore minimize exposure.

Accordingly, this proposed change does not involve a significant hazard.