Effluent and Waste Disposal

Semi-Annual Report

January 1, 1996 - June 30, 1996

Facility Indian Point 3

Licensee New York Power Authority

This information is provided in accordance with the requirements of Regulatory Guide 1.21. The numbered sections of this report reference corresponding sections of the subject Regulatory Guide, pages 10 to 12.

A. Supplemental Information

1. Regulatory Limits

Indian Point 3 is presently subject to limits on radioactive waste releases that are set forth in sections 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.4.3 and 2.4.4 of Appendix B to Docket No. 50-286 entitled "Environmental Technical Specification Requirements Part II Radiological Environmental" (ETSR). The percentages of the technical specification limits reported in Tables 1A and 2A are the percent of the quarterly limits specified in the ETSR. If more than one limit applies to the release, the most restrictive limit is reported.

2. Maximum Permissible Concentration

a) Fission and Activation Gases

The quarterly dose resulting from release of fission and activation gases is calculated in accordance with the methodology stated in the Offsite Dose Calculation Manual (ODCM). The specific isotopes listed in Table 1C are used to determine the effective dose factors for the time period.

b/c) Iodines, Tritium and Particulates

The quarterly organ dose limit for Iodine 131, tritium and particulates with half-lives greater than eight days is calculated in accordance with the methodology stated in the ODCM.

d) Liquid Effluents

The quarterly dose limit for liquid isotopic releases is calculated in accordance with the methodology stated in the ODCM. The concentration limit for noble gases dissolved in liquid releases is calculated based upon a maximum permissible concentration of 2.00E-4 uCi/ml as required by section 2.3.1.A of the ETSR.

3. Average Energy

The average energies ($\overline{E}$) of the radionuclide mixture in releases of fission and activation gases were as follows:

1st Quarter $\overline{E}_\beta$ = 2.50E-01 Mev/dis $\overline{E}\gamma$ = 2.21E-03 Mev/dis

2nd Quarter $\overline{E}_\beta$ = 1.40E-01 Mev/dis $\overline{E}\gamma$ = 5.25E-02 Mev/dis

4. Measurements and Approximations of Total Radioactivity

a) Fission and Activation Gases

Analysis of effluent gases has been performed in compliance with the requirements of Table 3.4-1 of the ETSR. In the case of isolated tanks (batch release) the total activity discharged is based on an isotopic analysis of each batch with the volume of gas in the batch corrected to standard temperature and pressure.

Vapor containment purge discharges that are less than 150 hours/quarter in duration have been treated as batch releases and Vapor Containment pressure relief discharges have been treated as continuous releases (> 500 hrs/year and as defined in NUREG 0133, Section 3.3). At least one complete isotopic concentration analysis of containment air is performed monthly. This analysis is used in conjunction with a process monitor to obtain the isotopic mixture and quantification of each pressure relief. Isotopic analyses for each vapor containment purge are taken prior to and during the purge. This information is combined with the volume of air in each discharge to calculate the quantity of activity released from these discharges.

The continuous building discharges are based on weekly samples of ventilation air for isotopic content. This information is combined with total air volume discharged and the process radiation monitor readings to determine the quantity of activity from continuous discharges.

b/c) Iodines and Particulates

Iodine-131 and particulate releases are quantified by collecting a continuous sample of ventilation air on a TEDA impregnated, activated charcoal cartridge and a glass-fiber filter paper. These samples are changed weekly as required in Table 3.4-1 of the ETSR and the concentration of isotopes found by analysis of these samples is combined with the volume of air discharged during the sampling period to calculate the quantity of activity discharged.

For other iodine isotopes the concentration of each isotope is determined monthly on a 24-hour sample. The concentration of the isotopes found by analysis is combined with the volume of air discharged during the sampling period to calculate the quantity of activity discharged.

d) Liquid Effluents

A sample of each batch discharge is taken and an isotopic analysis is performed in compliance with requirements specified in Table 3.3-1 of the ETSR. This isotopic concentration data is combined with the information on volume discharged to determine the amount of each isotope discharged.

Proportional composite samples of continuous discharges are taken and analyzed in compliance with Table 3.3-1 of the ETSR. This concentration data is combined with the volume discharged to calculate the total activity discharged.

5. Batch Releases

a) Liquid

| | 1996 1st Quarter | 2nd Quarter |
|---|---|---|
| Number of Batch Releases | 26 | 30 |
| Total Time Period Batch Releases (min) | 3744 | 3710 |
| Maximum " " " " " | 235 | 180 |
| Average " " " " " | 144 | 124 |
| Minimum " " " " " | 44 | 88 |
| Average Stream Flow (cfs) | Note: * | Note: * |

Note:*

This information is obtained from the Department of the Interior, U.S. Geological Survey, for the Hudson River. Due to the delays in obtaining this data from the governmental agency, flows will be submitted as they become available.

b) Gaseous

| | | |
|---|---|---|
| Number of Batch Releases | 7 | 0 |
| Total Time Period Batch Releases (min) | 392 | N/A |
| Maximum " " " " " | 127 | N/A |
| Average " " " " " | 56 | N/A |
| Minimum " " " " " | 20 | N/A |

6. Abnormal Releases

a) Liquid
None

b) Gaseous
None

7. Radiological Environmental Technical Specifications

The Radiological Environmental Technical Specifications (RETS) require reporting of prolonged outages of effluent monitoring equipment (Sections 2.1.C and 2.2.B) and significant changes in the land use census, Radiological Environmental Monitoring Program (REMP), or exceeding the total curie content limitations in outdoor tanks (Sections 2.8.A, 2.8.B, 2.7.C and 2.3.4.B).

During this reporting period, the following required Technical Specification Effluent Monitoring equipment was out of service (OOS) for periods greater than 30 consecutive days:

| Equipment OOS | Period Out of Service | Reason For Out of Service Condition |
|---|---|---|
| Steam Generator Blowdown Monitor R-19 | From 01/01/96 to 02/27/96 ( 58 days ) | There was insufficient sample flow through the monitor due to sample delivery problems in Cold Wet Lay Up condition. During this interval, administrative controls were in place to ensure compensatory samples were obtained for each discreet batch Steam Generator Draindown. |

# Indian Point 3

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## B. GASEOUS EFFLUENTS

## FIRST AND SECOND QUARTERS, 1996

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jan - Jun 1996)

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

| | UNIT | QUARTER 1st | QUARTER 2nd | EST. TOTAL ERROR % |
|---|---|---|---|---|
| A. Fission & Activation Gases | | | | |
| 1. Total Release | Ci | 5.87E-02 | 8.72E-00 | 2.50E+01 |
| 2. Average release rate for period | uCi/sec | 7.47E-03 | 1.11E-00 | |
| 3. Percent of technical spec. limit | % | 1.76E-04 | 1.46E-02 | |
| B. Iodines | | | | |
| 1. Total Iodine - 131 | Ci | 0.00E-00 | 6.49E-05 | 2.50E+01 |
| 2. Average release rate for period | uCi/sec | 0.00E-00 | 8.25E-06 | |
| C. Particulates | | | | |
| 1. Total release with T½ >8 days | Ci | 0.00E-00 | 0.00E-00 | 2.50E+01 |
| 2. Average release rate for period | uCi/sec | 0.00E-00 | 0.00E-00 | |
| 3. Gross alpha radioactivity | Ci | <2.07E-06 | <1.70E-06 | |
| D. Tritium | | | | |
| 1. Total release | Ci | 2.05E-01 | 4.01E-01 | 2.50E+01 |
| 2. Average release rate for period | uCi/sec | 2.61E-02 | 5.10E-02 | |
| E. Percent of Tech Spec Limit Iodines, Particulate with T½ > 8days, & Tritium | % | 4.20E-04 | 3.96E-02 | 2.50E+01 |

TABLE 1C
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jan - Jun 1996)
GASEOUS EFFLUENTS-GROUND RELEASES

| Nuclides Released | Unit | CONTINUOUS MODE 1st Quarter | CONTINUOUS MODE 2nd Quarter | BATCH MODE 1st Quarter | BATCH MODE 2nd Quarter |
|---|---|---|---|---|---|
| 1) **Fission Gases** | | | | | |
| Krypton (Kr) 85m | Ci | | | | |
| Krypton (Kr) 85 | Ci | | 1.25E-01 | 5.87E-02 | |
| Krypton (Kr) 87 | Ci | | | | |
| Krypton (Kr) 88 | Ci | | | | |
| Xenon (Xe) 131m | Ci | | 4.89E-02 | | |
| Xenon (Xe) 133m | Ci | | 7.68E-02 | | |
| Xenon (Xe) 133 | Ci | | 8.36E-00 | | |
| Xenon (Xe) 135m | Ci | | | | |
| Xenon (Xe) 135 | Ci | | 7.19E-02 | | |
| Xenon (Xe) 138 | Ci | | | | |
| Argon (Ar) 41 | Ci | | 3.96E-02 | | |
| TOTAL FOR PERIOD | Ci | 0.00E-00 | 8.72E-00 | 5.87E-02 | 0.00E-00 |
| 2) **Iodines** | | | | | |
| Iodine (I) 131 | Ci | 0.00E-00 | 6.49E-05 | | |
| Iodine (I) 133 | Ci | 0.00E-00 | 1.20E-05 | | |
| Iodine (I) 135 | Ci | 0.00E-00 | 0.00E-00 | | |
| TOTAL FOR PERIOD | Ci | 0.00E-00 | 7.69E-05 | 0.00E-00 | 0.00E-00 |

TABLE 1C
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jan - Jun 1996)
GASEOUS EFFLUENTS - GROUND RELEASES

| Nuclides Released | Unit | CONTINUOUS MODE 1st Quarter | CONTINUOUS MODE 2nd Quarter | BATCH MODE 1st Quarter | BATCH MODE 2nd Quarter |
|---|---|---|---|---|---|
| 3) **Particulates** | | | | | |
| Antimony (Sb) 125 | Ci | | | | |
| Barium (Ba) 133 | Ci | | | | |
| Cadmium (Cd) 109 | Ci | | | | |
| Cerium (Ce) 139 | Ci | | | | |
| Cerium (Ce) 141 | Ci | | | | |
| Cerium (Ce) 144 | Ci | | | | |
| Cesium (Cs) 134 | Ci | | | | |
| Cesium (Cs) 137 | Ci | | | | |
| Cobalt (Co) 57 | Ci | | | | |
| Cobalt (Co) 58 | Ci | | | | |
| Cobalt (Co) 60 | Ci | | | | |
| Chromium (Cr) 51 | Ci | | | | |
| Niobium (Nb) 95 | Ci | | | | |
| Strontium (Sr) 89 | Ci | | | | |
| Strontium (Sr) 90 | Ci | | | | |
| Tin (Sn) 113 | Ci | | | | |
| TOTAL | Ci | 0.00E-00 | 0.00E-00 | 0.00E-00 | 0.00E-00 |

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SEMI-ANNUAL REPORT

C. LIQUID EFFLUENTS

FIRST AND SECOND QUARTERS, 1996

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (Jan - Jun 1996)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

| | UNITS | QUARTER 1st | QUARTER 2nd | EST. TOTAL ERROR % |
|---|---|---|---|---|
| A. Fission and activation products | | | | |
| 1. Total release (not including tritium, gases, alpha) | Ci | 2.31E-02 | 1.37E-02 | 2.50E+01 |
| 2. Average diluted concentration during period | uCi/ml | 1.17E-10 | 4.03E-11 | |
| B. Tritium | | | | |
| 1. Total release | Ci | 4.09E+01 | 3.66E+01 | 2.50E+01 |
| 2. Average diluted concentration during period | uCi/ml | 2.07E-07 | 1.08E-07 | |
| C. Dissolved and entrained gases | | | | |
| 1. Total release | Ci | 0.00E-00 | 2.09E-02 | 2.50E+01 |
| 2. Average diluted concentration during period | uCi/ml | 0.00E-00 | 6.15E-11 | |
| D. Gross alpha radioactivity | | | | |
| 1. Total release | Ci | <3.90E-05 | <3.69E-05 | 2.50E+01 |
| E. Volume of waste released (prior to dilution) | liters | 7.20E+05 | 7.57E+05 | 1.00E+01 |
| F. Volume of dilution water used during period | liters | 1.98E+11 | 3.40E+11 | 1.00E+01 |
| G. Percent of liquid effluent limit | % | 4.77E-02 | 3.96E-02 | 2.50E+01 |

TABLE 2B
LIQUID EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (Jan - Jun 1996)

| Nuclides Released | Unit | CONTINUOUS MODE 1st Quarter | CONTINUOUS MODE 2nd Quarter | BATCH MODE 1st Quarter | BATCH MODE 2nd Quarter |
|---|---|---|---|---|---|
| Manganese (Mn) 54 | Ci | | | 2.01E-05 | 5.54E-06 |
| Iron (Fe) 55 | Ci | | | 9.71E-04 | 6.90E-04 |
| Cobalt (Co) 58 | Ci | | | 4.80E-03 | 1.24E-03 |
| Cobalt (Co) 60 | Ci | | | 2.11E-03 | 1.16E-03 |
| Nickel (Ni) 63 | Ci | | | 3.01E-03 | 1.38E-03 |
| Zirconium (Zr) 95 | Ci | | | 7.99E-06 | |
| Antimony (Sb) 124 | Ci | | | 1.88E-03 | 2.46E-04 |
| Antimony (Sb) 125 | Ci | | | 5.46E-03 | 1.41E-03 |
| Iodine (I) 131 | Ci | | | | 8.28E-05 |
| Cesium (Cs) 134 | Ci | | | 1.74E-03 | 2.60E-03 |
| Cesium (Cs) 137 | Ci | | | 3.14E-03 | 4.85E-03 |
| TOTAL FOR PERIOD | Ci | 0.00E-00 | 0.00E-00 | 2.31E-02 | 1.37E-02 |

| Nuclides | Unit | CONTINUOUS MODE 1st Quarter | CONTINUOUS MODE 2nd Quarter | BATCH MODE 1st Quarter | BATCH MODE 2nd Quarter |
|---|---|---|---|---|---|
| Xenon (Xe) 133m | Ci | | | 0.00E-00 | 3.75E-05 |
| Xenon (Xe) 131m | Ci | | | 0.00E-00 | 1.49E-04 |
| Xenon (Xe) 133 | Ci | | | 0.00E-00 | 2.07E-02 |
| TOTAL DISSOLVED AND ENTRAINED GASES | Ci | | | 0.00E-00 | 2.09E-02 |

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D. SOLID WASTE

FIRST AND SECOND QUARTERS, 1996

TABLE 3
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January, 1 - June 30, 1996
SOLID WASTE SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

| 1. Type of Waste | Unit | 6 Month Period Class A | Class B | Class C | Est. Total Error, % |
|---|---|---|---|---|---|
| a. Spent resins, filter sludges, etc. | $m^3$ | 0 | 0 | 0 | |
| | Ci | 0 | 0 | 0 | ±25 |
| b. Dry compressible, contam. equipment for burial | $m^3$ | 0 | 0 | 0 | |
| | Ci | 0 | 0 | 0 | ±25 |
| c. Irradiated Components | $m^3$ | 0 | 0 | 0 | |
| | Ci | 0 | 0 | 0 | ±25 |
| d. Other: | | | | | |
| Dry compressible, contaminated equip. for volume reduction at offsite facility | $m^3$ | 2.1E+2 | 0 | 0 | |
| | Ci | 1.6E-1 | 0 | 0 | ±25 |
| Waste Oil for volume reduction at offsite facility | $m^3$ | 1.3E+1 | 0 | 0 | |
| | Ci | 1.3E-2 | 0 | 0 | ±25 |

2. **Estimate of major nuclide composition (by type of waste)**

| NUCLIDE | UNIT | Dry Vol. Red CLASS A | Waste Oil Vol. Red CLASS A |
|---|---|---|---|
| H-3 | % | 0.1 | |
| C-14 | % | 2.3 | |
| Mn-54 | % | 1.6 | |
| Fe-55 | % | 54.4 | |
| Co-58 | % | 2.7 | 2.5 |
| Co-60 | % | 28.1 | 21.7 |
| Ni-59 | % | 0.2 | |
| Sb-125 | % | 1.1 | |
| Cs-134 | % | 1.9 | 10.8 |
| Cs-137 | % | 7.5 | 65.0 |
| Pu-241 | % | 0.1 | |

Percentages of nuclides and total activities are based on a combination of direct measurements and scaling for non-gamma emitting nuclides.

3. **Solid Waste Disposition**

| Number of Shipments | Mode of Transport | Destination |
|---|---|---|
| 4 | Truck | SEG, Oak Ridge TN: for volume reduction. |

4. **Containers Shipped**

| Container | Class A Number | Class A Solid. Media | Class B Number | Class B Solid. Media | Class C Number | Class C Solid Media |
|---|---|---|---|---|---|---|
| *For Burial:* | | | | | | |
| Poly HIC | 0 | N/A | 0 | N/A | 0 | N/A |
| Drums | 0 | N/A | 0 | N/A | 0 | N/A |
| Steel Liner | 0 | N/A | 0 | N/A | 0 | N/A |
| Crates | 0 | N/A | 0 | N/A | 0 | N/A |
| *For Volume Reduction:* | | | | | | |
| SeaLand Cont. | 4 | N/A | 0 | N/A | 0 | N/A |
| Crate | 20 | N/A | 0 | N/A | 0 | N/A |
| Six Pack | 3 | N/A | 0 | N/A | 0 | N/A |

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SEMI-ANNUAL REPORT

E. RADIOLOGICAL IMPACT ON MAN

FIRST AND SECOND QUARTERS, 1996

(not required to be submitted during this reporting period)

Indian Point 3

EFFLUENT AND WASTE DISPOSAL

SEMI-ANNUAL REPORT

F. METEOROLOGICAL DATA

FIRST AND SECOND QUARTERS, 1996

(not required to be submitted during this reporting period)

Indian Point 3

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SEMI-ANNUAL REPORT

G. OFFSITE DOSE CALCULATION MANUAL OR PROCESS CONTROL MANUAL CHANGES

FIRST AND SECOND QUARTERS, 1996

(There were no Process Control Program changes during this reporting period.)

(ODCM Revision 10 changes are attached. A complete copy of the ODCM is included.)

# ODCM (Rev 10) JUSTIFICATION PACKAGE

item 1

**OBJECTIVE:**

Correct the Noble Gas instantaneous KLMN weighted values listed for generation of the dose rate split between units 2 and 3 (mrem/yr) in Appendix 3-A.

**DESCRIPTION OF CHANGES:**

1) Corrected the listed Ki, Li, and Mi on Table 3A-1 for the shared limit mixture (IP3 only).

2) Used the corrected dose factors for the calculations on pages 2 and 3 of App 3-A, Instantaneous Release Rate vs Dose Rate for Units 2 and 3.

3) From these calculations, generated new instantaneous dose rate limit portions from the shared limit of 500 mrem/yr for each unit.

4) Back-calculated the new conservative uCi/sec administrative limit for IP3.

5) Added note that the Skin limit was less restrictive than the Whole Body limit. Also added a missing basis calculation for the skin dose rate limit, which was modified from 1769 to 1766 mrem/yr.

**IMPACT:**

Lower tier procedures must reflect the new uCi/sec and mrem/yr limits. Effluents Management Software release rate limits will be updated. Coordination with Unit 2 is required to complete the dose rate split. Because it slightly modifies the Indian Point 3 uCi/sec administrative limits in a conservative direction, this change does not reduce the accuracy or reliability of dose calculations or setpoint determinations.

**JUSTIFICATION:**

The new KLM weighted values listed on Table 3A-1 changed by less than 2.4% each. This correction was required due to the previous values being calculated from earlier revisions of the ODCM. The quoted mixture did not change, but the weighted dose factors were slightly modified to account for the use of three significant digits in the calculations for finite cloud correction factors.

item 2

**OBJECTIVE:**

Correct the Noble Gas instantaneous and time average weighted dose factors listed for generation of the administrative dose rate limits (IP3 only).

**DESCRIPTION OF CHANGES:**

1) Corrected the listed K and M dose factors on Table 3-8 for the instantaneous and time average release mixtures.

2) Corrected the incorrect reference to section 3.1.1 to the correct section: 3.3.1 on Table 3-8 (typo).

3) Updated step 3.3.1.1 to reflect the new corrected dose rate limits of 275 and 1766 mrem/yr.

4) Corrected step 3.4.1.4 to use these modified dose factors in generating the uCi/sec administrative release rate limits.

5) Corrected quarterly and annual administrative release rate limits on page 5 of Appendix 3-A (using new M and three significant digits for N), and reworded part III for clarity.

6) Corrected Noble Gas uCi/sec discharge rate limits in step 1.2.1 to comply with the changes above.

**IMPACT:**

Lower tier documents will be upgraded to reflect the new limits. Effluents Management Software release rate limits will be updated. This change does not reduce the accuracy or reliability of dose calculations or setpoint determinations.

**JUSTIFICATION:**

The new K and M weighted dose factors listed on Table 3-8 were corrected from previous values, which were calculated from earlier revisions of the ODCM. The quoted mixture did not change, but the weighted dose factors were slightly modified to account for the use of three significant digits in the calculations for finite cloud correction factors.

item 3

**OBJECTIVE:**

Re-format Section 1.2.1, Setpoints, for greater clarity.

**DESCRIPTION OF CHANGES:**

1) Split paragraphs into sub-sections 1.2.1.1 through 1.2.2.3.

**IMPACT:**

None

**JUSTIFICATION:**

This change improves clarity and readability.

item 4

**OBJECTIVE:**

Update Radiation Monitor ranges and control functions on Table 1-1.

**DESCRIPTION OF CHANGES:**

1) Corrected the ranges of the following Radiation Monitors:

| | | | |
|---|---|---|---|
| R-14 | 10 | to | 1E+6 cpm |
| R-46 | 10 | to | 1E+6 cpm |
| R-59 | 1E-6 | to | 1E+2 uCi/cc |
| R-16A/B | 1E-7 | to | 1E-1 uCi/ml |
| R-23 | 1E-7 | to | 1E-1 uCi/ml |
| R-18 | 1E-7 | to | 1E-1 uCi/ml |
| R-61 | 1E-7 | to | 1E-1 uCi/ml |

2) Updated effluent control functions to R-14 and R-27.

**IMPACT:**

None

**JUSTIFICATION:**

The ranges above are analog ranges quoted in the FSAR. They were verified correct for the November 1995 FSAR update and required minor modification in the ODCM to be consistent. Additionally, effluent control function descriptions were updated to describe existing controls and automatic functions for R-14 and R-27.

item 5

**OBJECTIVE:**

Reduce confusion in Section 2.2.4 by using more accurate terms and variable definitions.

**DESCRIPTION OF CHANGES:**

1) Used "CF" in place of "E" for conversion factor in Section 2.2.4.

2) Used "conversion factor" instead of "calibration factor".

3) Used "CR" in place of "R".

**IMPACT:**

None

**JUSTIFICATION:**

The variable "E" is used later in another context, as is "R". The database item used to convert cpm to engineering units on the Digital Radiation Monitor Control Cabinet is identified in plant procedures as a "conversion factor" so as not to confuse this value with a channel "calibration".

item 6

**OBJECTIVE:**

Clarify Section 3.1.3 regarding sharing the site instantaneous release rate, and the use of time-averaged limits.

**DESCRIPTION OF CHANGES:**

Referred in-depth discussion of sharing the instantaneous setpoint to Section 3.2.1, which more correctly describes its derivation and use.

**IMPACT:**

None

**JUSTIFICATION:**

Section 3.2.1 more accurately describes the instantaneous setpoint.

item 7

**OBJECTIVE:**

Update references to specific titles that have been recently modified, with regard to the identified permissions required for each successive level of allowable effluent release rate.

**DESCRIPTION OF CHANGES:**

Updated Section 3.1.8 accordingly to replace "General Manager of Operations" with "Plant Manager or his Designee" and "Operations Manager" with "Operations Manager or Assistant Operations Manager".

**IMPACT:**

None

**JUSTIFICATION:**

Complies with current titles in use.

item 8

**OBJECTIVE:**

Improve description and readability of the gas storage tank activity limits and surveillance requirements.

**DESCRIPTION OF CHANGES:**

1) Added brief description of Noble Gas limitation in CVCS tanks at the end of Section 3.1.11, ensuring the tank curie limit is not challenged.

2) Used "equation generator" in Step 3.1.12.

3) Added note at end of Section 3.1.12 to identify the ability to periodically sample other cover gases (for activity, $H_2$ and $O_2$ on a continuous basis), and that the CVCS tank cover gas is indicative of the reuse header.

**IMPACT:**

This change does not reduce the accuracy or reliability of dose calculations or setpoint determinations.

**JUSTIFICATION:**

Cover gases are analyzed per Technical Specifications. This upgrade to the ODCM complies with existing regulations and plant procedures. It ensures comprehensive information is provided in an upper tier document.

The assumptions of the FSAR section 14.2.3 limit the total noble gas curies in the CVCS tanks to less than the 19400 conservative curie limit. This reference is added to the ODCM for the sake of consistency.

item 9

**OBJECTIVE:**

Update the information regarding process flow rate from the continuous airborne ventilation systems.

**DESCRIPTION OF CHANGES:**

Reworded Section 3.1.13 to identify the flow rate monitors used and their surveillance requirements. Removed overly-prescriptive design flow rate listed for the Radioactive Machine Shop.

**IMPACT:**

None

**JUSTIFICATION:**

This change complies with Technical Specifications. It improves the description of methods used to estimate vent flow with process flow rate instruments out of service, as defined in existing lower tier documents. It was included in this ODCM revision to improve clarity and consistency.

item 10

**OBJECTIVE:**

Clarify the Steam Generator Blowdown Flash Tank Vent pathway calculation to include Noble Gas and Tritium, as well as Iodine.

**DESCRIPTION OF CHANGES:**

Reworded Section 3.1.14 to include Noble Gas and Tritium, referencing the use of the partition factor (0.05) for Iodine only.

**IMPACT:**

Iodine quantification is currently included in the implementing procedures. Direction to use the Steam Generator Blowdown entrained gas and Tritium concentrations to quantify these releases will be added to this procedure (RE-CS-039). This change does not reduce the accuracy or reliability of dose calculations or setpoint determinations.

**JUSTIFICATION:**

Although Noble Gas and Tritium were not required to be quantified in the past, this change incorporates the suggestion of American Nuclear Insureres in March 95, and ensures all volatile isotopes are quantified from this potential release path.

item 11

**OBJECTIVE:**

Add sections under 3.1 to include identification of the potential airborne release pathways identified in March 95 American Nuclear Insurers (ANI) audit: (SG Atmospherics or Safety Valves and the Steam Driven Aux Feed Pump Vent). Additionally, update Figure 3-1.

**DESCRIPTION OF CHANGES:**

1) Added Section 3.1.18 to define the SG Atmospheric or Safety Valve release pathway. Also included Calculation 187, Main Steam System Atmospheric Dump Valves PCV-1134 through 1137 Flow Calculations (RES 89-03-161 MS), should quantification become necessary.

2) Added Section 3.1.19 to identify the Steam Driven Aux Feed Pump Vent pathway.

3) Included these newly defined pathways on Figure 3-1.

**IMPACT:**

Lower tier documents already include instruction for Noble Gas release quantification from these pathways. Explicit instructions for Iodine and Tritium quantification were added to Chemistry's implementing procedure (RE-CS-039), but were not requested by ANI. This change does not reduce the accuracy or reliability of dose calculations or setpoint determinations.

**JUSTIFICATION:**

The Power Authority agreed with the ANI inspector that these pathways should be identified in the ODCM. This change ensures the ODCM provides a comprehensive methodology for all identified release pathways.

item 12

**OBJECTIVE:**

Correct the one hour average methodology note after step 3.3.1 as an optional quantification methodology, not a desired one.

**DESCRIPTION OF CHANGES:**

Change "should be" with "can be" in the note after 3.3.1 to match the note after 3.4.1. This modification was missed in an earlier revision.

**IMPACT:**

Intended to define the preferred method of quantification of instantaneous release rates. The one hour averaging method is allowed, but not preferentially used in plant procedures. This change does not reduce the accuracy or reliability of dose calculations or setpoint determinations.

**JUSTIFICATION:**

This change defines the conservative method of quantification originally intended and is in keeping with accepted plant procedures. This correction was missed when an identical note added in the backup methodology section was updated in an earlier revision.

item 13

**OBJECTIVE:**

Include reference information for the generation of the following variables in their appropriate sections within step 3.3.4.3. and remove the associated footnote:

Qi uCi of I-131 and Particulates released (long term)

qi uCi of I-131 and Particulates released (short term)

W Dispersion/Deposition factor ($sec/m^3$) for long term releases

w Dispersion/Deposition factor ($sec/m^3$) for short term releases

**DESCRIPTION OF CHANGES:**

1) Added "as defined in Section 3.1.16" for Qi, qi, W, and w in step 3.3.4.3.

2) Removed footnote at bottom of page 3-12.

**IMPACT:**

None

**JUSTIFICATION:**

This change improves clarity and readability.

item 14

**OBJECTIVE:**

Correct various typographical errors.

**DESCRIPTION OF CHANGES:**

1) Step 3.5.3, last sentence should be SW *sector*, not "section".

2) Step 3.6, last sentence should be finite *cloud*, not "could".

**IMPACT:**

None

**JUSTIFICATION:**

These typographical corrections do not alter the intent of the associated text.

item 15

**OBJECTIVE:**

Update maps used in Section 4 and properly identify Control Locations.

**DESCRIPTION OF CHANGES:**

1) Used a copy of the updated maps in the 1994 REMP report for Figures 4-1 and 4-2.

2) Identified Roseton and Lake Cohasset on Table 4.1.

**IMPACT:**

None

**JUSTIFICATION:**

The previous revision of the ODCM incorrectly identified these two locations. Both are identified in the 1994 REMP report and were corrected in this revision of the ODCM.

item 16

**OBJECTIVE:**

Improve the readability of the LLD equation in Section 4, Appendix B.

**DESCRIPTION OF CHANGES:**

Used the "Equation Generator" to re-write this equation and referenced the two sources of information used.

**IMPACT:**

None

**JUSTIFICATION:**

There were no changes to the equation. This improvement increases the clarity of the equation.