

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-387

UNIT One

DATE October 5, 1984

COMPLETED BY L.A. Kuczynski

TELEPHONE (717)542-3759

MONTH September, 1984

| DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) |
|-----|--|
| 1 | 1033 |
| 2 | 1009 |
| 3 | 1023 |
| 4 | 1032 |
| 5 | 1039 |
| 6 | 1042 |
| 7 | 1043 |
| 8 | 1035 |
| 9 | 902 |
| 10 | 1033 |
| 11 | 1028 |
| 12 | 941 |
| 13 | 1029 |
| 14 | 1028 |
| 15 | 712 |
| 16 | 782 |

| DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) |
|-----|--|
| 17 | 1025 |
| 18 | 1010 |
| 19 | 1038 |
| 20 | 1031 |
| 21 | 1022 |
| 22 | 614 |
| 23 | 734 |
| 24 | 963 |
| 25 | 1011 |
| 26 | 1030 |
| 27 | 1043 |
| 28 | 1044 |
| 29 | 714 |
| 30 | 760 |
| 31 | - |

INSTRUCTIONS

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

(9/77)

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PDR ADOCK 05000387
R PDR

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41



OPERATING DATA REPORT

DOCKET NO. 50-387
 DATE October 5, 1984
 COMPLETED BY L.A. Kuczynski
 TELEPHONE (717)542-3759

OPERATING STATUS

Unit 1

1. Unit Name: Susquehanna Steam Electric Station
2. Reporting Period: September, 1984
3. Licensed Thermal Power (MWt): 3,293
4. Nameplate Rating (Gross MWe): 1,152
5. Design Electrical Rating (Net MWe): 1,065
6. Maximum Dependable Capacity (Gross MWe): 1,068
7. Maximum Dependable Capacity (Net MWe): 1,032

Notes

8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
None

9. Power Level To Which Restricted, If Any (Net MWe): None

10. Reasons For Restrictions, If Any: None

| | This Month | Yr.-to-Date | Cumulative |
|---|------------------|-------------------|-------------------|
| 11. Hours In Reporting Period | <u>720</u> | <u>6,575</u> | <u>1,544</u> |
| 12. Number Of Hours Reactor Was Critical | <u>720</u> | <u>4,613.5</u> | <u>8,458.8</u> |
| 13. Reactor Reserve Shutdown Hours | <u>0</u> | <u>249.1</u> | <u>405.8</u> |
| 14. Hours Generator On-Line | <u>720</u> | <u>4,488.9</u> | <u>8,257.2</u> |
| 15. Unit Reserve Shutdown Hours | <u>0</u> | <u>0</u> | <u>0</u> |
| 16. Gross Thermal Energy Generated (MWH) | <u>2,206,860</u> | <u>13,674,000</u> | <u>24,935,661</u> |
| 17. Gross Electrical Energy Generated (MWH) | <u>716,120</u> | <u>4,453,730</u> | <u>8,120,280</u> |
| 18. Net Electrical Energy Generated (MWH) | <u>689,988</u> | <u>4,288,825</u> | <u>7,825,198</u> |
| 19. Unit Service Factor | <u>100</u> | <u>68.3</u> | <u>71.5</u> |
| 20. Unit Availability Factor | <u>100</u> | <u>68.3</u> | <u>71.5</u> |
| 21. Unit Capacity Factor (Using MDC Net) | <u>92.9</u> | <u>63.2</u> | <u>65.7</u> |
| 22. Unit Capacity Factor (Using DER Net) | <u>90</u> | <u>61.2</u> | <u>63.6</u> |
| 23. Unit Forced Outage Rate | <u>0</u> | <u>15.4</u> | <u>13.8</u> |

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):

Refueling Outage; February 9, 1985; 15 weeks.

25. If Shut Down At End Of Report Period, Estimated Date of Startup: N/A

26. Units In Test Status (Prior to Commercial Operation):

| | Forecast | Achieved |
|----------------------|---------------|---------------|
| INITIAL CRITICALITY | <u> </u> | <u> </u> |
| INITIAL ELECTRICITY | <u> </u> | <u> </u> |
| COMMERCIAL OPERATION | <u> </u> | <u> </u> |



UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH September, 1984

DOCKET NO. 50-387
 UNIT NAME One
 DATE October 5, 1984
 COMPLETED BY L.A. Kuczynski
 TELEPHONE (717)542-3759

| No. | Date | Type ¹ | Duration (Hours) | Reason ² | Method of Shutting Down Reactor ³ | Licensee Event Report # | System Code ⁴ | Component Code ⁵ | Cause & Corrective Action to Prevent Recurrence |
|-----|--------|-------------------|------------------|---------------------|--|-------------------------|--------------------------|-----------------------------|---|
| 11 | 840915 | S | 0 | H | 5 | NA | RC | FUELXX | Scheduled power reduction to optimize fuel use until refueling outage. |
| 12 | 840922 | S | 0 | H | 5 | NA | RC | FUELXX | Scheduled power reduction to optimize fuel use until refueling outage. Replacement of reactor recirculation pump motor-generator set brushes w.s also accomplished. |
| 13 | 840929 | S | 0 | H | 5 | NA | RC | FUELXX | Scheduled power reduction to optimize fuel use until refueling outage. |

¹
 F: Forced
 S: Scheduled

²
 Reason:
 A-Equipment Failure (Explain)
 B-Maintenance or Test
 C-Refueling
 D-Regulatory Restriction
 E-Operator Training & License Examination
 F-Administrative
 G-Operational Error (Explain)
 H-Other (Explain)

³
 Method:
 1-Manual
 2-Manual Scram.
 3-Automatic Scram.
 4-Continuation
 from previous month
 5-Reduction
 9-Other

⁴
 Exhibit G - Instructions
 for Preparation of Data
 Entry Sheets for Licensee
 Event Report (LER) File (NUREG-
 0161)

⁵
 Exhibit I - Same Source

UNIT 1
SUSQUEHANNA STEAM ELECTRIC STATION

Docket Number 50-387 Date October 5, 1984
Completed by L.A. Kuczynski Telephone (717)542-3759

Challenges to Main Steam Safety Relief Valves

None

Changes to the Offsite Dose Calculation Manual

See Attachment.

Major Changes to Radioactive Waste Treatment Systems

None.

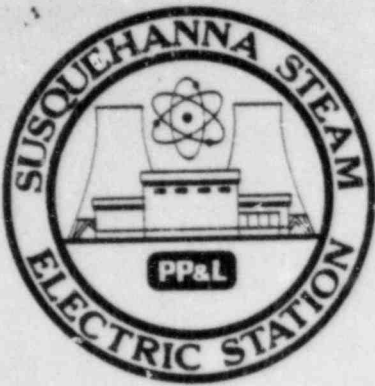
ATTACHMENT TO UNIT ONE
September, 1984, Monthly Operating Report

Changes to the Offsite Dose Calculation Manual

These revised pages were made effective July 9, 1984, upon signature by the Manager-Nuclear Support.

Changes have been denoted by revision bars in the right margin.

The changes were made to incorporate a new setpoint calculation methodology for vent monitors, based on actual (or expected) effluent isotope mixes.



AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-388

UNIT Two

DATE October 5, 1984

COMPLETED BY L.A. Kuczynski

TELEPHONE (717)542-3759

MONTH September, 1984

| DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) |
|-----|--|
| 1 | 0 |
| 2 | 0 |
| 3 | 0 |
| 4 | 189 |
| 5 | 371 |
| 6 | 399 |
| 7 | 414 |
| 8 | 50 |
| 9 | 321 |
| 10 | 630 |
| 11 | 733 |
| 12 | 720 |
| 13 | 571 |
| 14 | 580 |
| 15 | 721 |
| 16 | 710 |

| DAY | AVERAGE DAILY POWER LEVEL (MWe-Net) |
|-----|--|
| 17 | 714 |
| 18 | 729 |
| 19 | 689 |
| 20 | 564 |
| 21 | 0 |
| 22 | 129 |
| 23 | 502 |
| 24 | 583 |
| 25 | 705 |
| 26 | 771 |
| 27 | 987 |
| 28 | 1002 |
| 29 | 1014 |
| 30 | 39 |
| 31 | - |

INSTRUCTIONS

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.



OPERATING DATA REPORT

DOCKET NO. 50-388
 DATE October 5, 1984
 COMPLETED BY L.A. Kuczynski
 TELEPHONE (717) 542-3759

OPERATING STATUS

Unit 2

1. Unit Name: Susquehanna Steam Electric Station
2. Reporting Period: September, 1984
3. Licensed Thermal Power (MWt): 3,293
4. Nameplate Rating (Gross MWe): 1,152
5. Design Electrical Rating (Net MWe): 1,065
6. Maximum Dependable Capacity (Gross MWe): *
7. Maximum Dependable Capacity (Net MWe): *

Notes

* To be determined.

8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
None

9. Power Level To Which Restricted, If Any (Net MWe): None

10. Reasons For Restrictions, If Any: None

| | This Month | Yr.-to-Date | Cumulative |
|---|------------------|------------------|------------------|
| 11. Hours In Reporting Period | <u>720</u> | <u>2,147</u> | <u>2,147</u> |
| 12. Number Of Hours Reactor Was Critical | <u>612.8</u> | <u>1,653.4</u> | <u>1,653.4</u> |
| 13. Reactor Reserve Shutdown Hours | <u>152.6</u> | <u>495</u> | <u>495</u> |
| 14. Hours Generator On-Line | <u>567.4</u> | <u>1,333.7</u> | <u>1,333.7</u> |
| 15. Unit Reserve Shutdown Hours | <u>0</u> | <u>142.4</u> | <u>142.4</u> |
| 16. Gross Thermal Energy Generated (MWH) | <u>1,182,556</u> | <u>2,127,542</u> | <u>2,127,542</u> |
| 17. Gross Electrical Energy Generated (MWH) | <u>374,820</u> | <u>629,070</u> | <u>629,070</u> |
| 18. Net Electrical Energy Generated (MWH) | <u>356,012</u> | <u>587,463</u> | <u>587,463</u> |
| 19. Unit Service Factor | <u>NA</u> | <u>NA</u> | <u>NA</u> |
| 20. Unit Availability Factor | <u>NA</u> | <u>NA</u> | <u>NA</u> |
| 21. Unit Capacity Factor (Using MDC Net) | <u>NA</u> | <u>NA</u> | <u>NA</u> |
| 22. Unit Capacity Factor (Using DER Net) | <u>NA</u> | <u>NA</u> | <u>NA</u> |
| 23. Unit Forced Outage Rate | <u>NA</u> | <u>NA</u> | <u>NA</u> |

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):

Pre-Commercial, October 27, 1984, 10 weeks.

25. If Shut Down At End Of Report Period, Estimated Date of Startup: October 2, 1984

26. Units In Test Status (Prior to Commercial Operation):

| | Forecast | Achieved |
|----------------------|-----------------|-----------------|
| INITIAL CRITICALITY | <u>05/09/84</u> | <u>05/08/84</u> |
| INITIAL ELECTRICITY | <u>06/28/84</u> | <u>07/03/84</u> |
| COMMERCIAL OPERATION | <u>12/31/84</u> | <u>_____</u> |



UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH September, 1984

DOCKET NO. 50-388
 UNIT NAME Two
 DATE October 5, 1984
 COMPLETED BY L.A. Kuczynski
 TELEPHONE (717)542-3759

| No. | Date | Type ¹ | Duration (Hours) | Reason ² | Method of Shutting Down Reactor ³ | Licensee Event Report # | System Code ⁴ | Component Code ⁵ | Cause & Corrective Action to Prevent Recurrence |
|-----|--------|-------------------|------------------|---------------------|--|-------------------------|--------------------------|-----------------------------|---|
| *9 | 840828 | F | 72.2 | A | 4 | 84-017 | HA | VALVEX | Reactor scram following turbine trip on moisture separator drain tank high level. Cause for high level was malfunctioning drain valve on piping from high pressure turbine exhaust to moisture separator. |
| 10 | 840908 | F | 20.4 | A | 3 | 84-018 | HA | INSTRU | Reactor scrambled as a result of a turbine control valve fast closure signal (See attached page) |
| 11 | 840913 | F | 0 | B | 5 | N/A | CB | INSTRU | Power reduction for reactor recirculation system troubleshooting. |
| 12 | 840920 | S | 37.3 | B | 3 | N/A | ZZ | ZZZZZZ | Reactor scram occurred as part of scheduled startup testing. |
| 13 | 840930 | F | 22.7 | H | 3 | 84-021 | ** | ** | Reactor scram due to turbine trip on high moisture separator drain tank (See attached page) |

*Renumbered per NRC direction.

**Undetermined at this time.

1
 F: Forced
 S: Scheduled

2
 Reason:
 A-Equipment Failure (Explain)
 B-Maintenance or Test
 C-Refueling
 D-Regulatory Restriction
 E-Operator Training & License Examination
 F-Administrative
 G-Operational Error (Explain)
 H-Other (Explain)

3
 Method:
 1-Manual
 2-Manual Scram.
 3-Automatic Scram.
 4-Continuation from previous month
 5-Reduction
 9-Other

4
 Exhibit G - Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161)

5
 Exhibit I - Same Source

UNIT 2 SHUTDOWNS AND POWER REDUCTIONS (continued):

No. 10

generated from a false power-load unbalance signal during performance of a surveillance. The unit responded per design throughout the transient. The pressure transmitter which provided the false input was recalibrated and a procedure change was made to alert operations personnel of impending turbine trip if the circumstances develop again. The procedure also provides action to be taken to prevent the turbine trip.

No. 13

level. Evaluation of cause(s) and action(s) to prevent recurrence still being determined.

UNIT 2
SUSQUEHANNA STEAM ELECTRIC STATION

Docket Number 50-388 Date October 5, 1984
Completed by L.A. Kuczynski Telephone (717)542-3759

Challenges to Main Steam Safety Relief Valves

None.

PENNSYLVANIA POWER & LIGHT COMPANY
SUSQUEHANNA STEAM ELECTRIC STATION
OFFSITE DOSE CALCULATION MANUAL

Prepared By J.E. Widner Date 6/27/84

Reviewed By K.E. Shank Date 6/28/84

PORC Review Required Yes () No () Date _____

Approved By Date 7/9/84
Manager-Nuclear Support

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| | | |
|---|-----|---------|
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|---|-----|---------|

| | | |
|---|-----|---------|
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1. All exposure pathways of significance at the critical receptor locations;
2. Dose contributions to critical receptors from multiple release points; and
3. Dose contributions from major radioisotopes expected to be present in gaseous effluents.

The general methodology for establishing plant ventilation gaseous effluent monitor setpoints is based upon vent release rates derived from site-specific meteorological dispersion conditions, vent flow rates, and measured or expected radioisotopic mixtures in the gaseous effluents. The vent release rates can then be converted to vent concentrations for input as setpoints for the applicable detectors. Since the vent monitors are programmed to calculate concentrations of iodine-131 and particulate being released based on the rate of accumulation of activity on the filters, setpoints can be established for the iodine and particulate channels.

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The following method is used for calculating vent monitor high radiation alarm setpoints:

1. An isotopic mixture is selected for the detector in question, if applicable. Noble gas and particulate detector setpoints are based on actual isotopic mixtures obtained from vent sample analysis or the FSAR/FES expected release mixtures if actual samples do not contain sufficient detectable activity to accurately estimate the mixtures. The assumed isotopic mixtures are periodically reviewed to verify that they remain representative of plant effluents.
2. The selected noble gas or particulate mixture is used in the GASPAR program run to calculate the associated doses. The total source term (total curies used for the calculation) does not matter as long as the proper nuclides are present in the relative proportions indicated in sample analysis data or FSAR/FES tables.

For the iodine-131 setpoint, any release total for I-131 can be entered. The highest calculated annual average relative concentrations (χ/Q_s) at the site boundary are used for these GASPAR calculations.

3. The following ratio concept is used to calculate a release rate limit for the assumed mixture (or I-131):

$$\frac{\text{Calculated Dose (mrem)}}{\text{Total GASPAR Source Term (Ci)}} = \frac{\text{Dose Rate Limit (mrem/yr)}}{\text{Limiting Release Rate (Ci/yr)}}$$

The limiting release rate of the assumed mixture (or I-131) can therefore be calculated:

Limiting Release (Ci/yr) =

$$\frac{(\text{Total GASPAR Source Term, Ci}) (\text{Dose Rate Limit, mrem/yr})}{(\text{Calculated Dose, mrem})}$$

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For the noble gas setpoint, the calculated whole body and skin dose rates via the plume pathway are subject to the 10CFR20-derived limits of 500 and 3000 mrem/yr, respectively. The whole body dose rate limit is usually most restrictive. For particulates and for iodine-131, the maximum calculated organ dose via the inhalation pathway is subject to the limit of 1500 mrem/yr.

4. The limiting release rates are converted to limiting vent concentrations using high limit vent flow rates.

Limiting Vent Concentration, uCi/cc =

$$\frac{(\text{Limiting Release Rate, Ci/yr}) (10E6 \text{ uCi/Ci})}{(5.26E5 \text{ min/yr}) (\text{Vent High Limit Flow Rate, cc/min})}$$

Sample calculations of liquid and gaseous effluent monitor setpoints are presented in Appendix A.

Vent flow rates and sample flow rates are monitored and recorded for each of the five SSES release points. The measured flow rates are used to calculate vent concentrations and release rates. Flow channel setpoints are set at 10% and 90% of the calibrated sensor ranges to provide indication of possibly abnormal flow rates.

SPECIFICATION 3.11.2.6 - THE CONCENTRATION OF HYDROGEN OR OXYGEN IN THE MAIN CONDENSER OFFGAS TREATMENT SYSTEM SHALL BE LIMITED TO LESS THAN OR EQUAL TO 4% BY VOLUME.

Hydrogen recombiners are used at SSES to maintain the relative concentration of components of potentially explosive gas mixtures outside the explosive envelope. The main condenser offgas treatment system explosive gas monitoring system (offgas hydrogen analyzers) have setpoints of 1% hydrogen to alarm and 2% hydrogen to isolate.

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TABLE 2
DOSE FACTORS FOR NOBLE GASES AND DAUGHTERS^a

| Radionuclide | Whole Body Dose Factor K_1 (mrem/yr per $\mu\text{Ci}/\text{m}^3$) | Skin Dose Factor L_1 (mrem/yr per $\mu\text{Ci}/\text{m}^3$) | Gamma Air Dose Factor H_1 (mrad/yr per $\mu\text{Ci}/\text{m}^3$) | Beta Air Dose Factor N_1 (mrad/yr per $\mu\text{Ci}/\text{m}^3$) |
|--------------|--|---|---|--|
| Kr-83m | 7.56E-02 ^b | --- | 1.93E+01 | 2.88E+02 |
| Kr-85m | 1.17E+03 | 1.46E+03 | 1.23E+03 | 1.97E+03 |
| Kr-85 | 1.61E+01 | 1.34E+03 | 1.72E+01 | 1.95E+03 |
| Kr-87 | 5.92E+03 | 9.73E+03 | 6.17E+03 | 2.03E+04 |
| Kr-88 | 1.47E+04 | 2.37E+03 | 1.52E+04 | 2.93E+03 |
| Kr-89 | 1.66E+04 | 1.01E+04 | 1.73E+04 | 1.06E+04 |
| Kr-90 | 1.56E+04 | 7.29E+03 | 1.63E+04 | 7.83E+03 |
| Xe-131m | 9.15E+01 | 4.76E+02 | 1.56E+02 | 1.11E+03 |
| Xe-133m | 2.51E+02 | 9.94E+02 | 3.27E+02 | 1.48E+03 |
| Xe-133 | 2.94E+02 | 3.06E+02 | 3.53E+02 | 1.05E+03 |
| Xe-135m | 3.12E+03 | 7.11E+02 | 3.36E+03 | 7.39E+02 |
| Xe-135 | 1.81E+03 | 1.86E+03 | 1.92E+03 | 2.46E+03 |
| Xe-137 | 1.42E+03 | 1.22E+04 | 1.51E+03 | 1.27E+04 |
| Xe-138 | 8.83E+03 | 4.13E+03 | 9.21E+03 | 4.75E+03 |
| Ar-41 | 8.84E+03 | 2.69E+03 | 9.30E+03 | 3.28E+03 |

^a The listed dose factors are for radionuclides that may be detected in gaseous effluents and derived from Table B-1 in Reg. Guide 1.109.

^b 7.56E-02 = 7.56 x 10⁻².

17A

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$$\frac{5000 + f}{f} = \frac{10 \cdot (1E-5)}{1E-7}$$

$$f = 5 \text{ gpm}$$

For an identified mixture with an actual MPC of $7.22E-7 \text{ } \mu\text{Ci/ml}$ and the same activity, blowdown flow and X and Y values as above, the LRW discharge monitor setpoint value and LRW discharge flow setpoint become:

$$\text{Setpoint concentration (c)} = 3E-5 \text{ } \mu\text{Ci/ml}$$

$$\text{Setpoint value} = 2.3E3 \text{ cpm} + \text{Background}$$

$$\text{LRW discharge flow setpoint (f)} = 36 \text{ gpm}$$

A.1.2 Gaseous Effluent Monitors

A.1.2.1 Noble Gas Monitor

To determine the release rate limit for noble gases, an isotopic mixture representative of plant effluents is selected. For example, the following mixture from Table 4.4 of the SSES Final Environmental Statement (FES) can be used:

| | |
|------------------|--------------------------|
| Argon-41 | 25 Ci/yr per reactor |
| Krypton-83m | 4 |
| Krypton-85m | 1,700 |
| Krypton-85 | 270 |
| Krypton-87 | 32 |
| Krypton-88 | 660 |
| Xenon-131m | 71 |
| Xenon-133m | 14 |
| Xenon-133 | 12,500 |
| Xenon-135m | 220 |
| Xenon-135 | 590 |
| <u>Xenon-138</u> | <u>290</u> |
| Total | 16,376 Ci/yr per reactor |

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The above annual release quantities are entered into GASPAR with the following annual average dispersion estimates (Reference: 1982 SSES Meteorology Report):

| | |
|---|---------------------------|
| Relative Concentration | 4.1E-5 sec/m ³ |
| Decayed Relative Concentration | 4.1E-5 sec/m ³ |
| Decayed Depleted Relative Concentration | 3.8E-5 sec/m ³ |
| Deposition Rate | 4.2E-8 m ⁻² |

This set of annual average meteorological parameters is the most conservative over the period 1973-1982.

The total body dose via the plume pathway which results is 18.3 mrem. Equation 5 of the ODCM is then used to calculate the limiting release rate from each of the five plant release points:

Limiting Release Rate =

$$\frac{(32,752 \text{ Ci}) (500 \text{ mrem/yr})}{(36.6 \text{ mrem}) (5 \text{ vents})} = 8.95E4 \text{ Ci/yr per vent}$$

This limiting release rate is then converted to limiting (setpoint) concentrations using Equation 6 of the ODCM and high limit vent flow rates.

Sample High Limit Vent Flow Rates:

| | |
|-----------------------------------|---------------|
| Unit 1 Reactor Building Vent | 4.75E9 cc/min |
| Unit 2 Reactor Building Vent | 4.75E9 cc/min |
| Standby Gas Treatment System Vent | 5.04E8 cc/min |
| Unit 1 Turbine Building Vent | 8.63E9 cc/min |
| Unit 2 Turbine Building Vent | 6.50E9 cc/min |

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Limiting Vent Concentration =

$$\frac{(8.95E4 \text{ Ci/yr/vent}) (1E6 \text{ uCi/Ci})}{(5.26E5 \text{ min/yr}) (4.75E9 \text{ cc/min})} = 3.58E-5 \text{ uCi/cc for Reactor Buildings 1\&2}$$

Substituting the other vent flow rates into Equation 6 as above, the following noble gas high radiation setpoint concentrations are calculated for the remaining vents:

| | |
|------------------------------|----------------|
| Standby Gas Treatment System | 3.37E-4 uCi/cc |
| Unit 1 Turbine Building | 1.97E-5 uCi/cc |
| Unit 2 Turbine Building | 2.62E-5 uCi/cc |

A.1.2.2 Iodine-131 Monitor

When the FES expected annual release quantity for I-131 (2.40E-1 curies) is entered into GASPARD with the dispersion estimates of A.1.2.1, the maximum calculated organ dose via the inhalation pathway is 4.88 mrem to the child thyroid. Using Equation 5 of the ODCM, the limiting I-131 release rate is calculated as follows:

Limiting Release Rate =

$$\frac{(.24 \text{ Ci}) (1500 \text{ mrem/yr})}{(4.88 \text{ mrem}) (5 \text{ vents})} = 1.48E1 \text{ Ci/yr/vent}$$

Using Equation 6 of the ODCM, the limiting (setpoint) I-131 concentrations can be calculated for each of the five plant vents.

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Limiting Vent Concentration =

$$\frac{(14.8 \text{ Ci/yr/vent}) (1E6 \text{ uCi/Ci})}{(5.26E5 \text{ min/yr}) (4.75E9 \text{ cc/min})} = 5.92E-9 \text{ uCi/cc for Reactor Buildings 1\&2}$$

Substituting the other vent flow rates into Equation 6 of the ODCM above, the high radiation setpoints for the remaining plant vents are calculated to be the following:

| | |
|------------------------------|----------------|
| Standby Gas Treatment System | 5.58E-8 uCi/cc |
| Unit 1 Turbine Building | 3.26E-9 uCi/cc |
| Unit 2 Turbine Building | 4.33E-9 uCi/cc |

A.1.2.3 Particulate Monitor

Following are the SSES Final Environmental Statement (FES) expected annual release quantities for particulate radionuclides:

| | |
|--------|--------------------------|
| Cr-51 | 1.2E-4 Ci/yr per reactor |
| Mn-54 | 3.6E-4 |
| Fe-59 | 1.6E-4 |
| Co-58 | 5.8E-5 |
| Co-60 | 1.1E-3 |
| Zn-65 | 5.5E-5 |
| Sr-89 | 1.8E-5 |
| Sr-90 | 3.1E-6 |
| Zr-95 | 8.7E-6 |
| Sb-124 | 5.1E-6 |
| Cs-134 | 1.3E-4 |

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| | |
|---------------|--------------------------|
| Cs-136 | 1.3E-3 |
| Cs-137 | 2.1E-4 |
| Ba-140 | 4.2E-5 |
| <u>Ce-141</u> | <u>2.9E-5</u> |
| Total | 3.6E-3 Ci/yr per reactor |

When the above annual release quantities are entered into GASPAR with the annual average dispersion estimates of A.1.2.1, the maximum calculated organ dose via the inhalation pathway is 1.33E-2 mrem to the teen lung. Using Equation 5 of the ODCM, the limiting release rate of particulates can be calculated:

Limiting Release Rate =

$$\frac{(7.2E-3 \text{ Ci}) (1500 \text{ mrem/yr})}{(2.66E-2 \text{ mrem}) (5 \text{ vents})} = 8.12E1 \text{ Ci/yr/vent}$$

Using Equation 6 of the ODCM, the limiting (setpoint) particulate concentrations can be calculated for each of the five plant vents.

Limiting Vent Concentration =

$$\frac{(81.2 \text{ Ci/yr/vent}) (1E6 \text{ uCi/Ci})}{(5.26E5 \text{ min/yr}) (4.75E9 \text{ cc/min})} = 3.25E-8 \text{ uCi/cc for Reactor Buildings 1\&2}$$

When the vent flow rates for the remaining five plant vents are substituted into Equation 6 as above, the following high radiation setpoint concentrations result.

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| | |
|------------------------------|----------------|
| Standby Gas Treatment System | 3.06E-7 uCi/cc |
| Unit 1 Turbine Building | 1.79E-8 uCi/cc |
| Unit 2 Turbine Building | 2.38E-8 uCi/cc |

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Pennsylvania Power & Light Company

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Bruce D. Kenyon
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OCT 09 1984

Director, Data Automation &
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Attention: Mr. M. R. Beebe
Management Information Branch
Office of Resource Management
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
MONTHLY OPERATING REPORTS
ER 100450 FILE 841
PLA-2330

Docket Nos. 50-387/NPF-14
50-388/NPF-22

Dear Mr. Beebe:

The September 1984 monthly operating reports for Susquehanna SES Units 1 and 2 are attached.

Very truly yours,

B. D. Kenyon
Vice President-Nuclear Operations

Attachment

cc: Dr. Thomas E. Murley
Regional Administrator-Region I
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