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50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylvania			05000388
AUTH. NAME	AUTHOR AFFILIATION		
FULLER, L.L.	Pennsylvania Power & Light Co.		
KEISER, H.W.	Pennsylvania Power & Light Co.		
RECIP. NAME	RECIPIENT AFFILIATION		

SUBJECT: Monthly operating repts for Nov 1992 for SSES, units 1 & 2. W/  
921214 ltr.

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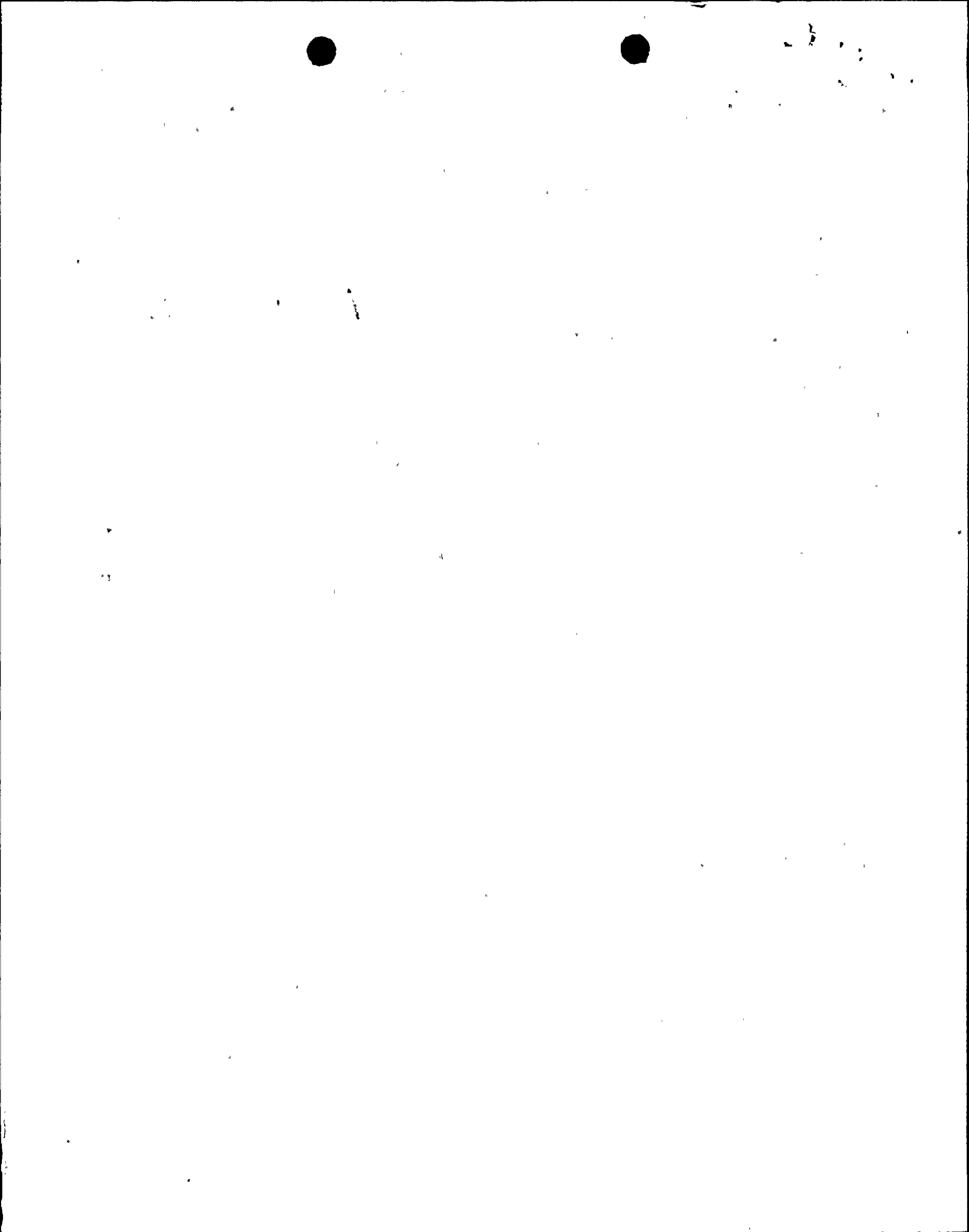
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**Pennsylvania Power & Light Company**

Two North Ninth Street • Allentown, PA 18101-1179 • 215/774-5151

Harold W. Keiser  
Senior Vice President-Nuclear  
215/774-4194

Submitted pursuant to  
Technical Specifications  
Section 6.9.1.6

DEC 14 1992

U.S. Nuclear Regulatory Commission  
Attn.: Document Control Desk  
Washington, D.C. 20555

**SUSQUEHANNA STEAM ELECTRIC STATION**  
**MONTHLY OPERATING REPORTS**  
**PLA-3889 FILE R41-2A**

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

The November 1992 monthly operating reports for Susquehanna SES Units 1 and 2 are attached.

Very truly yours,

H. W. Keiser

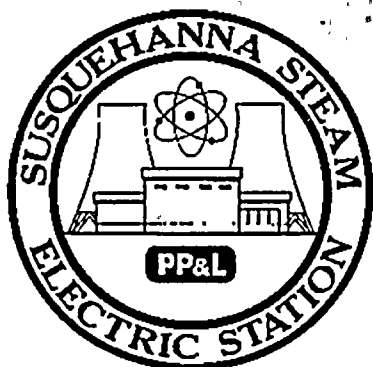
Attachment

cc: NRC Region I  
Mr. G. S. Barber, NRC Resident Inspector  
Mr. R. J. Clark, NRC Sr. Project Manager

9212170156 921130  
PDR ADCK 05000387  
R PDR

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AVERAGE DAILY UNIT POWER LEVEL



DOCKET NO. 50-387

UNIT: One

DATE: 12-2-92

COMPLETED BY: L.L. Fuller

TELEPHONE: (717)542-3858

MONTH November 1992

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

1	<u>1050</u>
2	<u>1052</u>
3	<u>1046</u>
4	<u>1044</u>
5	<u>1051</u>
6	<u>1053</u>
7	<u>1054</u>
8	<u>1054</u>
9	<u>1054</u>
10	<u>1053</u>
11	<u>1051</u>
12	<u>435</u>
13	<u>0</u>
14	<u>8</u>
15	<u>659</u>
16	<u>980</u>

DAY AVERAGE DAILY POWER LEVEL  
(Mwe-Net)

17	<u>1051</u>
18	<u>1050</u>
19	<u>1051</u>
20	<u>1050</u>
21	<u>1045</u>
22	<u>1039</u>
23	<u>1040</u>
24	<u>1047</u>
25	<u>1046</u>
26	<u>1043</u>
27	<u>1050</u>
28	<u>1051</u>
29	<u>1050</u>
30	<u>1051</u>
31	<u></u>

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.



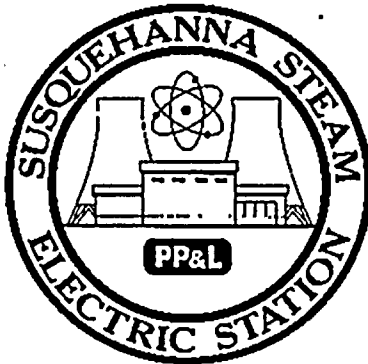
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OPERATING DATA REPORT



DOCKET NO.: 50-387  
 DATE: 12-2-92  
 COMPLETED BY: L.L. Fuller  
 TELEPHONE: (717)542-3858

Notes

OPERATING STATUS

1. Unit Name: Susquehanna Steam Electric Station (Unit 1)
2. Reporting Period: November 1992
3. Licensed Thermal Power(MWt): 3293
4. Nameplate Rating (Gross MWe): 1152
5. Design Electrical Rating (Net MWe): 1050
6. Maximum Dependable Capacity (Gross MWe): 1078
7. Maximum Dependable Capacity (Net MWe): 1040
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: N/A

	This Month	Yr-to-Date	Cumulative
11. Hours In Reporting Period	<u>720</u>	<u>8040</u>	<u>83,137</u>
12. Number of Hrs Reactor Was Critical	<u>673.2</u>	<u>6003.3</u>	<u>64,929.2</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>1032</u>
14. Hours Generator On-Line	<u>663.2</u>	<u>5826.2</u>	<u>63,554.9</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated(MWH)	<u>2,134,104</u>	<u>17,906,894</u>	<u>199,419,855</u>
17. Gross Electrical Energy Generated (MWH)	<u>703,282</u>	<u>5,868,102</u>	<u>65,161,414</u>
18. Net Electric Energy Generated (MWH)	<u>678,791</u>	<u>5,634,787</u>	<u>62,607,061</u>
19. Unit Service Factor	<u>92.1</u>	<u>72.5</u>	<u>76.5</u>
20. Unit Availability Factor	<u>92.1</u>	<u>72.5</u>	<u>76.5</u>
21. Unit Capacity Factor (Using MDC Net)	<u>90.7</u>	<u>67.4</u>	<u>72.4</u>
22. Unit Capacity Factor (Using DER Net)	<u>89.8</u>	<u>66.8</u>	<u>71.7</u>
23. Unit Forced Outage Rate	<u>7.9</u>	<u>8.0</u>	<u>7.7</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each)			

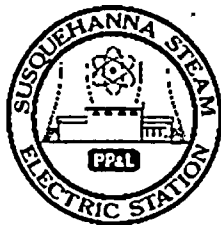
25. If Shut Down At End of Report Period, Estimated Date of Startup: \_\_\_\_\_
26. Units In Test Status (Prior to Commercial Operation): \_\_\_\_\_

	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 November 1992

DOCKET NO. 50-387  
 UNIT NAME One  
 DATE 12-2-92  
 COMPLETED BY L.L. Fuller  
 TELEPHONE (717)542-3858

NO.	DATE	TYPE <sup>1</sup>	DURATION (HOURS)	REASON <sup>2</sup>	METHOD OF SHUTTING DOWN REACTOR <sup>3</sup>	LICENSEE EVENT REPORT#	SYSTEM CODE <sup>4</sup>	COMPONENT CODE <sup>5</sup>	CAUSE & CORRECTIVE ACTION TO PREVENT RECURRENCE
9	921112	F	56.8	A	3	92-017	SJ	RLY	Unit One experienced an automatic reactor scram at 1014 hours November 12. The scram was caused by a faulty relay in one division of the RFP turbine, main turbine hi-level trip circuit while a surveillance was being performed in the other division of the hi level trip logic. The faulty relay was replaced. The Unit was returned to service at 1905 hours November 14 and reached 100% power 0400 hours November 16.

<sup>1</sup>  
 F: Forced  
 S: Scheduled

<sup>2</sup>  
 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)

<sup>3</sup>  
 Method:  
 1-Manual  
 2-Manual Scram  
 3-Automatic Scram  
 4-Continuation  
     from previous month  
 5-Reduction  
 9-Other

<sup>4</sup>  
 Exhibit G-Instructions  
 for preparation of Data  
 Entry Sheets for Licensee  
 Event Report (LER) File (NUREG  
 0161)  
<sup>5</sup>  
 Exhibit I-Same Source

SUSQUEHANNA STEAM ELECTRIC STATION

Docket Number 50-387 Date: 12-2-92

Completed by L. L. Fuller Telephone: (717) 542-3858

Challenges to Main Steam Safety Relief Valves

In response to an auto scram from 100% power on November 12, 1992, two SRVs automatically actuated.

<u>SRV</u>	<u>OPEN</u>	<u>LENGTH</u>	<u>PRESSURE (PSIG)</u>
A	10:14:46	9.15 sec	1066
B	10:14:46	9.35 sec	1066

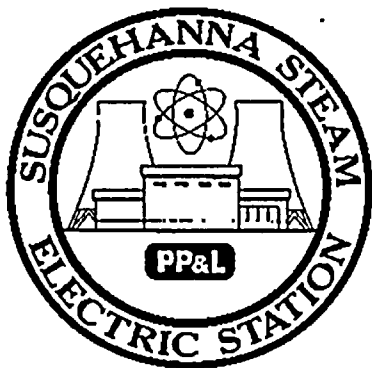
Changes to the Offsite Dose Calculation Manual

Yes-See Attachment A for changes

Major Changes to Radioactive Waste Treatment Systems

None.

AVERAGE DAILY UNIT POWER LEVEL



DOCKET NO.: 50-388

UNIT: Two

DATE: 12-2-92

COMPLETED BY: L.L. Fuller

TELEPHONE: (717)542-3858

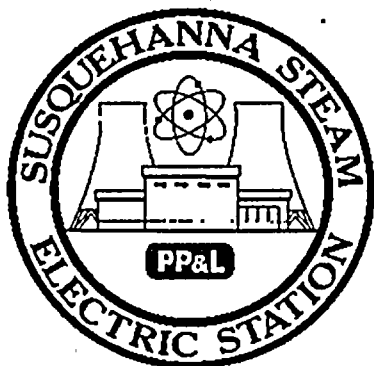
MONTH November 1992

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	0	17	492
2	0	18	495
3	0	19	590
4	0	20	818
5	0	21	802
6	0	22	918
7	0	23	1055
8	0	24	1055
9	0	25	1062
10	0	26	1061
11	0	27	1048
12	0	28	1065
13	0	29	1064
14	60	30	1066
15	223	31	
16	451		

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: 12-2-92  
 COMPLETED BY: L.L. Fuller  
 TELEPHONE: (717)542-3858

Notes

**OPERATING STATUS**

1. Unit Name: Susquehanna Steam Electric Station (Unit 2)
2. Reporting Period: November 1992
3. Licensed Thermal Power (Mwt): 3293
4. Nameplate Rating (Gross MWe): 1152
5. Design Electrical Rating (Net MWe): 1050
6. Maximum Dependable Capacity (Gross MWe): 1082
7. Maximum Dependable Capacity (Net MWe): 1044
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: N/A

	This Month	Yr-to-Date	Cumulative
11. Hours In Reporting Period	<u>720</u>	<u>8,040</u>	<u>68,376</u>
12. Number of Hrs Reactor Was Critical	<u>489.5</u>	<u>6511.7</u>	<u>56,493.6</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>717.9</u>
14. Hours Generator On-Line	<u>400.4</u>	<u>6,376.6</u>	<u>55,373.3</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>1,039,372</u>	<u>20,182,339</u>	<u>175,545,274</u>
17. Gross Electrical Energy Generated (MWH)	<u>333,230</u>	<u>6,639,256</u>	<u>57,546,280</u>
18. Net Electric Energy Generated (MWH)	<u>314,431</u>	<u>6,388,891</u>	<u>55,376,082</u>
19. Unit Service Factor	<u>55.6</u>	<u>79.3</u>	<u>81.0</u>
20. Unit Availability Factor	<u>55.6</u>	<u>79.3</u>	<u>81.0</u>
21. Unit Capacity Factor (Using MDC Net)	<u>41.8</u>	<u>76.1</u>	<u>77.6</u>
22. Unit Capacity Factor (Using DER Net)	<u>41.6</u>	<u>75.7</u>	<u>77.1</u>
23. Unit Forced Outage Rate	<u>5.9</u>	<u>2.6</u>	<u>5.5</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date and Duration of Each)			

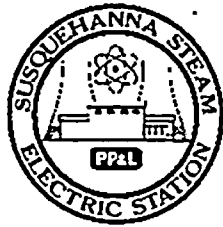
25. If Shut Down At End of Report Period, Estimated Date of Startup: \_\_\_\_\_
26. Units In Test Status (Prior to Commercial Operation): \_\_\_\_\_

	FORECAST	ACHIEVED
INITIAL CRITICALITY	_____	_____
INITIAL ELECTRICITY	_____	_____
COMMERCIAL OPERATION	_____	_____



24

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UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH November 1992

DOCKET NO. 50-388  
 UNIT NAME Two  
 DATE 12-2-92  
 COMPLETED BY L. L. Fuller  
 TELEPHONE (717) 542-3858

NO.	DATE	TYPE <sup>1</sup>	DURATION (HOURS)	REASON <sup>2</sup>	METHOD OF SHUTTING DOWN REACTOR <sup>3</sup>	LICENSEE EVENT REPORT#	SYSTEM CODE <sup>4</sup>	COMPONENT CODE <sup>5</sup>	CAUSE & CORRECTIVE ACTION TO PREVENT RECURRENCE
7	920912	S	294.4	C	4	NA	XX	ZZZ	Unit Two was manually shutdown for its planned Fifth Refuel and Inspection Outage and the generator taken offline at 0053 hours September 12. The fifth fuel cycle ended at 0623 hours November 13 when Unit Two's main generator was synchronized to the PJM grid. Outage length was 62 days 5 hours 30 minutes. The unit reached 100% power at 0200 hours November 23.
8	921113	F	7.3	B	9	NA	TA	TRB	Unit Two took the generator offline at 0835 hours November 13 due to high vibration on the #3 bearing of the main turbine. The generator was re-synchronized at 1555 hours November 13.

<sup>1</sup>  
 F: Forced  
 S: Scheduled

<sup>2</sup>  
 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)

<sup>3</sup>  
 Method:  
 1-Manual  
 2-Manual Scram  
 3-Automatic Scram  
 4-Continuation  
     from previous month  
 5-Reduction  
 9-Other

<sup>4</sup>  
 Exhibit G-Instructions  
 for preparation of Data  
 Entry Sheets for Licensee  
 Event Report (LER) File (NUREG  
 0161)

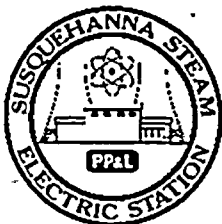
<sup>5</sup>  
 Exhibit I-Same Source



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UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH November 1992

DOCKET NO. 50-388  
 UNIT NAME Two  
 DATE 12-2-92  
 COMPLETED BY L. L. Fuller  
 TELEPHONE (717) 542-3858

NO.	DATE	TYPE <sup>1</sup>	DURATION (HOURS)	REASON <sup>2</sup>	METHOD OF SHUTTING DOWN REACTOR <sup>3</sup>	LICENSEE EVENT REPORT#	SYSTEM CODE <sup>4</sup>	COMPONENT CODE <sup>5</sup>	CAUSE & CORRECTIVE ACTION TO PREVENT RECURRENCE
9	921113	F	7.7	B	9	NA	TA	TRB	Unit Two took the generator offline at 1836 hours November 13 due to high vibration on the # 3 bearing of the main turbine. The generator was re-synchronized at 0215 hours November 14.
10	921114	S	1.9	B	9	NA	TA	ZZZ	Unit Two took the generator offline at 0634 hours November 14 to perform a scheduled turbine overspeed trip test. The generator was re-synchronized at 0825 hours November 14.
11	921114	F	8.4	B	9	NA	TA	TRB	Unit Two took the generator offline at 1931 hours November 14 due to high vibration on the # 3 bearing of the main turbine. The generator was re-synchronized at 0353 hours November 15.

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F: Forced  
 S: Scheduled

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)

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

G-Instructions Exhibit  
 for preparation of Data  
 Entry Sheets for Licensee  
 Event Report (LER) File (NUREG  
 0161)  
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 Exhibit I-Same Source



SUSQUEHANNA STEAM ELECTRIC STATION

Docket Number 50-388 Date: 12-2-92

Completed by L. L. Fuller Telephone: (717) 542-3858

Challenges to Main Steam Safety Relief Valves

None.

Changes to the Offsite Dose Calculation Manual

Yes-See Attachment A for changes

Major Changes to Radioactive Waste Treatment Systems

None.

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

---

Prepared By Roboris K. Barclay Date 11/23/92

Reviewed By Kenneth Shank Date 11/23/92  
Supervisor-Environmental Services  
Nuclear

Reviewed By D. Daniel Date 11/24/92  
for H.G. Stanley 92-174  
PORC/Meeting No.

Approved By AT Jones Date 11/25/92  
Manager-Nuclear Technology

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## SUMMARY OF ODCM CHANGES

1. Milk sampling location 12D2, the Dagostin Farm, was deleted from Table 6 and Figure 6 because the farmer quit the dairy farming business in July 1992. Location 10D1, the Ryman Farm, which is 3.0 miles SSW of the SSES replaces 12D2 as a monthly and semi-monthly sampling location.
2. The location designation for the air sampling location 12S2 was changed to 12S1 in the interest of ensuring consistency in the assignment of such designations.
3. TLD monitoring location 3G5, the Parrish Street Substation in Wilkes-Barre, replaces the former location 3G3, the Horton Street Substation. This change was necessitated as a result of the PCB contamination at location 3G3. Both locations are in the NE sector and essentially the same distance, 16.0 miles, from the SSES.
4. The position of TLD monitoring station 13S2 in Figure 5 has been changed to reflect correctly its location east of the road. No change to the actual monitoring location has been made. Figure 5 has also been changed to reflect the site boundary placement to the northeast (Sector 3: Gould Island) and to the south (Sector 7) more accurately.
5. The setpoint description for the main condenser offgas pre-treatment monitor has been changed to specify basis in Tech. Spec. 3.11.2.7 noble gas release rate of 330 millicuries/second.
6. Changes performed herein will not reduce the accuracy or reliability of dose calculations or setpoint determinations in accordance with Technical Specification 6.14.2.a.2.

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Limiting Vent Concentration, uCi/cc =

$$\frac{(\text{Limiting Release Rate, Ci/yr}) (1E6 \text{ uCi/Ci})}{(5.26E5 \text{ min/yr}) (\text{Vent Flow Rate, cc/min})} \quad (\text{Eq. 6})$$

Sample calculations of waterborne and airborne effluent monitor setpoints are presented in Section A.1.2 of 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 approximately 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.

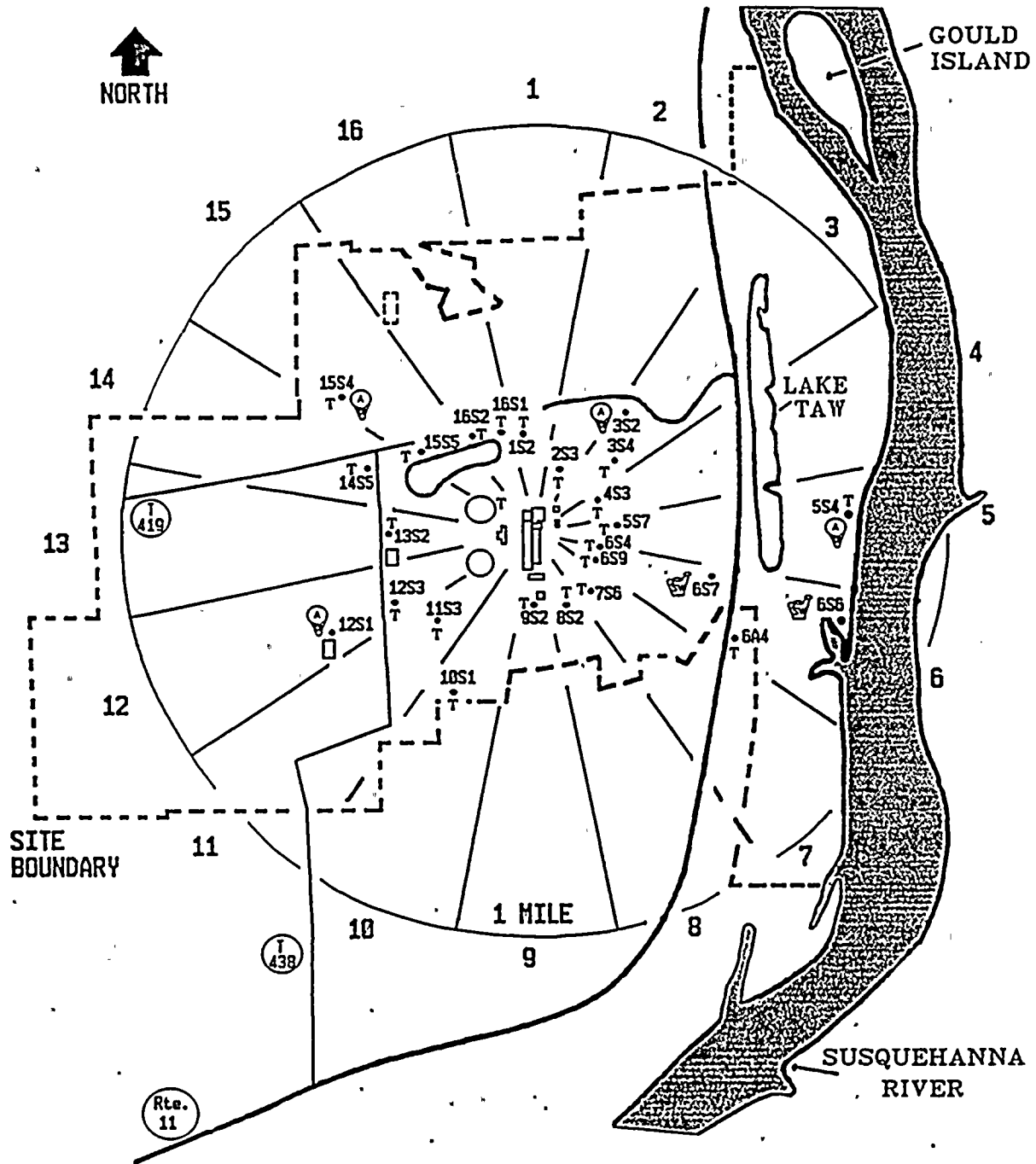
Hydrogen recombiners are used at SSES to maintain the relative concentration of components of potentially explosive gas mixtures outside the explosive envelope. The main condenser offgas treatment system explosive gas monitoring system (offgas hydrogen analyzers) have setpoints to alarm at 1% and 2%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



SPECIFICATION 3.11.2.7 - The radioactivity rate of the noble gases Kr-85m, Kr-87, Kr-88, Xe-133, Xe-135 and Xe-138 measured at the motive steam jet condenser discharge shall be limited to less than or equal to 330 millicuries/second.

The main condenser offgas pre-treatment monitor provides indication of offgas activity prior to input to the holdup system. Alarm setpoints are based on the Tech. Spec. 3.11.2.7 noble gas release rate limit of 330 millicuries/second or less at the motive steam jet condenser discharge.

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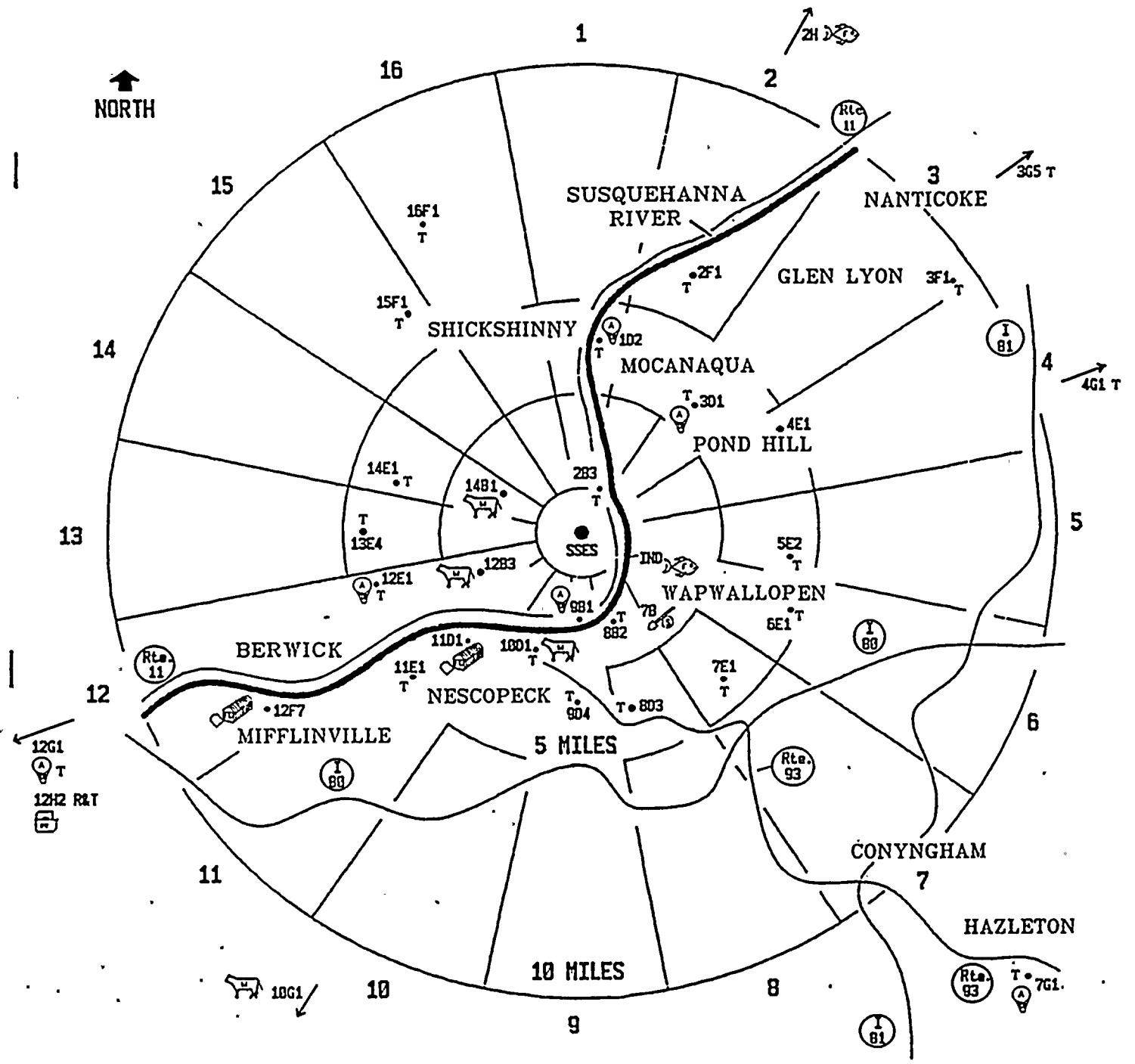
FIGURE 5  
 ENVIRONMENTAL MONITORING LOCATIONS  
 WITHIN ONE MILE OF THE SSES










-  AIR
-  SURFACE WATER
- T THERMOLUMINESCENT DOSIMETRY

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FIGURE 6  
 ENVIRONMENTAL MONITORING LOCATIONS  
 GREATER THAN ONE MILE FROM THE SSES



- |   |                |   |                             |
|---|----------------|---|-----------------------------|
|  | AIR            |  | MILK                        |
|  | DRINKING WATER |  | SEDIMENT                    |
|  | FISH           |  | THERMOLUMINESCENT DOSIMETRY |
|  | FOOD           |   |                             |

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TABLE 6  
OPERATIONAL RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

<u>Exposure Pathways and/or Sample</u>	<u>Number of Samples and Locations*</u>	<u>Sampling and Collection Frequency</u>	<u>Type and Frequency of Analysis</u>			
<u>Airborne</u>						
Radioiodine and Particulates	12S1 (0.4 mi WSW - E.O.F. Building)	Continual sampler operation with sample collection weekly.**	Radioiodine Canister: analyze weekly for I-131			
	9B1 (1.3 mi S - Transmission Line)					
	5S4 (0.8 mi E - W of Bio. Consult.)					
	12E1 (4.7 mi WSW - Berwick Hospital)					
	7G1 (14 mi SE - PP&L Hazleton Chem Lab)*					
	3S2 (0.5 mi NE - SSES Backup Met. Tower)					
	15S4 (0.6 mi NW - Transmission Corridor)					
	1D2 (3.9 mi N - Mocanaqua Substation)					
	3D1 (3.4 mi NE - Pond Hill)					
	12G1 (15 mi WSW - Bloomsburg Service Center)*					
	<u>Direct Radiation</u>					
	1S2 Perimeter Fence - 0.2 mi N			Quarterly	Gamma Dose: Quarterly.	
	1D2 Mocanaqua Substation - 4.0 mi N					
	2S3 Perimeter Fence - 0.2 mi NNE					
2B3 Durabond Corporation - 1.3 mi NNE						
2F1 St. Adalberts Cemetery - 5.9 mi NNE						
3S4 Perimeter Fence - 0.3 mi NE						
3D1 Pond Hill - 3.4 mi NE						
3F1 Valania Resident (Nanticoke) - 9.1 mi NE						
3G5 Wilkes-Barre-Parrish St. Substation - 16 mi NE*						
4S3 Perimeter Fence - 0.2 mi ENE						
4E1 Ruckles Hill Road Pole (#) 46422/N35197 - 4.8 mi ENE						
4G1 Mountain Top - Industrial Park - 14 mi ENE*						
5S7 Perimeter Fence - 0.3 mi E						
5E2 Bloss Farm - 4.5 mi E						
6S4 Perimeter Fence - 0.2 mi ESE						
6A4 Former State Police - 0.6 mi ESE						

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Exposure Pathways  
and/or SampleNumber of Samples  
and Locations\*Sampling and  
Collection FrequencyType and  
Frequency of Analysis

6E1 St. James Church - 4.7 mi ESE  
 6S9 Perimeter Fence - 0.2 mi ESE  
 7S6 Perimeter Fence - 0.2 mi SE  
 7E1 Harwood Transmission Line Pole #2 -  
 4.2 mi SE  
 7G1 Hazleton Chemical Lab - 14 mi SE<sup>a</sup>  
 8S2 Perimeter Fence - 0.2 mi SSE  
 8B2 LaWall Residence - 1.4 mi SSE  
 8D3 Mowry Residence - 4.0 mi SSE  
 9S2 Security Fence - 0.2 mi S  
 9D4 Country Folk Store - 3.6 mi S  
 10S1 Perimeter Fence - 0.4 mi SSW  
 10D1 Ross Ryman Farm - 3.0 mi SSW  
 11S3 Security Fence - 0.3 mi SW  
 11E1 Thomas Residence - 4.7 mi SW  
 12S3 Perimeter Fence - 0.4 mi WSW  
 12E1 Berwick Hospital - 4.7 mi WSW  
 12G1 Bloomsburg - 15 mi WSW<sup>a</sup>  
 13S2 Perimeter Fence - 0.4 mi W  
 13E4 Kessler Farm - 4.1 mi W  
 14S5 Site Pole 43996/N34230 0.5 mi WNW  
 14E1 Canouse Farm - 4.1 mi WNW  
 15F1 Zawatski Farm - 5.4 mi NW  
 15S5 Perimeter Fence - 0.4 mi NW  
 16S1 Perimeter Fence - 0.3 mi NNW  
 16S2 Perimeter Fence - 0.3 mi NNW  
 16F1 Hilday Residence (Huntington Mills) -  
 7.8 NNW

Waterborne

Surface	6S6 river water intake line <sup>a</sup> 6S7 cooling tower blowdown discharge line	Monthly composite Monthly composite	Gamma isotopic analysis. Composite tritium analysis at least quarterly.
Drinking	12H2 Danville Water Co. (Approximately 30 miles downstream)	Monthly composite <sup>b</sup>	Gross beta and gamma isotopic analyses monthly. Composite for tritium analysis at least quarterly.
Sediment from Shoreline	7B Bell Bend - 1.2 mi SE	Semi-annually	Gamma isotopic analysis semi-annually.

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<u>Exposure Pathways and/or Sample</u>	<u>Number of Samples and Locations<sup>a</sup></u>	<u>Sampling and Collection Frequency</u>	<u>Type and Frequency of Analysis</u>
Milk <sup>***</sup>	1283 Young Farm - 2.0 mi WSW 1061 Davis Farm - 14 mi. SSW <sup>a</sup> 1481 Stola Farm - 1.8 mi. WNW 1001 Ryman Farm - 3.0 mi. SSW	Semi-monthly when animals are on pasture, monthly otherwise	Gamma isotopic and I-131 analysis of each sample.
Fish and Invertebrates	Outfall area 2H Falls, PA <sup>a</sup> (Approximately 30 mi NNE)	Semi-annually. One sample <sup>c</sup> from each of two recreationally important species from any of the following families: bullhead catfish, sunfish, pikes, or perches.	Gamma isotopic on edible portions.
Food Products	1101 Zehner Farm - 3.3. mi SW vegetable  12F7 Lupini Farm - 8.3 mi WSW vegetable	At time of harvest	Gamma isotopic on edible portions.

<sup>46</sup> \*The location of samples and equipment were designed using the guidance in the Branch Technical Position to NRC Rev. Guide 4.8, Rev. 1, Nov. 1979, Reg. Guide 48. 1975 and ORP/SID 72-2 Environmental Radioactivity Surveillance Guide. Therefore, the airborne sampler locations were based upon X/Q and/or D/Q.

\*\*A dust loading study (RMC-TR-81-01) concluded that the assumption of 1 for the transmission correction factor for gross beta analysis of air particulate samples is valid. Air particulate samples need not be weighed to determine a transmission correction factor.

\*\*\*If a milk sample is unavailable for more than two sampling periods from one or more of the locations, a vegetation sample shall be substituted until a suitable milk location is evaluated. Such an occurrence will be documented in the REHP annual report.

<sup>a</sup> Control sample location.

<sup>b</sup> Two-week composite if calculated doses due to consumption of water exceed one millirem per year. In these cases, I-131 analyses will be performed.

<sup>c</sup> The sample collector will determine the species based upon availability, which may vary seasonally and yearly.

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