

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

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PORC REVIEW REQUIRED BEFORE APPROVAL BY THE MANAGER-NUCLEAR SERVICES

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SUMMARY OF ODCM CHANGES

This revision documents changes to sampling stations pursuant to SSES Technical Specifications 3.12.1.c and 3.12.2.b. Henceforth with this revision, all changed pages will be indicated by an approval/date box rather than date stamp.

1. Sampling stations 12S2 and 3S2 replace stations 11S2 and 2S2, respectively.
2. TLD station 9D4 replaces station 9D1; the only change of actual locations. Other locations (2B3, 9D4, 4E1, 10D2, and 11E1) have name changes.
3. Milk station 12B2 has been replaced by station 10D3.
4. Milk station 8D4 has been replaced by station 10D4.
5. Milk stations 13E3 and 9D3 were discontinued. Station 13E3 was replaced by 6C1, and 9D3 was not replaced due to low D/Q reported for this location.
6. Semi-monthly sampling frequency was reduced for station 10D1, due to low dose potential.
7. Milk stations 12B3 and 12D2 were added, due to their relatively high dose potential. Stations 12B3, 14B1 and 12D2 are now sampled semi-monthly per Technical Specification Table 3.12.1-1.

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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	12S2 (0.4 mi WSW- E.O.F. Building) 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 Chemical Lab) ^a 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) ^a	Continual sampler operation with sample collection weekly.**	Radioiodine Canister: analyze weekly for I-131 Particulate Sample: Analyze for gross beta radioactivity less than 24 hours following filter change. Perform gamma isotopic analysis on composite sample (by location) quarterly.
<u>Direct Radiation</u>	1S2 Perimeter Fence - 0.2 mi N 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 3G3 Wilkes-Barre-Horton St. Substation - 16 mi NE ^a 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 ^a 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	Quarterly	Gamma Dose: Quarterly.

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<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>
	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 ^a		
	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		
	10D2 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 ^a		
	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 Hidlay Residence (Huntington Mills) - 7.8 NNW		
<u>Waterborne</u>			
Surface	6S6 river water intake line ^a	Monthly composite	Gamma isotopic analysis.
	6S7 cooling tower blowdown discharge line	Monthly composite	Composite tritium analysis at least quarterly.
Drinking	12H2 Danville Water Co. (Approximately 30 miles downstream)	Monthly composite ^b	Gross beta and gamma isotopic analyses monthly. Composite for tritium analysis at least quarterly.

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<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>
Sediment from Shoreline	7B Bell Bend - 1.2 mi SE	Semiannually	Gamma isotopic analysis semiannually.
Milk***	12B3 Young Farm - 2.0 mi WSW 10G1 Davis Farm - 14 mi. SSW ^a 14B1 Stola Farm - 1.8 mi. WNW 12D2 Dagostin Farm - 3.7 mi. WSW	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 ^a (Approximately 30 mi NNE)	Semiannually. One sample ^c from each of two recrea- tionally important species from any of the following families: bullhead catfish, sunfish, pikes, or perches.	Gamma isotopic on edible portions.
Food Products	11D1 Zehner Farm - 3.3 mi SW vegetable	At time of harvest	Gamma isotopic on edible portions.

*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 REMP annual report.

^a Control sample location.

^b 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.

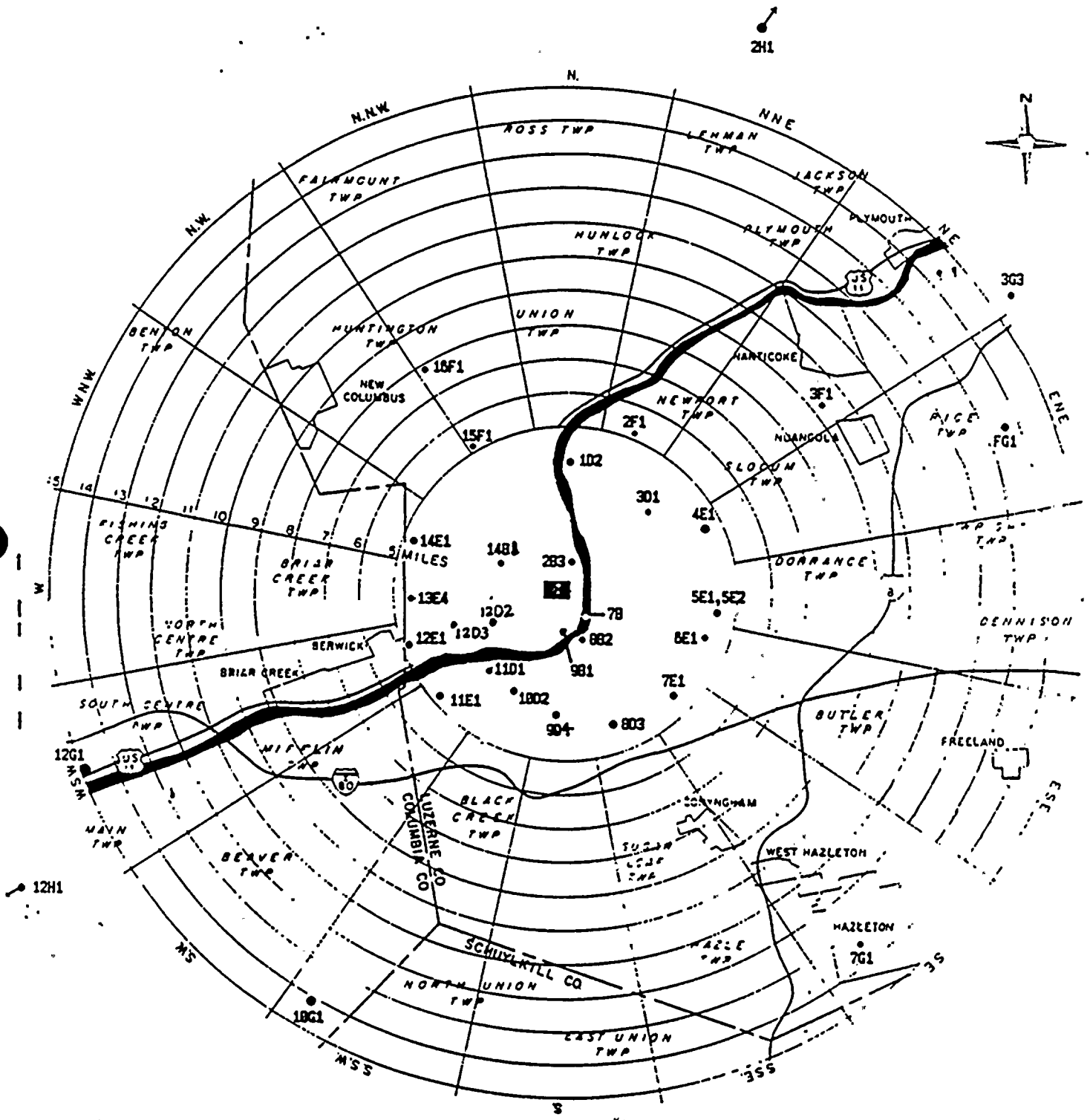
^c The sample collector will determine the species based upon availability, which may vary seasonally and yearly.



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FIGURE 6

OFFSITE ENVIRONMENTAL SAMPLING LOCATIONS - SUSQUEHANNA SES



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FIGURE 5

ONSITE ENVIRONMENTAL SAMPLING LOCATIONS - SUSQUEHANNA SES

