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AUG 01 2007

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SUSQUEHANNA STEAM ELECTRIC STATION
APPLICATION FOR RENEWED OPERATING LICENSES
NUMBERS NPF-14 AND NPF-22 REQUESTS FOR ADDITIONAL
INFORMATION - LICENSE RENEWAL APPLICATION (LRA)
ENVIRONMENTAL SITE AUDIT FOLLOWUP **Docket Nos. 50-387**
PLA-6248 **and 50-388**

References: 1) *PLA-6110, Mr. B. T. McKinney (PPL) to Document Control Desk (USNRC), "Application for Renewed Operating License Numbers NPF-14 and NPF-22," dated September 13, 2006.*

2) *Letter from Mr. A. L. Stuyvenberg (USNRC) to Mr. B. T. McKinney (PPL), "Request for Additional Information Regarding the Review of the License Renewal Application for Susquehanna Steam Electric Station, Units 1 and 2 (TAC Nos. MD3021 and MD3022)," dated July 13, 2007.*

In accordance with the requirements of 10 CFR 50, 51, and 54, PPL requested the renewal of the operating licenses for the Susquehanna Steam Electric Station (SSES) Units 1 and 2 in Reference 1.

Reference 2, Section A, is a request for additional information related to several items originally requested by NRC during the License Renewal Environmental Site audit. Section B of Reference 2 contains a request for additional information that was not identified during the environmental site audit.

The enclosure to this letter provides the additional information requested by NRC reviewers. Attachments numbers 1-10 provide the items originally requested during the License Renewal Environmental Site audit as referenced by the RAI responses.

There are no new regulatory commitments contained herein as a result of the additional information provided in these responses.

A120
NRR

If you have any questions, please contact Mr. Duane L Filchner at (610) 774-7819.

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on: 8/1/2007

for BTMckinney

B. T. McKinney

Enclosure: PPL Responses to NRC's Request for Additional Information (RAI)

Attachment 1: Susquehanna Project Land Use
Attachment 2: Non-Radiological Waste Overview
Attachment 3: Mixed Waste Generated
Attachment 4: Counts of Employees
Attachment 5: List of PPL Susquehanna's Environmental Procedures
Attachment 6: Initiative on Groundwater Protection PPL Susquehanna Action Plan
Attachment 7: Site Area Map – Disturbed Areas
Attachment 8: Protecting our Groundwater Presentation
Attachment 9: PPL Susquehanna, LLC Groundwater Monitoring Program: Tritium
Attachment 10: Summary of Analytical Results for Soil Samples

Copy: NRC Region I
Ms. E. H. Gettys, NRC Project Manager, License Renewal, Safety
Mr. R. V. Guzman, NRC Sr. Project Manager
Mr. R. Janati, DEP/BRP
Mr. F. W. Jaxheimer, NRC Sr. Resident Inspector
Mr. A. L. Stuyvenberg, NRC Project Manager, License Renewal, Environmental

Enclosure to PLA-6248
PPL Responses to NRC's
Request for Additional Information (RAI)

A. Items originally requested by NRC staff at the SSES environmental site audit, but converted to RAIs by agreement between Drew Stuyvenberg, NRC Environmental Project Manager, and Duane Filchner, PPL Susquehanna Regulatory Affairs.

NRC RAI 1:

Please provide the document "Susquehanna Project Land Use (Updated 06/01/07)" and the accompanying narrative description that PPL Susquehanna staff presented to NRC reviewers at the SSES environmental site audit as response XII Land Use, B, to NRC's April 18th, 2007, environmental site audit information request.

PPL Response:

PPL Attachment #1 includes a table listing approximate SSES acreage. It is categorized by different land uses for land on the West and East sides of the Susquehanna River. Also included is Gould Island. Land in Salem Township (West side of river) is owned jointly by PPL Susquehanna, LLC (90%) and Allegheny Electric Coop. (10%). This includes land West of Route 11, the Riverlands, and Gould Island. Land on the East side of the river (Conyngham and Hollenback Townships) is owned by PPL Susquehanna, LLC. This land was transferred to PPL Susquehanna, LLC from PPL Corp. in 1999 when the Commonwealth of Pennsylvania deregulated electrical generation in the state.

Concerning land leased referenced in Section 2.4 of the License Renewal Environmental Report, PPL leases some of the site lands to local farmers. Some of the crops farmed include corn and potatoes.

Gould Island (65 acres) is included in the total site acreage of 2,355 acres. The 88-acre Council Cup Overlook is also included in acreage total for lands on the East side of the river, although it is actually owned by PPL Electric Utilities. The acreage located between the power generating facilities and the Susquehanna River is referred to as both the, "Susquehanna Riverlands" and the "Riverlands Recreation Area" in the Environmental Report. These titles are used interchangeably, but "Susquehanna Riverlands" is more accurate for purposes of discussion in the Environmental Report.

PPL Attachment #1 contains the requested document.

NRC RAI 2:

Please identify the types of non-radiological wastes (wastes classified as hazardous, universal or residual) that the SSES site has produced for each of the past five years. Please provide an accounting of waste quantities by year and waste stream. PPL

Susquehanna staff originally showed NRC reviewers this information at the SSES environmental site audit, as response VIII Nonradiological Waste, A, to NRC's April 18th, 2007, environmental site audit information request.

PPL Response:

Nonradiological wastes generated at the Susquehanna SES include Hazardous, Universal, and Residual Wastes. Residual waste in Pennsylvania includes garbage, refuse, and other discarded non-hazardous materials or wastes.

The tables in PPL Attachment #2 provide an Overview of Year and Waste Stream Totals for 1) Hazardous and Universal Wastes and 2) Residual Wastes. These wastes were generated during the past five years (2002 - 2006). Also, included are Hazardous and Residual Waste Generation graphs for years 2002 through 2006.

PPL Attachment #2 contains the requested document.

NRC RAI 3:

Please provide the amounts (by weight) of mixed wastes the SSES site generated over the past 5 years. PPL Susquehanna staff originally showed NRC reviewers this information at the SSES environmental site audit, as response IX Mixed Waste, D, to NRC's April 18th, 2007, environmental site audit information request.

PPL Response:

The amount of mixed waste generated at the SSES during the last five years (2002 - 2006) is contained in PPL Attachment #3.

NRC RAI 4:

Please provide counts of SSES plant employees for each residential county and ZIP code. PPL Susquehanna staff originally showed NRC reviewers this information at the SSES environmental site audit, as part of response XI Socioeconomics, B, to NRC's April 18th, 2007, environmental site audit information request.

PPL Response:

PPL Attachment #4 contains counts of SSES plant employees by their residential county and by zip code, along with lists of zip codes for Luzerne County, Columbia County and nearby counties.

NRC RAI 5:

Please provide a count for the number of visitors who used the Susquehanna Riverlands in each of the past 5 years, as well as a projection of likely future visitors to the Riverlands. Also, describe any measures that Riverlands managers would use to limit environmental impacts associated with this level of usage. PPL Susquehanna staff originally showed NRC reviewers this information at the SSES environmental site audit, as response XIV Terrestrial Ecology, L, to NRC's April 18th, 2007, environmental site audit information request.

PPL Response:

Statistics regarding levels of visitor use at the Riverlands are as follows for years 2002 through 2006:

2002 - 124,901

2003 - 121,562

2004 - 103,991

2005 - 119,220

2006 - 120,124

Visitation is projected at around 120K per year. If attendance continues to remain at this level, and it appears that it will in 2007, there is no need to place any restrictions on usage.

The Riverlands area sanitation is connected to the SSES plant facilities and fresh water is obtained from onsite wells. Plant personnel have the responsibility to monitor and maintain the Riverlands facilities and equipment, which serves to limit environmental impacts from use by visitors.

NRC RAI 6:

Please provide the document "Hierarchy of PPL Susquehanna's Environmental Procedures." PPL Susquehanna staff originally showed NRC reviewers this item at the SSES environmental site audit, as response VIII, Nonradiological Waste, H, to NRC's April 18th, 2007, environmental site audit information request.

PPL Response:

PPL Attachment #5 contains the requested document.

NRC RAI 7:

Please provide a copy of "Initiative on Groundwater Protection – PPL Susquehanna Action Plan, Revision 0." PPL Susquehanna staff originally showed NRC reviewers this item at the SSES environmental site audit, as response VII, Radiological Protection, F, to NRC's April 18th, 2007, environmental site audit information request.

PPL Response:

PPL Attachment #6 contains the requested document.

NRC RAI 8:

Please provide a site map and narrative indicating which areas of the SSES site have been previously disturbed. This map may be based on Figure 2.1-3 from the SSES License Renewal Environmental Report. NRC staff originally requested this information during the Cultural and Archaeological Resources interview at the environmental site audit on May 15th - 17th, 2007.

PPL Response:

Following is a description of the SSES site areas disturbed during original and subsequent construction.

Most of the PPL property West of U.S. Route 11 bounded by Township Road T419 on the North and T438 on the West was disturbed. Some of the PPL property immediately West of Township Road T438 and bounded by Township Road T419 on the North was also disturbed. The North end of this area was used in the past as a residual waste landfill. Other areas along the West side of this road were disturbed for construction of the T10 switchyard and the "West" Building.

East of U.S. Route 11, several areas were disturbed for construction of the parking areas and maintenance building for the Susquehanna Riverlands, Lake Took-A-While, the River Intake Structure, the Energy Information Center, and the Wetlands Nature Area flow structure, parking area and drainage pipes.

The transmission corridors were also disturbed for construction of the transmission lines. This document request originated during an interview with the NRC Cultural Resources team.

PPL Attachment #7 contains a markup of Figure 2.1-3 Site Area Map (SSES License Renewal Environmental Report) indicating which areas of the site were disturbed.

NRC RAI 9:

Please provide a copy of the presentation "Protecting Our Groundwater," subtitled "Information Sharing Session With PA DEP/BRP Personnel, April 24, 2007," presented by Rick Doty, Supervisor, Radiological Services, and requested by NRC reviewers at the environmental site audit on May 15th - 17th, 2007.

PPL Response:

PPL Attachment #8 contains the requested document.

NRC RAI 10:

Please provide a copy of "PPL Susquehanna, LLC Ground Water Monitoring Program: Tritium," as shown to NRC reviewers at the May 15th – 17th, 2007, environmental site audit.

PPL Response:

PPL Attachment #9 contains the requested document.

NRC RAI 11:

Please provide analysis results from Peach Stand Pond sediments, as discussed with NRC reviewers at the May 15th - 17th, 2007, environmental site audit.

PPL Response:

PPL Attachment #10 contains the requested document.

B. Request for additional information not otherwise addressed during the environmental site audit:

NRC Question 1:

NRC staff notes that SSES' current NPDES permit allows cooling tower blowdown discharge to contain up to 0.2 mg/L chromium. Please indicate the source or sources of chromium in SSES' cooling tower blowdown. Does PPL Susquehanna use any chromium-containing compounds to treat water in its cooling systems? If so, please indicate which systems use chromium compounds, and which compounds the systems use.

PPL Response:

The Susquehanna Steam Electric Station (SSES) does not use water treatment chemicals that contain chromium-based compounds in any of its water systems. The limit for chromium is included in the NPDES permit as required by 40 CFR §423.10, Steam Electric Power Generating Point Source Category. This section requires that the applicable provisions of Part 423 are applied to discharges resulting from the operation of any generating unit, including nuclear generating facilities. These technology-based limits have been developed by the EPA for this industrial category based on what is typical for the industry. The State is required to include them as part of the permit for any discharges that are applicable for that facility.

40 CFR §432.13(d)(1) includes a requirement that cooling tower blowdown shall not exceed 0.2 mg/l of chromium as a maximum daily concentration. This technology-based limit stems from the once typical use of chromium-based compounds by the industry to reduce scaling. Susquehanna SES does not use chromium-based compounds in the cooling tower, but the State does not have the authority as part of its primacy for the NPDES program to omit this limit from the permit; it is required to include it. However, the State does have the authority to determine the frequency of sampling and thus has allowed for the lowest sampling frequency possible, once per year.

Attachment 1 to PLA-6248
Susquehanna Project Land Use

Susquehanna Project Land Use

ACRES

	Acreage	West Rt 11	Riverlands	East Side	Gould Island
Cropland	319.5	123.9	77.9	117.7	
Natural Environment	537.7	219.0	61.7	207.6	49.4
Open Water	49.4	1.9	47.2	0.3	
Recreation Area	49.6	2.3	45.8	1.5	
Timber Land	409.8	168.1		241.7	
Unique Natural Area	46.2	12.7	33.5		
Utility Land (1)	620.8	487.2	49.9	81.9	1.8
Wildlife Land	322.0	157.4	85.0	65.8	13.8
Total	2355.0	1172.5	401.0	716.5	65

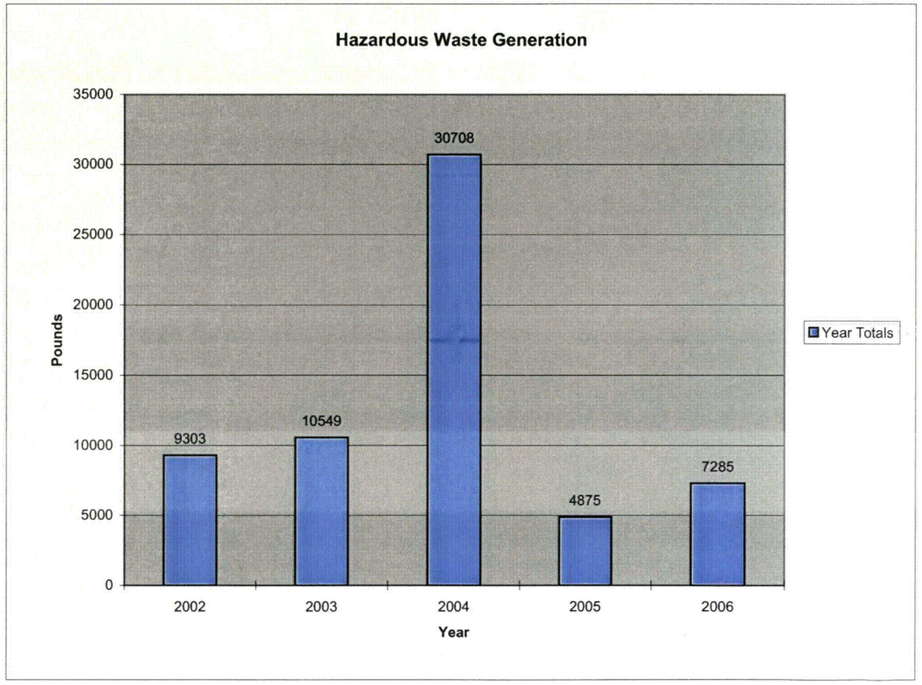
Note (1): The protected area of the plant within the security fence is approximately 233 acres of the 487.2 acres. The West Side of the river includes the plant and Riverlands Recreation Area. The East Side of the river includes areas listed in the table plus Council Cup. Gould Island is a nature area just upstream of the Riverlands in the Susquehanna River.

Attachment 2 to PLA-6248
Non-Radiological Waste Overview

Overview of Year and Waste Stream Totals

	Year Totals	Lead	Solvents	Paint	Batteries -	Batteries -	Solvent Ra	Antifreeze	Lab waste	Surplus	Photo wast	Fuel waste	Sandblast	Corrosives	Mercury	Lamps	PC Equip	Year	Year Totals
2002	9303	3890	660	190	412	22664	237	0	218	322	0	0	0	3786	0	2357	3250	2002	9303
2003	10549	1572	952	4375	228	9443	30	0	100	10	0	240	0	3270	8	4604	1800	2003	10549
2004	30708	4515	595	22773	240	25229	230	0	100	1575	0	0	0	920	10	3490	700	2004	30708
2005	4875	200	390	2865	1625	29565	135	0	50	855	0	200	0	180	50	4580	240	2005	4875
2006	7285	1250	975	2765	90	26153	615	0	70	1450	0	0	0	160	15	5135	2040	2006	7285

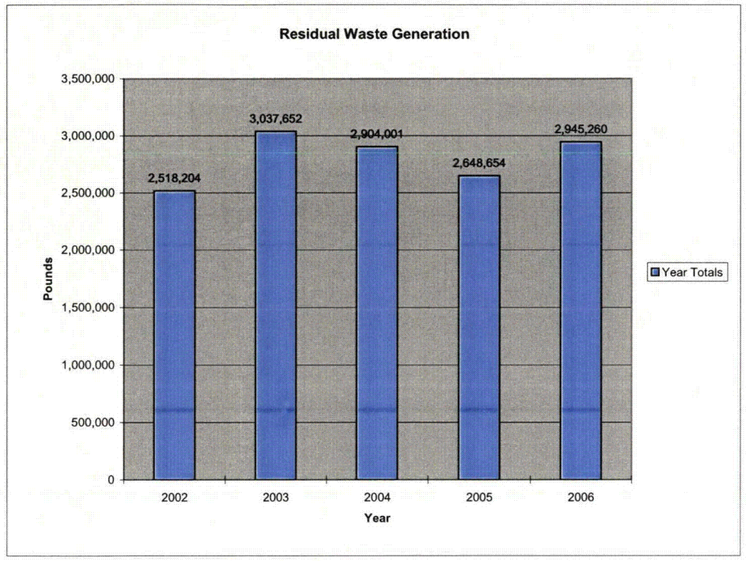
* Batteries, Lamps, Mercury Articles, and PC Equipment (universal wastes - colored coded) not included in Yearly Totals



Overview of Year and Waste Stream Totals

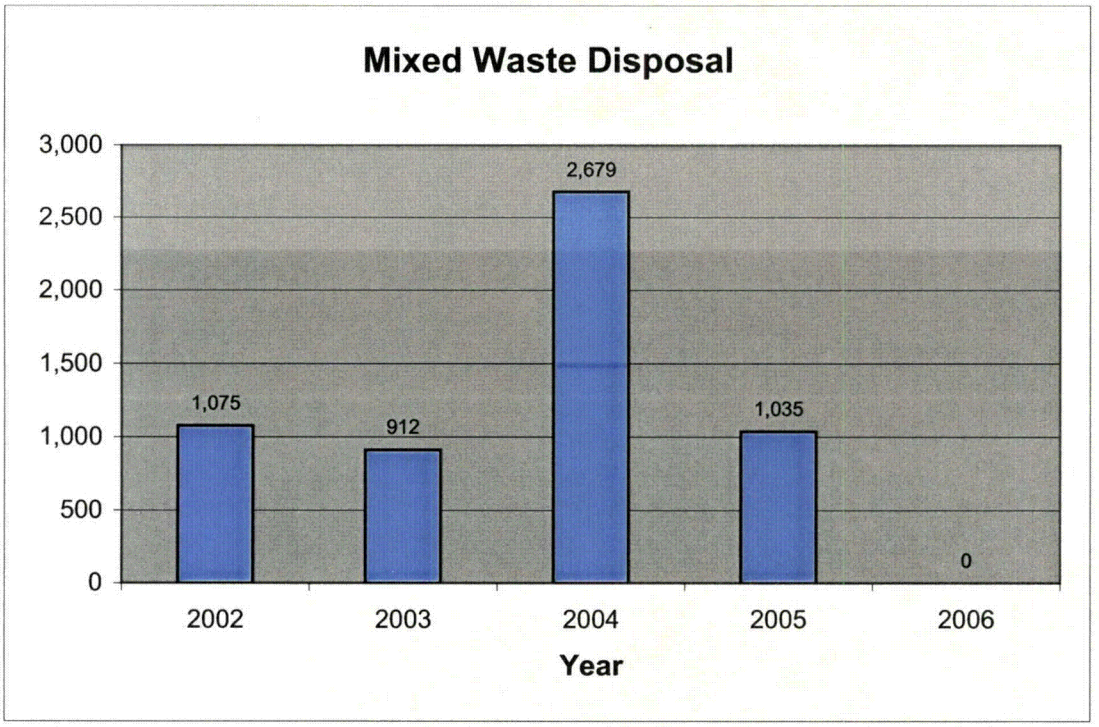
	Year Totals	IWW	Trash	Paper	Wood	CWPH Slu	CT Sludge	Sludge	CT Fill	Oil	Oily Debris	Chemicals	Spills	Photo	Alumina C	Cleaning C	EHC	Non Fr. As	Fr. Asbest	PCBs	Café Grea	Medical	Alkaline Ba	Year
2002	2,518,204	2,134	1,240,080	246,280	127,540	192,048	277,020	0	131,880	70,375	20,700	23,021	159,625	240	24,000	0	0	1,000	514	75	1,671			2002
2003	3,037,652	6,095	1,814,140	169,860	41,660	149,392	217,780	0	359,420	54,117	8,340	33,755	155,435	357	24,000	1,200	0	0	1,476	70	555			2003
2004	2,904,001	2,053	760,773	224,481	260,420	57,280	390,860	0	568,580	92,418	5,580	11,000	527,420	480	0	750	0	0	336	200	1,100			2004
2005	2,648,654	900	840,004	212,340	143,460	374,048	333,000	0	642,360	37,967	5,620	40,560	2,090	240	14,320	0	0	0	345	490	720	20	0	2005
2006	2,945,260	1,250	1,051,580	221,860	106,360	77,195	571,480	74,000	537,760	249,725	12,780	30,670	1,415	0	6,820	0	0	0	520	420	550	115	560	2006

Tires from Kisner Farm



Attachment 3 to PLA-6248
Mixed Waste Generated

Mixed Waste	Disposal (pounds)				
Waste Stream	2002	2003	2004	2005	2006
Solvent	0	119	119	0	0
Paint/Solvent/Water	0	0	413	0	0
Phosphoric Acid	0	0	0	88	0
Cutting Fluid	0	380	0	0	0
Lead	1075	413	2147	947	0
Totals:	1,075	912	2,679	1,035	0



Attachment 4 to PLA-6248
Counts of Employees

Count of SSES Plant Employees by County (6/15/07)

Home County	Total
Columbia	559
Luzerne	528
Northumberland	47
Schuylkill	35
Montour	27
Carbon	13
Lycoming	8
Lackawanna	5
Lehigh	5
York	5
Union	3
Out of State	3
Northampton	2
Snyder	2
Berks	1
Lancaster	1
Lebanon	1
Monroe	1
Wyoming	1
Grand Total	1247

Count of SSES Plant Employees by Zip Code (6/15/07)

Zip Code	Total
18603	240
17815	227
18707	57
18635	55
18655	53
18222	36
17814	32
17821	32
18249	29
17859	28
18704	22
17820	20
17878	20
18201	19
17846	18
18706	17
18631	15
18634	15
18702	14
18705	12
18612	11
18621	10
18660	10
18202	9
18643	8
18708	8
17824	7
18219	7
17801	6
17851	6
18224	6
18255	6
18651	6
18622	5
18640	5
17866	4
17881	4
18237	4
18656	4
17756	3
17762	3
17834	3
17847	3
17857	3

Zip Code	Total
17901	3
17967	3
17976	3
18216	3
18250	3
18252	3
18618	3
18644	3
18661	3
17774	2
17777	2
17870	2
17931	2
17960	2
17961	2
17985	2
18641	2
07054	1
14530	1
16803	1
17022	1
17042	1
17315	1
17345	1
17370	1
17402	1
17406	1
17737	1
17772	1
17837	1
17845	1
17860	1
17868	1
17872	1
17887	1
17921	1
17930	1
17938	1
17948	1
17959	1
17965	1
18036	1
18037	1
18045	1

Zip Code	Total
18067	1
18078	1
18080	1
18104	1
18210	1
18211	1
18218	1
18223	1
18225	1
18235	1
18241	1
18242	1
18245	1
18246	1
18247	1
18248	1
18256	1
18301	1
18407	1
18433	1
18510	1
18517	1
18518	1
18611	1
18617	1
18627	1
18709	1
19551	1
33950	1
68305	1
178019403	1
178599648	1
182018200	1
182493057	1
182493232	1
182493626	1
182499533	1
186031632	1
186032418	1
186035006	1
186035034	1
186035108	1
186035219	1
186036536	1

Zip Code	Total
186310367	1
186350212	1
186552940	1
186600120	1
187029729	1
187029741	1
187064160	1
187071739	1
17815-7015	1
17815-7719	1
17815-7739	1
17815-8746	1
17815-8945	1
17815-8989	1
17846-9652	1
17859-9606	1
17936-9188	1
17985-9569	1
18201-7806	1
18202-0000	1
18222-3134	1
18222-9747	1
18249-9610	1
18603-4002	1
18603-9491	1
18603-9549	1
18631-0425	1
18635-1622	1
18655-2524	1
18705-2436	1
18708-9782	1
Grand Total	1247

Luzerne / Lackawanna Counties

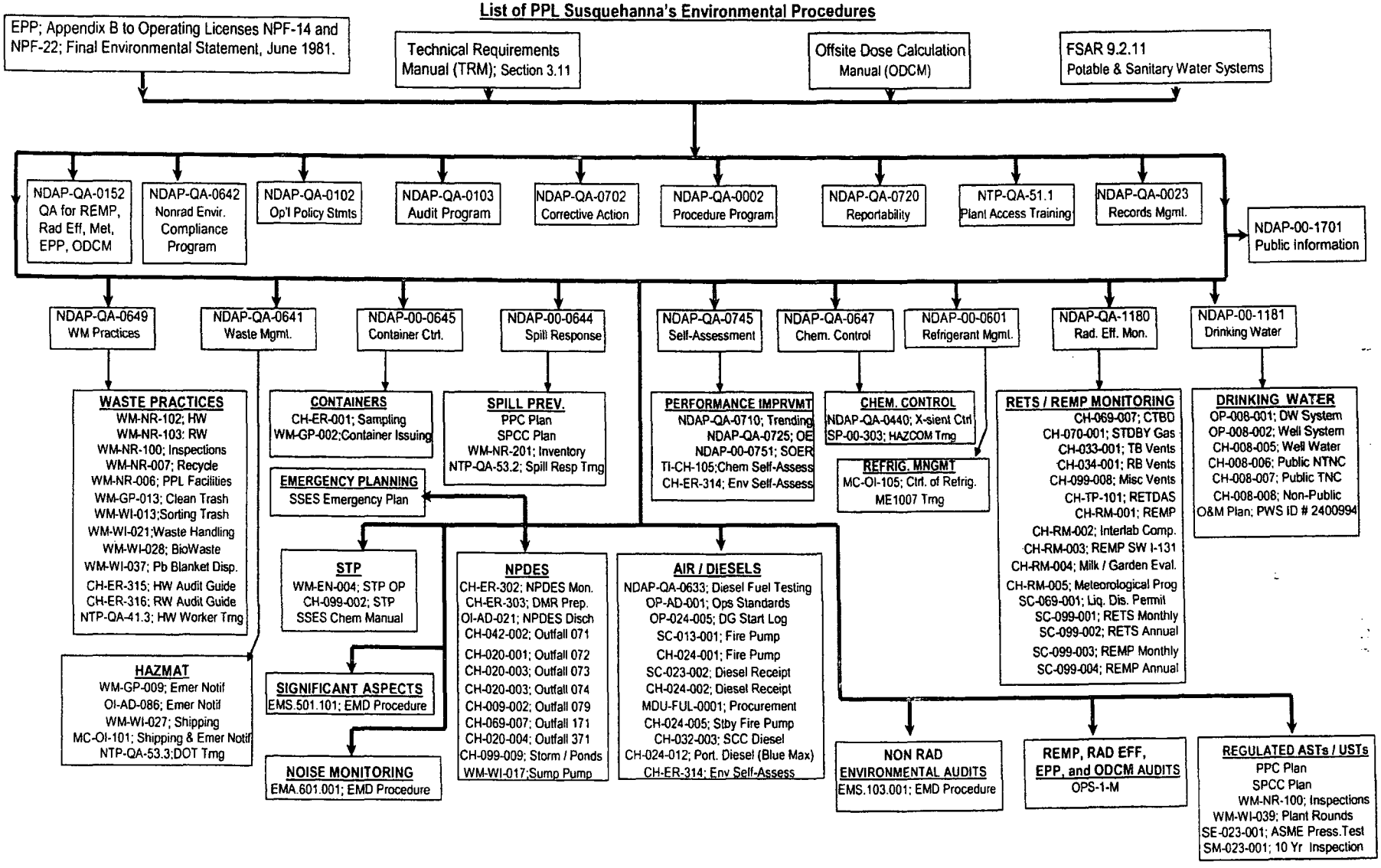
ZIP CODES

Archbald 18403
Ashley 18706
Avoca 18641
Beach Haven 18601
Bear Creek 18602
Benton 17814
Berwick 18603
Blakely 18447
Blakeslee 18610
Cambra 18611
Carbondale 18407
Centermoreland 18657
Childs 18407
Chinchilla 18410
Clarks Summit 18411
Clifford 18413
Conyngham 18219
Courtdale 18704
Dallas 18612
Dalton 18414
Dickson City 18519
Drifton 18221
Drums 18222
Dunmore 18512
Dupont 18641
Duryea 18642
Edwardsville 18704
Elmhurst 18416
Exeter 18643
Eynon 18403
Factoryville 18419
Falls 18615
Fleetville 18420
Forest City 18421
Forty Fort 18704
Freeland 18224
Glen Lyon 18617
Gouldsboro 18424
Hallstead 18822
Hamlin 18427
Hanover Twp 18706
Harveys Lake 18618
Hawley 18428
Hazleton 18201
Herrick Center 18430
Honesdale 18431
Hunlock Creek 18821
Huntington Mills 18622
Inkerman 18640
Jermyn 18433
Jessup 18434
Kingston 18704
La Plume 18440
Laceyville 18623
Laflin 18702
Lake Harmony 18624
Lake Winola 18625
Larksville 18704
Lattimer Mines 18234
Lehman 18627
Luzerne 18709
Mayfield 18433
Mehoopany 18629
Mocanaqua 18655
Montrose 18801
Moosic 18507
Moscow 18444
Mountaintop 18707
Mt. Cobb 18436
Nanticoke 18634
Nescopeck 18635
New Milford 18834
Nicholson 18446
Noxen 18636
Nuangola 18707
Old Forge 18518
Olyphant 18447, 18448
Orangeville 17859
Pardeesville 18243
Peckville 18452
Pittston 18640-18644
Plains 18705
Pleasant Mount 18453
Plymouth 18651
Pringle 18704
Ransom 18653
Scranton 18501-18505
18507-18510, 18512, 18514,
18515, 18517-18519,
18522, 18540, 18577
Shavertown 18708
Shawanese 18654
Shickshinny 18655
Simpson 18407
Steamtown 18502
Sugarloaf 18249
Sugar Notch 18706
Sweet Valley 18656
Swoyersville 18704
Sybertsville 18251
Taylor 18517
Thompson 18465
Throop 18512
Tobyhanna 18466
Trucksville 18708
Tunkhannock 18657
Union Dale 18470
Vandling 18421
Wapwallopen 18660
Warrior Run 18706
Waverly 18471
West Pittston 18643
West Scranton 18504
West Wyoming 18644
White Haven 18661
Wilkes-Barre 18701-18711,
18761-18769, 18773, 18774
Wyalusing 18853
Wyoming 18644

Aristes	17920
Ashland	17921
Beach Haven	18601
Benton	17814
Berwick	18603
Blakeslee	18610
Bloomsburg	17815
Cambra	18611
Catawissa	17820
Central	17814
Centralia	17927
Coal Township	17866
Conyngham	18219
Dallas	18612
Danville	17821
Dickson City	18519
Drums	18222
Dunmore	18512
Dupont	18641
Duryea	18642
Elysburg	17824
Eyers Grove	17846
Fern Glen	18241
Forks	18040
Frackville	17931
Freeland	18224
Harveys Lake	18618
Hazleton	18201
Hughesville	17737
Honesdale	18431
Hunlock Creek	18621
Huntington Mills	18622
Jamison City	17814
Jonestown	17038
Kulpmont	17834
Lewisburg	17837
Lightstreet	17839
McAdoo	18237
Mifflinville	18631
Millville	17846
Milton	17847
Mocanaqua	18655
Mt. Carmel	17851
Montgomery	17752
Montoursville	17754
Mountaintop	18707
Muncy	17756
Nanticoke	18634
Nescopeck	18635
Northumberland	17857
Numidia	17858
Nuremberg	18241
Orangeville	17859
Paxinos	17860
Potts Grove	17865
Pottsville	17901
Ringtown	17967
Riverside	17868
Rock Glen	18246
Selinsgrove	17870
Shamokin	17872
Shenandoah	17976
Shickshinny	18655
Stillwater	17878
Sugarloaf	18249
Sunbury	17801
Sweet Valley	18656
Turbotville	17772
Unityville	17774
Wapwallopen	18660
Washingtonville	17884
Watsontown	17777
West Hazleton	18201
West Milton	17886
Wyoming	18644
White Haven	18661
Williamsport	17701
Wilberton	17888
Zion Grove	17985

Attachment 5 to PLA-6248
List of PPL Susquehanna's Environmental Procedures

List of PPL Susquehanna's Environmental Procedures



Attachment 6 to PLA-6248
Initiative on Groundwater Protection
PPL Susquehanna Action Plan

Portions of this document pertaining to cost and internal planning details have been removed

INITIATIVE ON GROUNDWATER PROTECTION - PPL SUSQUEHANNA ACTION PLAN

Management Sponsor: General Manager - Plant Support

Background/Description: Since the fall of 2005, the nuclear industry has been especially engaged in addressing regulatory and communications issues related to inadvertent releases of radioactive material (primarily tritium) into groundwater onsite. An industry initiative was developed by a NEI executive task force, with support from the NEI radiation protection task force. In May 2006, the industry initiative on groundwater protection was approved unanimously by the CNOs of all companies operating or decommissioning a nuclear power plant. The initiative was presented to NRC staff in May 2006 in a public meeting, and the initiative also was publicized for reporting in the media. Because of the importance of the issue to Susquehanna staff and neighbors/stakeholders, and secondarily because the initiative establishes a binding commitment for all member companies, PPL Susquehanna will implement a site-specific action plan and a revised reporting and communications protocol in regard to groundwater protection. Separately, but also consistent with industry plans, PPL Susquehanna is to submit to NRC, responses to a voluntary data collection questionnaire. Submission of the questionnaire response, with no new regulatory commitments, is also scheduled to occur by the end of July 2006.

Objectives:

1. Improve management of inadvertent radiological releases to the groundwater
2. Prevent migration of licensed radioactive materials offsite
3. Quantify impacts on site decommissioning
4. Enhance trust and confidence of local communities, the Commonwealth of Pennsylvania, NRC, etc. in the station's commitment to environmental stewardship
5. Enhance measures to reduce the likelihood of inadvertent radiological releases to the groundwater

Benefits of meeting the stated objectives:

1. Demonstrate a robust and complete program to manage the issue of inadvertent radiological releases to groundwater (reasonable program for prevention of leaks and spills, timely detection of leaks and spills, effective response to leaks and spills, appropriate communications with regulatory agencies and the public)
2. Ensure compliance with applicable regulatory requirements and fulfillment of the commitment to the industry initiative on groundwater protection

3. Understand and mitigate as appropriate, the potential vulnerabilities for and/or risks associated with unmonitored radiological releases to groundwater
4. Enhance the internal and external communications program and build confidence in the transparency and integrity of Susquehanna operations
5. Enhance the confidence in the cost estimates for plant decommissioning

Action Plan:

1. Form a team to address the initiative on groundwater protection.

2. Assess sources and pathways

3. Review site operating history

4. Assess site hydrogeology

5. Assess current site monitoring program

6. Assess current safeguards to reduce the likelihood of inadvertent radiological releases to the groundwater

7. Assess plans for response to postulated or actual inadvertent radiological releases to the groundwater

8. Assess plans for effective communication to regulatory agencies and the public, regarding inadvertent releases to groundwater

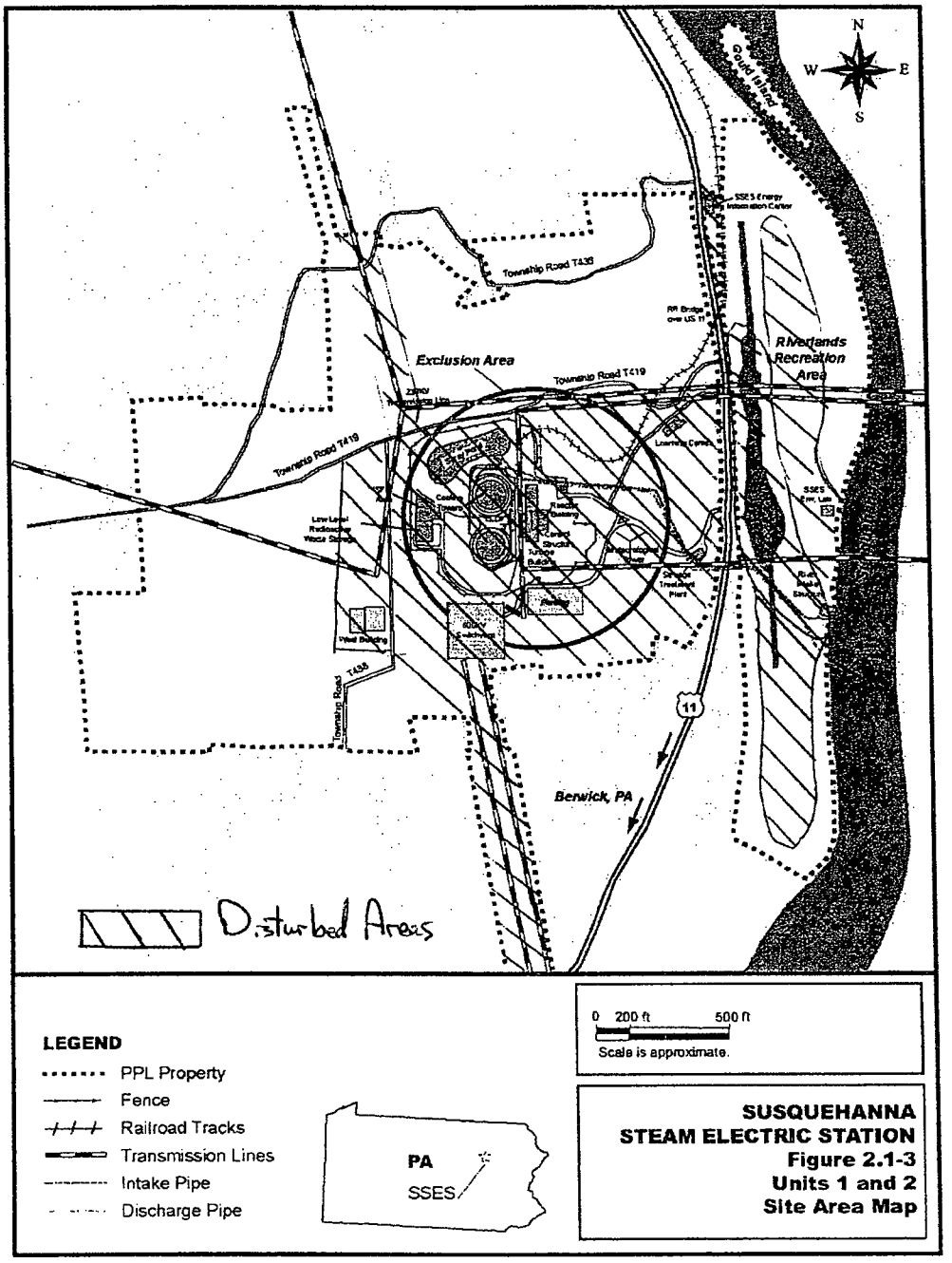
9. Maintain awareness of, share lessons-learned with, and obtain operating experience from other utilities regarding the protection of groundwater

10. Develop recommendations for further action

11. Assess adequacy of effort and effectiveness of actions taken.

Attachment 7 to PLA-6248
Site Area Map – Disturbed Areas

Figure 2.1-3. Site Area Map



Attachment 8 to PLA-6248
Protecting Our Groundwater Presentation

PROTECTING OUR GROUNDWATER

Information Sharing Session with
PA DEP/BRP Personnel
April 24, 2007

Rick Doty
Supervisor Radiological Services

BACKGROUND

- Undetected leaks of water containing tritium, affecting groundwater at several nuclear plant sites
- These leaks resulted in regulatory-agency, news-media, legislative, and public interest

WHAT KINDS OF EVENTS?

- Braidwood (Illinois) – apparent leaks along an underground pipe in 1996, 1998, and 2000, identified in 2005
  - Tritium in a nearby residential well
  - Concentration below the US EPA drinking water standards
  - Not a health and safety concern, but an issue of public interest

INDUSTRY-WIDE ACTIONS

- Launched a voluntary initiative
  - Go beyond regulations
  - Embrace high standards for public safety
  - Protect the environment

GROUNDWATER PROTECTION INITIATIVE

- Improve management of inadvertent releases to the groundwater
- Prevent migration of licensed radioactive material offsite
- Quantify impacts on decommissioning
- Enhance trust and confidence of local communities, States, NRC, etc.

PPL SUSQUEHANNA ACTIONS

- Voted to adopt industry initiative
- Support the initiative
- Established a task force to complete all appropriate actions

SUSQUEHANNA ACTIONS

- Developed an action plan for the site:
  - Assess sources and pathways
  - Review site operating history
  - Assess site hydrology
  - Assess current onsite and offsite monitoring program
- Implementing follow-up actions

CHANGES IN REPORTING

- Expand the reporting of groundwater results
- Make additional reports to NRC
- Communicate with state and local officials and public

IF WE HAVE A LEAK OR SPILL, WE WOULD

- Communicate with state and local officials if:
  - Onsite or offsite water sample exceeds values defined at the PA utilities meeting with PA DEP/BRP at our September 2006 meeting

OUR GOAL

- Prevent adverse effects to groundwater
- Unintended releases to groundwater are unacceptable
- Maintain and enhance site operating history regarding protection of groundwater

TODAY'S FOCUS

- Assessing site hydrology
- Assessing current onsite and offsite monitoring program
- Reporting of relevant 2006 results

AGENDA

Hydrogeologic Studies at the Susquehanna Site

Proposals and Plans for Well Installation

REMP Results for Groundwater; Related Results and Studies

STAKEHOLDERS

- PPL Susquehanna
- PPL Environmental Management
- Bartlett/Conestoga-Rovers and Associates
- Contracted Well Drillers and Analytical Lab
- NRC, PA DEP/BRP
- Local Officials

Attachment 9 to PLA-6248
PPL Susquehanna, LLC
Ground Water Monitoring Program:
Tritium

PPL SUSQUEHANNA, LLC

GROUNDWATER MONITORING PROGRAM: TRITIUM

Groundwater monitoring has been a part of the PPL Susquehanna Radiological Environmental Monitoring Program (REMP) since 1980. Currently groundwater samples are taken quarterly from two indicator locations and one control location. Throughout the operating history of PPL Susquehanna, the REMP groundwater monitoring program has changed via evaluations with regulatory requirements and through information gained from hydrology studies. These studies provided significant information regarding groundwater flow paths and aquifer performance in order to support various groundwater supply functions for the site. The studies have identified that the groundwater flow path at the Susquehanna site follows the downward slope of the site towards the Susquehanna River. The studies also indicate that groundwater breaches the ground surface at Lake Took-a-While providing an additional location where groundwater sources feed and thus another indicator of possible groundwater contamination. As a result, Lake Took-a-While is also currently sampled quarterly as part of the REMP.

The predominant radionuclide released in liquid and gaseous effluents from PPL Susquehanna is tritium. The only REMP monitored pathway where tritium has been identified as a result of station operations is the surface water pathway (Susquehanna River) downstream of the site. There have been no indications of any increases in groundwater tritium concentrations above normal background levels (based on pre-operational data) since inception of the REMP at PPL Susquehanna.

Tritium identified in media (sampled/analyzed as part the REMP) other than the Susquehanna River water downstream of the station, has historically been attributed to both natural productions by the interaction of cosmic radiation with the upper atmosphere and previous atmospheric testing of nuclear weapons. Tritium is produced in the reactors at PPL Susquehanna primarily by neutron activation of deuterium in the reactor coolant.

Recent industry operational experience has indicated a trend in groundwater tritium contamination events. Most of these events have been at pressurized water reactor (PWR) sites which generally have a greater inventory of tritium than a boiling water reactor (BWR). The larger tritium inventory at PWR sites is due to the neutron activation of the boron added to reactor coolant. Primary release paths for recent groundwater contamination events have been; 1) spent fuel pool leakage; 2) leaks from liquid radwaste discharge lines and 3) leaks from cooling tower blowdown lines. The physical location of the spent fuel pools at Susquehanna and the fuel pool leakage collection system make it highly unlikely that the fuel pools would be a radiological contamination source for groundwater. Leaks from the liquid radwaste discharge line or the cooling tower blowdown line could impact groundwater but to date, there has been no indication of any radiological impacts on groundwater due to station operations.

Attachment 10 to PLA-6248
Summary of Analytical Results for Soil Samples

TABLE 1
SUMMARY OF ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTICAL PARAMETERS[1]	SAMPLE DESIGNATION/ANALYTICAL RESULTS													PADEP RSG MSC[3]	PADEP RDC MSC[3]	PADEP CLEAN FILL STANDARDS MSC[4]
	SUS-1-S	SUS-1-D	SUS-2-S	SUS-3-S	SUS-4-S	SUS-5-S	SUS-5-D	SUS-6-S	SUS-7-S	SUS-8-S	SUS-9-S	SUS-10-S	SUS-11-S			
Volatile Organic Compounds:																
Benzene	<0.060	<0.091	<0.0674	<0.0508	<0.0485	<0.0525	<0.0518	<0.0564	<0.06	<0.053	<0.0679	<0.0549	<0.0553	0.5	41	0.13
Ethylbenzene	<0.060	<0.091	<0.0674	<0.0508	<0.0485	<0.0525	<0.0518	<0.0564	<0.06	<0.053	<0.679	<0.0549	<0.0553	70	10,000	46
Naphthalene	<0.12	<0.182	<0.135	<0.102	<0.0971	<0.105	<0.104	<0.113	<0.12	<0.108	<0.136	<0.11	<0.111	25	4,400	25
Toluene	<0.060	<0.091	<0.0674	<0.0508	<0.0485	<0.0525	<0.518	<0.0564	<0.06	<0.053	<0.0679	<0.0549	<0.0553	100	7,600	44
Xylenes	<0.180	<0.273	<0.202	<0.152	<0.146	<0.157	<0.155	<0.169	<0.18	<0.161	<0.204	<0.165	<0.166	1,000	8,000	990
Semivolatile Organic Compounds:																
Anthracene	0.029	<0.208	0.3	0.029	<0.14	0.085	2.2	0.204	<0.08	<0.069	<0.07	<0.833	<0.068	350	66,000	350
Benzo(a)anthracene	0.122	0.043	1.07	0.148	0.055	0.493	6.64	0.795	<0.08	<0.069	0.022	0.679	0.157	79	25	25
Benzo(a)pyrene	0.076	0.033	1.1	0.145	0.073	0.606	6.97	0.818	0.01	<0.069	0.027	0.704	0.188	46	2.5	2.5
Benzo(b)fluoranthene	0.168	0.046	1.45	0.195	0.103	0.859	9.82	1.04	<0.08	0.025	0.05	0.754	0.278	120	25	25
Benzo(g,h,i)perylene	0.52	<0.52	0.478	0.063	0.042	0.261	2.55	0.295	<0.08	<0.069	0.032	0.778	0.095	180	13,000	180
Chrysene	0.147	0.062	1.24	0.163	0.087	0.644	7.38	0.95	<0.08	0.016	0.03	0.748	0.206	230	2,500	230
Fluorene	0.034	<0.313	0.102	<0.212	<0.211	0.032	0.562	0.072	<0.121	<0.104	<0.105	<1.25	<0.102	3,000	8,800	3,000
Phenanthrene	0.226	0.093	1.39	0.16	0.073	0.44	7.68	1.09	0.011	0.011	0.019	<1.25	0.165	10,000	66,000	10,000
Pyrene	0.206	0.12	2.08	0.297	0.085	0.914	12.6	1.54	0.016	0.023	0.041	1.18	0.33	2,200	6,600	2,200
Total Petroleum Hydrocarbons																
Diesel Range Organics	76.8	145	NA	NA	2600	1470	4330	NA	NA	NA	NA	8500	409	NSA	NSA	NSA
Sample Collection Depth[5]	0-0.5	1.5-2	0-0.5	0-0.5	0-0.5	0-0.5	1.5-2	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	—	—	—

Notes:

(1) - Samples SUS-1-S through SUS-11-S were analyzed for VOC, SVOC, and TPH parameters.

(2) - All results are in milligrams per kilogram (µg/kg).

(3) - Pennsylvania Department of Environmental Protection, Land Recycling and Environmental Remediation Standards Act, Medium Specific Concentration (November 24, 2001)

(4) - Pennsylvania Department of Environmental Protection, Bureau of Land Recycling and Waste Management, Management of Fill (Undated).

(5) - Sample collection depth in feet below the ground surface

PADEP - Pennsylvania Department of Environmental Protection

MSC - Medium-Specific Concentration

NSA - No standard available

Bold - This compound was detected above its PADEP Act 2 MSC