

Jon A. Franke
Site Vice President

PPL Susquehanna, LLC
769 Salem Boulevard
Berwick, PA 18603
Tel. 570.542.2904 Fax 570.542.1504
jfranke@pplweb.com



APR 24 2013

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

**SUSQUEHANNA STEAM ELECTRIC STATION
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NON-RADIOLOGICAL)
PLA-7001**

**Docket Nos. 50-387
and 50-388**

The Susquehanna Steam Electric Station Annual Environmental Operating Report (Non-Radiological) is hereby submitted for the calendar year 2012 in accordance with the Environmental Protection Plan (EPP).

Should you have any questions or require additional information, please contact Mr. John L. Tripoli, Manager – Nuclear Regulatory Affairs at (570) 542-3100.

There are no regulatory commitments identified in this letter.


J. A. Franke

Attachment: Annual Environmental Operating Report (Non-Radiological)

Copy: NRC Region I
Ms. C. Copeyon, U. S. Dept. of Interior, Fish and Wildlife Service
Mr. P. W. Finney, NRC Sr. Resident Inspector
Mr. J. A. Whited, NRC Project Manager
Mr. L. J. Winker, PA DEP/BRP



**Susquehanna Steam Electric Station
Units 1 & 2**

**2012
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**



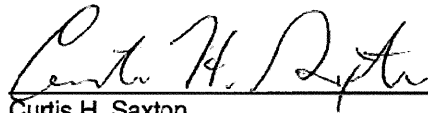
**PPL Susquehanna, LLC
Berwick, PA
April 2013**

SUSQUEHANNA STEAM ELECTRIC STATION

ANNUAL ENVIRONMENTAL OPERATING REPORT (NONRADIOLOGICAL)

2012

Prepared by:




Curtis H. Saxton
Sr. Environmental Scientist

Date:

4/18/2013

Reviewed by:

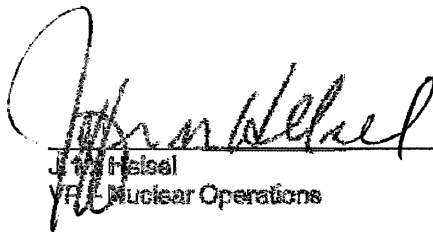


Dominic R. D'Angelo
Manager – Plant Chemistry / Environmental

Date:

4/23/2013

Approved by:



John H. Helzel
VP - Nuclear Operations

Date:

4/23/2013



**Susquehanna Steam Electric Station
Units 1 & 2**

**2012
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**

**Facility Operating License Nos. NPF-14 & NPF-22
Docket Nos. 50-387 & 50-388**

**Prepared by
Plant Chemistry
PPL Susquehanna, LLC
Berwick, PA
April 2013**

FOREWORD

PPL's Susquehanna Steam Electric Station (SSES) is a nuclear electrical generating facility with two boiling-water reactors and generators located just west of the Susquehanna River, approximately 5 miles northeast of Berwick, in Luzerne County, Pennsylvania. The station was constructed in the 1970's, with Unit 1 beginning commercial operation on June 8, 1983, and Unit 2 beginning commercial operation on February 12, 1985. Units 1 and 2 each generate a net 1,350 megawatts (MWe), for a total station output of 2,700 MWe.

In total PPL Susquehanna, LLC presently owns 2,355 acres of land on both sides of the Susquehanna River. Generally, this land is characterized by open deciduous woodlands interspersed with grasslands and orchards.

On the west side of the river, 1,573 acres of land is jointly owned between PPL (90%) and Allegheny Electric Cooperative (10%). Approximately 487 acres of this land is used for generation facilities and associated maintenance facilities, laydown areas, parking lots, and roads. Approximately 130 acres of this land is leased to local farmers. PPL also maintains a 401-acre nature preserve, the Susquehanna Riverlands, which is located between SSES and the river; U.S. Route 11 separates the Susquehanna Riverlands from the plant site.

To the north of SSES on the river, PPL owns the 65-acre Gould Island. On the east side of the river, PPL owns an additional 717 acres of mostly undeveloped land, which includes natural recreational and wildlife areas.

This report discusses environmental commitments and impacts from January 1, 2012 through December 31, 2012. In summary it documents that environmental commitments were met and that there was no significant adverse environmental impact from station operation.

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1.0 OBJECTIVE

The Licensee has developed procedures and guidelines to ensure that operation of Susquehanna SES does not adversely affect the environment in the vicinity of the station. Also, these procedures allocate responsibilities and define interfaces necessary to monitor environmental impacts. They include coordination of U.S. Nuclear Regulatory Commission (NRC) requirements with other federal, state, and local requirements for environmental protection.

The objective of this 2012 Annual Environmental Operating Report (Nonradiological) is to provide a summary of both environmental programs and procedures. This report is required by the Final Environmental Statement (FES) for the operation of the Susquehanna SES, Unit 1 and 2, NUREG-0564 June 1981, and Appendix B - Environmental Protection Plan (EPP) to Operating Licenses No. NPF-14 and No. NPF-22. The 2012 report is the 30th Annual Environmental Operating Report (Nonradiological) submitted to meet EPP requirements.

The Licensee submitted an Environmental Report-Operating License Stage for Susquehanna SES to the NRC in May 1978. This report reviewed the results of the preoperational environmental programs and described the preoperational and proposed operational environmental monitoring programs. The NRC and other agencies reviewed this report and made recommendations for operational environmental monitoring programs which were listed in the FES.

2.0 ENVIRONMENTAL ISSUES

2.1 Aquatic Issues

The aquatic monitoring program for operation of the Susquehanna SES is divided into two parts. Part 1 includes effluent monitoring required by a National Pollutant Discharge Elimination System (NPDES) permit issued by the Pennsylvania Department of Environmental Protection (PaDEP). Monthly discharge monitoring reports are submitted to the PaDEP as part of the permitting requirements. The station's operational NPDES permit No. PA-0047325 was reissued on September 1, 2011, and currently expires on August 31, 2016. Part 2 of the aquatic monitoring program deals with programs listed in the FES or recommended by the PaDEP or U.S. Fish and Wildlife Service.

The PaDEP is responsible for regulating the water quality permit for the Susquehanna SES. The NPDES permit deals with discharge parameters for the Susquehanna SES Sewage Treatment Plant, Cooling Tower blowdown, and miscellaneous low volume waste discharges. The Cooling Tower blowdown also includes in-plant process streams which discharge to the Susquehanna River. Various low volume waste sumps discharge to the station's stormwater system, which flows into Lake Took-A-While, and eventually into the Susquehanna River. A copy of the permit renewal application was provided to the NRC in 2010. (PLA-6606, March 26, 2010)

American Shad

In June 2012, 150,000 American shad (*Alosa sapidissima*) fry were stocked in the Susquehanna River at the Tunkhannock Park Boat Access, approximately 50 miles upriver from the Susquehanna SES intake. To see if any out-migrating juvenile shad from this stocking were impinged at the intake, we monitored the trash bar and screen washes from 14 September through 4 October 2012. During this period, no American shad were collected, but four gizzard shad (*Dorosoma cepedianum*) were found and 30 other fish of 7 species were collected (Table 2.1-1). Most of these fish were either young-of-the-year or juveniles. In addition, 25 crayfish were found. The intake is located along the west river bank in slower current than exists near mid-river. In previous conversations with Michael Hendricks, Pennsylvania Fish and Boat Commission, he has noted that juvenile American shad will avoid areas of slow current as they swim downriver, and, it is therefore, not surprising that none were found on the intake screens.

Biofouling Mollusk Monitoring

The biofouling mollusk monitoring program continued at the Susquehanna SES in 2012. The focus of this monitoring is to survey the Susquehanna River and the ESSW Spray Pond for the presence of live Asian Clams and Zebra Mussels. This work is done by a combination of scuba diving, wading, and examination of removed structures so that substrates in the river and the pond can be inspected. Asian clams are now abundant in the Susquehanna River near the Susquehanna SES, but no Zebra Mussels have yet been observed in the immediate vicinity of the plant. Unlike previous years, there was no scuba inspection of the ESSW Spray Pond in 2012. However, two of the pump house screens in the pond were removed for cleaning and inspected. As a result, three living mussel specimens were collected from the screens. No Zebra Mussels have yet been observed living in the main body of the pond, and without the scuba inspection we do not know if the pond now contains living specimens of Asian Clams since the last molluscicide treatment.

2.2 Terrestrial Issues

2.2.1 Studies Previously Completed

Terrestrial environmental studies including Cooling Tower bird impaction were completed prior to 1989.

2.2.2 Sound Level Survey

Sound level surveys were conducted during preoperation and operational periods and are completed. There were no noise complaints received during 2012.

2.2.3 Maintenance of Transmission Line Corridors

Transmission line corridor vegetation maintenance and inspection records are maintained by the Project and Contract Management department of PPL Electric Utilities and are available upon request. There were no adverse environmental impacts to transmission corridors reported in 2012. Records will be maintained for five years.

2.3 Cultural Resources Issues

Environmental Protection Plan actions required to satisfy Title 36, Code of Federal Regulations Part 800, relating to archeological sites, were completed in 1987. The Advisory Council on Historic Preservation (ACHP), in accordance with 36 CFR 800.6 (a)(1), approved the NRC's determination of "no adverse effect" for archeological sites SES-3 (36LU15), SES-6 (36LU16), SES-8 (36LU49), and SES-11 (36LU51) located on the Licensee's property (NRC letter dated October 28, 1987, to ACHP).

As part of the determination-of-effect process, the Licensee committed to and is taking appropriate measures to mitigate impacts from plant maintenance and operation to sites 36LU15, 36LU16, 36LU49, 36LU51, and 36LU43. There was no impact to these sites from plant maintenance and operation in 2012.

As a result of License Renewal reviews, additional programmatic elements to address protection of cultural resource have been developed. This will allow us to anticipate and prevent impacts to unknown cultural resources that could be affected by station activities.

3.0 CONSISTENCY REQUIREMENTS

3.1 Plant Design and Operation

In accordance with the Environmental Protection Plan (EPP), the Licensee shall prepare and record an environmental evaluation of proposed changes in plant design, operation, or performance of any test or experiment which may significantly affect the environment. Before initiating such activities, the Licensee shall provide a written evaluation and obtain prior approval from the Director, Office of Nuclear Reactor Regulation. Criteria for the need to perform an environmental evaluation include: (1) a significant increase in any adverse environmental impact previously evaluated by the NRC or Atomic Safety and Licensing Board, (2) a significant change in effluent or power level, or (3) a matter not previously evaluated which may have a significant adverse environmental impact.

The EPP requires that if an activity meets any of the criteria to perform an environmental evaluation, the NRC will be notified. If the change, test, or experiment does not meet any of these criteria, the Licensee will document the evaluation and allow the activity to occur.

During operation of the Susquehanna SES in 2012, there were proposed activities that the Licensee reviewed as part of the unreviewed environmental question program. None of these activities were determined to involve an unreviewed environmental question or require prior NRC notification. The activities reviewed were:

1. Install new Liquid Radwaste Line.
2. Foundation for new Ecology-III Pole Barn
3. NERC/FERC Transmission Line re-grading; Confers Lane and Beach Grove Road.
4. Demolition of White House.
5. Buried Pipe Initiative; ESW Valve Pit.
6. Excavate and repair Domestic Water Leak #1.
7. Excavate and repair Domestic Water Leak #2.
8. Excavate and repair Domestic Water Leak #3.
9. Excavate and repair Domestic Water Leak #4

10. Excavate and repair Domestic Water Leak #5.
11. Buried Pipe Initiative; Rework Perimeter of VA023.
12. Security; Install conduit between MH-7 and NGH.
13. Security; Extend SCC Sidewalk.
14. Buried Pipe Initiative; HRC-150 and HR-102.
15. Install new Domestic Water Supply Line to Combo Shop.
16. Excavation of Domestic Water System for Investigation and Leak Repair.
17. Pave Walkway Leading up to and surrounding B/U Met Tower.
18. Replace Domestic Water Valve 017359 (S&A Building Domestic Water Isolation Valve).
19. Exploratory excavation of subsidence in NGH parking lot.
20. Excavate and replace Fire Protection Valve 1PI-136

3.2 Reporting Related to NPDES Permits and State Certifications

There were no significant noncompliances or special reporting requirements associated with implementation of NPDES Permit No. PA-0047325.

The Susquehanna SES has an NPDES permit; therefore, state certification pursuant to Section 401 of the Clean Water Act is not required.

3.3 Changes Required for Compliance with Other Environmental Regulations

During 2012 an exemption was issued by Pennsylvania Department of Protection Bureau of Air Quality for Fukushima related Portable Emergency Equipment i.e. generators.

Numerous Township and County Permits were issued during the year for earth disturbance activities and new structures documented in the list of environmental evaluations provided in section 3.1 of this report.

4.0 ENVIRONMENTAL CONDITIONS

4.1 Unusual or Important Environmental Events

During 2012, there was one operating occurrence reviewed as part of the significant environmental event evaluation program. This significant environmental event review was initiated to document an Indiana Bat evaluation prior to Electric Utilities removing a Danger Tree from a Transmission Line Right of Way. There were no significant or adverse environmental effects related to station operation and there were no EPP noncompliances.

4.2 Environmental Monitoring

4.2.1 General Monitoring

With the exception of aquatic monitoring required for compliance with the NPDES permit which continues during operation of the station, all monitoring of station operational impacts on aquatic and terrestrial biota listed in the FES and Appendix B of the operating license have been completed.

4.2.2 Maintenance of Transmission Line Corridors

In 2012, the Project and Contract Management department of PPL Electric Utilities maintained transmission line vegetation maintenance and inspection records.

5.0 ENVIRONMENTAL PROTECTION PLAN REPORTING REQUIREMENTS

5.1 Review and Audit

The Licensee has established procedures for an independent group to review and audit compliance with the EPP. Audits of EPP compliance are conducted by Quality Assurance. The Manager-Quality Assurance is responsible for verifying compliance with the EPP. The Vice President-Site Operations is responsible for environmental monitoring and for providing any related support concerning licensing. The Manager – Plant Chemistry / Environmental is responsible for day-to-day environmental monitoring.

The Auditing Organization Chart (Fig. 5.1-1) lists the groups utilized in reviewing and auditing of the Susquehanna SES environmental programs as well as those responsible for managing these programs. PPL's Senior Director of Environmental Management is available to provide auditing support as necessary.

An audit of compliance with the EPP program was conducted during 2012 as part of a regularly scheduled Chemistry Program Audit. There were no findings or noncompliances identified as a result of this effort. The program was determined to be effective and well implemented.

5.2 Records Retention

Records and logs relative to environmental aspects of plant operation and audit activities are retained in the Nuclear Records System. This system provides for review and inspection of environmental documents, which are available to the NRC upon request.

All records concerning modifications of plant structures, systems and components which are determined to potentially affect the continued protection of the environment are retained for the life of the plant. All other records, data, and logs relating to the environmental programs and monitoring are retained for at least five years or, where applicable, in accordance with the requirements of other agencies. Transmission line corridor vegetation maintenance records are maintained by PPL Electrical Utilities per section 2.2.3 of this report.

5.3 Changes in Environmental Protection Plan

No changes were made to the EPP during 2012.

5.4 Plant Reporting Requirements

5.4.1 Routine Reports

This Annual Environmental Operating Report (Nonradiological) was prepared to meet routine reporting requirements of the EPP for 2012. It provides summaries and analyses of environmental protection activities required in Subsection 4.2 of the EPP for the reporting period.

5.4.2 Nonroutine Reports

There were no unusual or Important Environmental Events as identified in the Environmental Protection Plan that required reporting in 2012.

6.0 ATTACHMENTS

Table 2.1-1

America Shad Impingement Monitoring (2012)

Figure 5.1-1

Auditing Organization Chart (2012)

TABLE 2.1-1

**SUSQUEHANNA STEAM ELECTRIC STATION
2012 AMERICAN SHAD IMPINGEMENT PROGRAM
14 September – 4 October 2012**

Date		Time	Items Found on Trash Bar/Traveling Screen		
2012			Shad	Fish	Other
14 Sep	0915	Nets set to begin sampling. Delayed start due to river intake maintenance.			
15 Sep	0800	2 gizzard shad	1 rock bass		
16 Sep	0800	0	2 channel catfish	1 crayfish	
17 Sep	0931	0	1 channel catfish	1 crayfish	
18 Sep	0910	0	1 sucker species	2 crayfish	
19 Sep	0800	1 gizzard shad	2 channel catfish 1 common shiner	8 crayfish	
20 Sep	0817	0	2 channel catfish	2 crayfish	
21 Sep	0830	1 gizzard shad	5 channel catfish	1 crayfish	
22 Sep	0800	0	2 spotfin shiner 1 channel catfish	1 crayfish	
23 Sep	0830	0	1 channel catfish 1 unidentified	2 crayfish	
24 Sep	0830	0	4 channel catfish 3 bluegill 1 brown trout	1 crayfish	
25 Sep	0830	0	0		
26 Sep	0835	0	0	1 crayfish	
27 Sep	0836	0	0	1 crayfish	
28 Sep	0830	0	0	3 crayfish	
29 Sep	0830	0	0	1 crayfish	
30 Sep	0830	0	1 channel catfish		
01 Oct	0950	0	0		
02 Oct	0830	0	1 channel catfish		
03 Oct	0830	0	0		
04 Oct	0830	0	Nets removed due to heavy debris and leaves.		
TOTALS		4 gizzard shad	30 fish - 7 species 20 channel catfish 3 bluegill 2 spotfin shiner 1 common shiner 1 rock bass 1 brown trout 1 sucker species 1 unidentified	25 crayfish	

FIGURE 5.1-1

AUDITING ORGANIZATION CHART

(2012)

