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U. S. Nuclear Regulatory Commission
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**SUSQUEHANNA STEAM ELECTRIC STATION
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NON-RADIOLOGICAL)
PLA-7448**

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

The Susquehanna Steam Electric Station (SSES) Annual Environmental Operating Report (Non-Radiological) is hereby submitted for the calendar year 2015 in accordance with the SSES Environmental Protection Plan (EPP).

Should you have any questions or require additional information, please contact Mr. Jason R. Jennings, Manager – Nuclear Regulatory Affairs at (570) 542-3155.

This letter contains no new regulatory commitments.

A handwritten signature in black ink, appearing to read "J. Franke", written over a horizontal line.

Jon A. Franke

Attachment 1) 2015 Annual Environmental Operating Report (Non-Radiological)

Copy: NRC Region I

Ms. C. Copeyon, U. S. Dept. of Interior, Fish and Wildlife Service
Mr. J. E. Greives, NRC Sr. Resident Inspector
Mr. T. E. Hood, NRC Project Manager
Mr. M. Shields, PA DEP/BRP

Attachment 1 to PLA-7448

**2015 Annual Environmental Operating
Report (Non-Radiological)**

Susquehanna Steam Electric Station

Units 1 & 2

Environmental Operating Report (Nonradiological)

**2015
Annual
Report**



**Susquehanna Nuclear, LLC
Berwick, PA
April 2016**

Attachment 1 to PLA-7448

**ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)
for SSES Units 1 and 2**



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

2015
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)




Susquehanna Nuclear, LLC
Berwick, PA
April 2016


SUSQUEHANNA STEAM ELECTRIC STATION

ANNUAL ENVIRONMENTAL OPERATING REPORT (NONRADIOLOGICAL)

2015

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Date: 4/14/16



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

**2015
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**

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

**Prepared by
Chemistry – Environmental Services
Susquehanna Nuclear, LLC
Berwick, PA
April 2016**

FOREWORD

The 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 Susquehanna Nuclear, LLC presently owns 2,347 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, 1,605 (1670 minus 65 acre Gould Island) acres of land is jointly owned between Susquehanna Nuclear, LLC (90%) and Allegheny Electric Cooperative (10%). The land uses on the west side of the river include generation & associated maintenance facilities, laydown areas, parking lots, roads, a nature preserve (the Susquehanna Riverlands), and agricultural leases to local farmers.

To the north of the Station along the river, Susquehanna Nuclear, LLC owns 100% of the 65-acre Gould Island. On the east side of the river, and across the river from the Station, Susquehanna Nuclear, LLC is the 100% owner of 677 acres that are maintained as undeveloped land, natural recreational areas, wildlife areas, and leases to local farmers.

This report discusses environmental commitments and impacts from January 1, 2015 through December 31, 2015. In summary the report documents that Susquehanna Nuclear's 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 2015 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 2015 report is the 34th 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 NPDES Permit renewal application was provided to the NRC in 2016 (ref. PLE-25782, February 9, 2016).

American Shad

On 23 July, 2015, Joshua Tryninewski, fisheries biologist with the Pennsylvania Fish and Boat Commission (PAFBC), informed Susquehanna SES Environmental Laboratory personnel that 274,425 American shad fry (*Alosa sapidissima*) were stocked in the Susquehanna River at Tunkhannock, PA. The stocking occurred on May 29, 2015 at the Tunkhannock Park Boat Access, approximately 50 miles upriver from the Susquehanna SES. As a result, environmental lab personnel sampled the wash-water from the trash bars and traveling screens at the intake building to see if any shad migrating downriver were impinged by Susquehanna SES.

Fish sampling containers, made from aluminum-framed boxes sided with wire mesh, were suspended by jib cranes at the ends of each of the wash-water canals from the trash bars and traveling screens. The sampling containers were deployed from 1 August through 30 September 2015 and checked daily. No American shad were collected during this period or during any previous sampling year. However, 374 fish of 16 other species

were collected (Table 2.1-1). Most of these fish were juvenile smallmouth bass (*Micropterus dolomieu*) or channel catfish (*Ictalurus punctatus*; 319 specimens between the two species). Additionally, 228 Allegheny crayfish (*Orconectes obscurus*) were also collected, along with one yellow lampmussel (*Lampsilis cariosa*) and the head of a double-breasted cormorant (*Phalacrocorax auritus*).

It is possible that the location of the intake building deters migrating juvenile shad from approaching the intake. PAFBC personnel reported that juvenile shad avoid slow currents when migrating downriver. The intake structure is located on the west river bank in relatively slow current. Therefore, the position of the intake could be a determining factor in not having observed American shad in any samples to date.

Biofouling Mollusk Monitoring

The biofouling mollusk monitoring program continued at the Susquehanna SES in 2015. The focus of this monitoring is to survey the Susquehanna River and the ESSW Spray Pond for the presence of live Asian clams (*Corbicula fluminea*) and zebra mussels (*Dreissena polymorpha*). This work is generally done by a combination of scuba diving, wading, and examination of natural or 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 river in the immediate vicinity of the plant. There have been reports of a few zebra mussels observed in areas along the river, including an island a couple of miles below the plant, but none of these observations yet suggest an established adult population.

Four of the ESSW pump house screens were removed this year for cleaning and we examined them for zebra mussels, but none were found. A scuba inspection for biofoulers present in the ESSW Spray Pond was done on 13 July 2015 by divers from the environmental laboratory. However, no living biofoulers were observed.

2.2 Terrestrial Issues

2.2.1 Studies Previously Completed

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

2.2.2 Sound Level Survey

Sound level surveys were conducted during pre-operation and operational periods and are completed. There were no noise complaints received during 2015.

2.2.3 Maintenance of Transmission Line Corridors

Transmission line corridor vegetation maintenance and inspection records are maintained by PPL-Electric Utilities Vegetation Management and are available upon request. There were no adverse environmental impacts to transmission corridors reported in 2015. 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 2015. Furthermore, station activities did not impact any previously unknown cultural resources in 2015.

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 an environmental evaluation be completed and the NRC be notified if an activity meets any of the criteria. 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 2015, 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. Replace Diesel Engines for 0P511 & 0P592
2. Installation of three new Security Towers
3. Bore Holes to support Learning Center Expansion Project
4. Infiltration Test Pits to support Learning Center Expansion Project
5. Excavation to repair Service Air System
6. Removal of Trees Near Helipad
7. Excavate & Repair Buried Electrical Line for Emergency Remote Monitoring System
8. Removal of Fallen Dead Tree below Helipad
9. Excavation & Replace 1FH134 Fire Hydrant
10. Excavation & Replace 1FH112 Fire Hydrant
11. Proposed Increase in Glut. Levels for Emergency Service Water and Residual Heat Removal Service Water Systems
12. Removal of Dead Trees near APF Parking lot
13. PPL Electric Utilities; Installation of T-10 Fiber Line
14. Sewage Treatment Plant Discharge Pipe Repair
15. Installation of Seismic Field Monitor (OCB910)
16. Installation of Unit 1 and 2 On-Line Noble Chemical Injection Systems
17. Paving of South Gravel Overflow Parking Lots

3.2 Reporting Related to NPDES Permits and State Certifications

On 9/10/15, following a hydraulic overload event at the station's sewage treatment plant (STP), the station discovered a leak from the STP's effluent pipe – a buried pipe on Susquehanna Nuclear, LLC property that discharges treated effluent from the STP into the Susquehanna River. As required by the station's NPDES Permit, PaDEP was immediately notified. Additionally, the station made a courtesy ENS notification to the NRC, and the station provided written notifications to the PaDEP (PLE-25691) and to the NRC (PLA-7390). The STP Effluent Line was isolated on 9/10/15 upon discovery of the leak. After repairs were completed on 9/22/15, the STP Effluent Line was returned to service.

NOTE: This event did not release any untreated sewage into a waterway; therefore, a Significant Environmental Event Evaluation was not required.

There were no other significant noncompliances or special reporting requirements associated with implementation of NPDES Permit No. PA0047325.

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

On 8/14/15, PaDEP issued the station a new five year State-Only Operating Permit covering air emissions from the station's Emergency Diesel Generators (Permit No. SM 40-00027).

Additionally, Township and County Permits were issued during 2015 to support the proposed expansion of the station's Learning Center facility.

4.0 ENVIRONMENTAL CONDITIONS

4.1 Unusual or Important Environmental Events

During 2015, there was one operating occurrence reviewed as part of the Significant Environmental Event evaluation program. The Significant Environmental Event review was initiated to document evaluations prior to and following the removal of trees / branches located on SSES property that were determined to pose a safety risk to station personnel between April 1st and November 15th.

On 9/3/15, three dead maple trees in the immediate vicinity of the station's helipad were removed to mitigate the imminent safety risk they posed to station and Life Flight personnel. Also, a dead tree in the Riverlands Nature Area that had recently fallen over was cut-up and removed. All four of the dead trees in question technically qualified as Indiana bat habitat, hence the performance of a Significant Event Evaluation by a qualified biologist which determined that no Indiana bats were negatively impacted by the removal of these trees.

NOTE: Since the trees in question posed a safety risk to human life, no notification of the removals was necessary to the US Fish and Wildlife Service.

In summary, 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 ongoing aquatic monitoring required for compliance with the NPDES permit, 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 2015, PPL Electric Utilities Vegetation Management 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 Site VP – Susquehanna 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.

An audit of compliance with the EPP program was conducted during 2014 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 2015.

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 2015. It provides summaries and analyses of environmental protection activities required in Subsection 4.2 of the EPP for the reporting period.

5.4.2 Non-routine Reports

As identified previously under Section 3.2, the hydraulic overload event at the station's sewage treatment plant (STP), followed by the discovery of a leak from the STP's buried effluent line required a non-routine immediate phone notification to PaDEP, and formal written notifications to PaDEP (PLE-25691) and to the NRC (PLA-7390).

Otherwise, there were no Unusual or Important Environmental Events as defined by the Environmental Protection Plan that required reporting in 2015.

6.0 ATTACHMENTS

Table 2.1-1

America Shad Impingement Monitoring (2015)

Figure 5.1-1

Auditing Organization Chart (2015)

TABLE 2.1-1

**SUSQUEHANNA STEAM ELECTRIC STATION
2015 AMERICAN SHAD IMPINGEMENT PROGRAM
1 August – 30 September 2015**

Date	Time	Items Found on Trash Bar/Traveling Screen				
2015		Shad	Fish	Crayfish	Other	Comments
1 Aug	1000	Fish baskets installed.				
2 Aug	1100	0	3 smallmouth bass 1 tessellated darter 1 spottail shiner	6		Debris
3 Aug	1715	0	8 smallmouth bass 1 rock bass	3		Debris
4 Aug	1630	0	3 smallmouth bass	4		Debris
5 Aug	1430	0	6 smallmouth bass 1 spottail shiner 1 largemouth bass	8		Debris
6 Aug	1730	0	4 smallmouth bass 3 spottail shiner	6		Debris
7 Aug	1520	0	5 smallmouth bass 1 pumpkinseed	3		Debris
8 Aug	0820	0	1 smallmouth bass	3		Debris
9 Aug	1000	0	7 smallmouth bass	8		Debris
10 Aug	1520	0	6 smallmouth bass 2 channel catfish 1 spottail shiner	6		Debris
11 Aug	1600	0	3 smallmouth bass 1 spottail shiner	7		Debris
12 Aug	1745	0	4 smallmouth bass 2 spotfin shiner 1 channel catfish	3		Debris
13 Aug	1300	0	7 smallmouth bass 1 spotfin shiner	5		Debris
14 Aug	1230	0	11 smallmouth bass 2 channel catfish	7		Debris
15 Aug	1315	0	8 smallmouth bass 1 channel catfish 1 spotfin shiner 1 spottail shiner	7		Moderate leaves & debris
16 Aug	1620	0	5 smallmouth bass 2 spotfin shiner	12		Moderate leaves & debris
17 Aug	1700	0	7 smallmouth bass 3 spotfin shiner 1 walleye	6		Moderate leaves & debris

TABLE 2.1.1 (cont.)

Date	Time	Items Found on Trash Bar/Traveling Screen				
2015		Shad	Fish	Crayfish	Other	Comments
18 Aug	1850	0	11 smallmouth bass 1 channel catfish	12		Moderate leaves & debris
19 Aug	0800	0	6 smallmouth bass	3		Moderate leaves & debris
20 Aug	1730	0	10 smallmouth bass 1 channel catfish	4		Moderate leaves & debris
21 Aug	1800	0	7 smallmouth bass 2 channel catfish 1 yellow bullhead	5		Moderate leaves & debris
22 Aug	1600	0	11 smallmouth bass 1 channel catfish	4		Moderate leaves & debris
23 Aug	1630	0	7 smallmouth bass 2 channel catfish 1 brown bullhead	9		Moderate leaves & debris
24 Aug	0630	0	4 smallmouth bass 4 channel catfish 1 spotfin shiner	1		Moderate leaves & debris
25 Aug	Fish baskets not checked					
26 Aug	0730	0	8 smallmouth bass 1 spotfin shiner	8	1 yellow lampmussel	Moderate leaves & debris
27 Aug	1130	0	10 smallmouth bass 8 channel catfish	3		Moderate leaves & debris
28 Aug	1445	0	12 channel catfish 11 smallmouth bass	4		Moderate leaves & debris
29 Aug	1900	0	12 smallmouth bass 6 channel catfish 1 bluegill	6		Moderate leaves & debris
30 Aug	1930	0	4 smallmouth bass 3 channel catfish 1 rock bass	2		Moderate leaves & debris
31 Aug	0800	0	2 smallmouth bass 2 channel catfish 1 spotfin shiner 1 bluegill	2		Moderate leaves & debris
1 Sep	0845	0	13 channel catfish 3 smallmouth bass 1 rock bass 1 spottail shiner	6		Moderate leaves & debris
2 Sep	0845	0	1 smallmouth bass 1 channel catfish 1 spottail shiner	6		Moderate leaves & debris
3 Sep	0845	0	4 channel catfish 1 smallmouth bass 2 shiner spp.	2		Moderate leaves & debris
4 Sep	1730	0	3 channel catfish 2 smallmouth bass	4		Moderate leaves & debris

TABLE 2.1.1 (cont.)

Date	Time	Items Found on Trash Bar/Traveling Screen				
2015		Shad	Fish	Crayfish	Other	Comments
5 Sep	1145	0	2 channel catfish 1 smallmouth bass	2		Moderate leaves & debris
6 Sep	1600	0	4 smallmouth bass 2 channel catfish 2 spotfin shiner 1 margined madtom	3		Moderate leaves & debris
7 Sep	1600	0	2 smallmouth bass 1 channel catfish 1 brown bullhead	4		Moderate leaves & debris
8 Sep	0820	0	3 channel catfish 1 walleye 1 brown bullhead	2		Moderate leaves & debris
9 Sep	0900	0	3 channel catfish 2 smallmouth bass	4		Moderate leaves & debris
10 Sep	0900	0	2 smallmouth bass 2 channel catfish	0		Moderate leaves & debris
11 Sep	1600	0	3 channel catfish 2 smallmouth bass	2		Moderate leaves & debris
12 Sep	1730	0	2 channel catfish	0		Moderate to heavy leaves & debris
13 Sep	1930	0	2 smallmouth bass 1 spotfin shiner	2		Moderate to heavy leaves
14 Sep	1015	0	2 smallmouth bass	2		Heavy leaves
15 Sep	0815	0	1 smallmouth bass 1 spottail shiner 1 catfish spp.	1		Heavy leaves
16 Sep	0800	0	1 rock bass 1 spotfin shiner	2		Heavy leaves
17 Sep	0900	0	1 yellow perch	2		Heavy leaves
18 Sep	0900	0	2 channel catfish	1	Head of a D-B cormorant	Heavy leaves
19 Sep	0945	0	1 smallmouth bass	3		Moderate leaves
20 Sep	1700	0	1 channel catfish	2		Moderate leaves
21 Sep	1000	0	1 fallfish 1 herring spp.	3	Hypodermic needle	Moderate leaves
22 Sep	0900	0	1 channel catfish	3		Moderate leaves
23 Sep	1000	0	1 channel catfish 1 walleye	3		Moderate leaves

TABLE 2.1.1 (cont.)

Date	Time	Items Found on Trash Bar/Traveling Screen				
2015		Shad	Fish	Crayfish	Other	Comments
24 Sep	0830	0	0	1		Moderate leaves
25 Sep	0800	0	2 channel catfish 1 rock bass	3		Moderate leaves
26 Sep	1000	0	2 channel catfish	2		Moderate leaves
27 Sep	1100	0	1 smallmouth bass 1 channel catfish	3		Moderate leaves
28 Sep	0700	0	1 smallmouth bass 1 rock bass 1 margined madtom	0		Moderate leaves
29 Sep	0845	0	1 channel catfish 1 margined madtom	2		Moderate leaves
30 Sep	0830	0	2 channel catfish 1 gizzard shad	1		Moderate leaves
30 Sep	Fish baskets removed.					
TOTALS		0	374 fish - 16 species	228 *	2	
			219 smallmouth bass 100 channel catfish 16 spotfin shiner 11 spottail shiner 6 rock bass 3 walleye 3 margined madtom 3 brown bullhead 2 bluegill 2 shiner spp. 1 tessellated darter 1 largemouth bass 1 pumpkinseed 1 yellow bullhead 1 yellow perch 1 gizzard shad 1 fallfish 1 catfish spp. 1 herring spp.		1 yellow lampmussel 1 head of D-B cormorant	

*All crayfish collected were *Orconectes obscurus*.

FIGURE 5.1-1

AUDITING ORGANIZATION CHART

(2015)

