



**PSE&G**

Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038-0236

**Nuclear Business Unit**

**MAY 28 1998**

LR-E980261

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U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Gentlemen:

**REPORT OF IMPINGEMENT OF SHORTNOSE STURGEON  
SALEM GENERATING STATION, UNIT NOS. 1 AND 2  
DOCKET NO. 50-272 AND 50-311**

In accordance with Section 5.4.2 of Appendix B, Environmental Protection Plan, to the Operating License for the Salem Generating Station, Public Service Electric and Gas Company (PSE&G) hereby transmits notification of a nonroutine event discovery, and documents the occurrence and removal of three (3) shortnose sturgeon from the Salem Generating Station circulating water intake structure.

Enclosed please find four (4) attachments. Attachment 1 gives a narrative description of the events, as requested by the NRC. Attachment 2-4, requested by the National Marine Fisheries Service (NMFS), provides more specific information regarding the observance and retrieval of each sturgeon.

Should you have any questions regarding this transmittal, please feel free to contact us.

Sincerely,

D. R. Powell  
Director -  
Licensing/Regulation & Fuels

Attachments (4)

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The power is in your hands.

C Mr. Hubert J. Miller, Administrator – Region I  
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U. S. Nuclear Regulatory Commission  
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Ms. M. G. Evans (X24)  
USNRC Senior Resident Inspector - Salem

Mr. Doug Beach  
National Marine Fisheries Service  
Habitat Conservation Branch  
One Blackburn Drive  
Gloucester, MA 01930-2298

Ms. Nancy Haley  
National Marine Fisheries Service  
212 Rogers Avenue  
Milford, CT 06460

Mr. Kent Tosch, Manager IV  
New Jersey Department of Environmental Protection  
Bureau of Nuclear Engineering  
33 Arctic Parkway  
P. O. Box 415  
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Mr. Dave Jenkins  
Endangered and Nongame Species Program  
P. O. Box 236  
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Mr. Lawrence J. Niles, Chief  
New Jersey Department of Environmental Protection  
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P. O. Box 400  
Trenton, NJ 08625-0400

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ATTACHMENT 1

INCIDENTAL TAKE OF SHORTNOSE STURGEON

OCCURRENCE DATES: May 6, 1998  
May 14, 1998  
May 16, 1998

FACILITY: Salem Generating Station, Units 1 and 2  
Public Service Electric and Gas Company  
Hancocks Bridge, NJ 08038

IDENTIFICATION OF OCCURRENCES:

Three shortnose sturgeon (*Acipenser brevirostrum*) were removed from Circulating Water System (CWS) Intake trash racks at the Salem Generating Station. The sturgeon were recovered on May 6, May 14 and May 16, 1998. Shortnose sturgeon are federally listed as "endangered" species under the Endangered Species Act of 1973, as amended.

CONDITIONS PRIOR TO OCCURRENCES:

May 6, 1998	Unit 1	90 percent power
	Unit 2	100 percent power
May 14, 1998	Unit 1	95 percent power
	Unit 2	100 percent power
May 16, 1998	Unit 1	70 percent power
	Unit 2	100 percent power

DESCRIPTION OF OCCURRENCES:

DATE	TIME	STATUS	INTAKE BAY	FORK LENGTH (CM)	TOTAL LENGTH (CM)	WEIGHT (KG)
5/6/98	1100	Live	22B	NA	~ 61	NA
5/14/98	0857	Live	12A	77.5	85.5	NA
5/16/98	1000	Dead	23A	NA	~ 63.9	3.18

The sturgeon recovered on May 6<sup>th</sup> and May 14<sup>th</sup> were recovered alive, while the sturgeon recovered on May 16<sup>th</sup> was dead. Site Services personnel recovered all sturgeon during the cleaning of the trash racks.

The May 6<sup>th</sup> live sturgeon was in good condition, with no marks or lesions and was immediately released back into the Delaware River. PSE&G does not have any documentation (i.e., measurements and photographs) for this sturgeon. The sturgeon was released prior to Environmental Licensing personnel responding. A biological environmental consulting employee, who used a key for identification, as well as conversations with experienced personnel of the company, made the identification.

The May 14<sup>th</sup> live sturgeon was in fair condition, with some old wounds on the sides and missing its right eye. It was released, after discussions with NMFS about the disposition, at approximately 1530 hours near the Hope Creek Jetty on the Delaware River.

The May 16<sup>th</sup> dead sturgeon was missing its tail and had a gash on the right side behind the gill. The sturgeon was immediately placed on ice and has been frozen. Fin tissue samples have been taken and were sent to Dr. Ike Wirgin at the New York University Medical Center. The carcass was sent to the Academy of Natural Sciences in Philadelphia, PA.

The U.S. Nuclear Regulatory Commission (NRC), the U.S. National Marine Fisheries Service (NMFS), and the New Jersey Department of Environmental Protection (NJDEP) have been notified regarding these occurrences.

#### APPARENT CAUSE OF OCCURRENCES:

Based on historical and recent records, shortnose sturgeon appear to utilize the entire Delaware estuary-river complex, from the river mouth to New Hope, Pennsylvania (0-238 river kilometer - rkm). Spawning occurs north of Trenton, 128 rkm upstream from the Salem and Hope Creek Generating Stations. It is unlikely that larval or post-larval fish would travel the distance downstream to Artificial Island. Adult shortnose sturgeon may move into the Artificial Island area during fall migration to wintering grounds. Healthy adult and juvenile shortnose sturgeon are strong enough swimmers that they should be able to escape from intake velocities typically encountered at the trash bars. Sturgeon which are in a weakened condition may be subject to impingement.

#### ANALYSIS OF OCCURRENCE:

The CWS intake is monitored for accumulation of debris throughout the year. This accumulated debris is periodically removed. Because of the debris in the Delaware River this spring, cleaning of the trash racks has been occurring typically on a daily basis. All three sturgeon in 1998 have been recovered during this cleaning. Between 1978 and 1998, a total of thirteen (13) shortnose sturgeon have been collected at the CWS intake, two in 1978, one in 1981, three in 1991, two in 1992, two in 1994, and these three occurrences in 1998.

**CORRECTIVE ACTION:**

PSE&G has began inspecting the trash racks every two hours which is not mandated until the period of June 1 and October 15. The specified time period represents the peak migratory movement of sea turtles into and out of the Delaware River. Observations are made specifically for sea turtles and sturgeon during this time. During the remaining months the trash rack is inspected daily for debris load and cleaned as necessary. Any sturgeon occurrence will be observed at this time.

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ATTACHMENT 2

REPORTING REQUIREMENTS  
Appendix II to Section 7 Consultation

Photographs should be taken and the information requested below should be collected in association with all protected species (sea turtles and shortnose sturgeon) impingements. This documentation should be sent to the:

National Marine Fisheries Service  
Habitat Conservation Branch  
One Blackburn Drive  
Gloucester, MA 01930-2298

Protected Species Impingements  
Salem and Hope Creek Generating Stations

**Observers full name:** Cherie Titerance - Environmental Consulting Services, Inc.

**Reporters full name:** Donald Bowman - PSE&G Environmental Licensing

**Species Identification:** Shortnose Sturgeon (*Acipenser brevirostrum*)

**Site of Impingement:** Salem Generating Station - CWS Intake 22B

**Date and time impingement was observed:** 05/06/98 1100 hrs

**Date and time animal was collected:** 05/06/98 1100 hrs

**Tidal stage at time of observation:** Ebb Tide

**Date and time of last observation of screen:** 05/06/98 1100 hrs

**Water temperature at site and time of impingement:** 18.47<sup>o</sup> (C)

**Average percent of power generating capacity achieved per unit over the 48 hours previous to impingement:**  
Unit 1 - 90 percent  
Unit 2 - 100 percent

**Condition of animal:** Live

**Shortnose Sturgeon Measurements:**

**Fork Length:** NA

**Total Length:** Estimated to be greater than 2 feet (61 centimeters)

**Weight:** NA

**Remarks:** The sturgeon was found during routine cleaning of the CWS Intake trash racks. It was in good condition and immediately released back into the Delaware River. PSE&G does not have any documentation (i.e., measurements and photographs) for this sturgeon.

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ATTACHMENT 3

REPORTING REQUIREMENTS  
Appendix II to Section 7 Consultation

Photographs should be taken and the information requested below should be collected in association with all protected species (sea turtles and shortnose sturgeon) impingements. This documentation should be sent to the:

National Marine Fisheries Service  
Habitat Conservation Branch  
One Blackburn Drive  
Gloucester, MA 01930-2298

Protected Species Impingements  
Salem and Hope Creek Generating Stations

**Observers full name:** John Shuman – PSE&G Site Services

**Reporters full name:** Robert Boot – PSE&G Environmental Licensing

**Species Identification:** Shortnose Sturgeon (*Acipenser brevirostrum*)

**Site of Impingement:** Salem Generating Station – CWS Intake 12A

**Date and time impingement was observed:** 05/14/98 0857 hrs

**Date and time animal was collected:** 05/14/98 0857 hrs

**Tidal stage at time of observation:** Flood Tide

**Date and time of last observation of screen:** 05/14/98 0857 hrs

**Water temperature at site and time of impingement:** 15.83<sup>0</sup> (C)

**Average percent of power generating capacity achieved per unit over the 48 hours previous to impingement:** Unit 1 - 95 percent  
Unit 2 - 100 percent

**Condition of animal:** Live

**Shortnose Sturgeon Measurements:**

**Fork Length:** 77.5 cm  
**Total Length:** 85.5 cm  
**Weight:** NA

**Remarks:** The sturgeon was found during routine cleaning of the CWS Intake trash racks. It was in fair condition with a missing right eye and bruises on top and sides of body. After discussion with NMFS, it was released into the Delaware River near Hope Creek Jetty.

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ATTACHMENT 4

REPORTING REQUIREMENTS  
Appendix II to Section 7 Consultation

Photographs should be taken and the information requested below should be collected in association with all protected species (sea turtles and shortnose sturgeon) impingements. This documentation should be sent to the:

National Marine Fisheries Service  
Habitat Conservation Branch  
One Blackburn Drive  
Gloucester, MA 01930-2298

Protected Species Impingements  
Salem and Hope Creek Generating Stations

**Observers full name:** Dave Leshner – PSE&G Site Services

**Reporters full name:** Robert Boot – PSE&G Environmental Licensing

**Species Identification:** Shortnose Sturgeon (*Acipenser brevirostrum*)

**Site of Impingement:** Salem Generating Station – CWS Intake 23A

**Date and time impingement was observed:** 05/16/98 1000 hrs

**Date and time animal was collected:** 05/16/98 1000 hrs

**Tidal stage at time of observation:** Flood Tide

**Date and time of last observation of screen:** 05/16/98 1000 hrs

**Water temperature at site at time of impingement:** 18.77° C

**Average percent of power generating capacity achieved per unit over the 48 hours previous to impingement:**  
Unit 1 - 70 percent  
Unit 2 - 100 percent

**Condition of animal:** Dead

**Shortnose Sturgeon Measurements:**

**Fork Length:** Estimated at 63.9 cm

**Total Length:** NA

**Weight:** 3.18 Kg

**Remarks:** The sturgeon was found during routine cleaning of the CWS Intake trash racks. It had a gash on the right side behind the gills and missing tail.