



GPU Nuclear Corporation
One Upper Pond Road
Parsippany, New Jersey 07054
201-316-7000
TELEX 136-482
Writer's Direct Dial Number:

March 9, 1990

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

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station (OCNGS)
Docket No. 50-219
Annual Environmental Operating Report

Enclosed are two (2) copies of the 1989 Annual Environmental Operating Report (AEOR) for the OCNGS. The AEOR is submitted in accordance with Section 3.5.1(A) of the Oyster Creek Environmental Technical Specifications (OCETS). Section 3.5.1(A) of the OCETS requires that the AEOR be submitted no later than 90 days after the first of the year.

If you have any questions concerning this submittal, please contact Mr. Thomas A. Grace of our Environmental Licensing staff at (201) 316-7980.

Very truly yours,

E. E. Fitzpatrick
Vice President and Director
Oyster Creek Nuclear Generating

EEF/TAG/lt
Enclosure
Station
(04472A:20)

cc: W. Russell (NRC)
E. Collins (NRC)
A. Dromerick, Jr. (NRC)
R. Stern (NJDEP)

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PDR ADOCK 05000219
R PDC

33004590

GPU Nuclear Corporation is a subsidiary of General Public Utilities Corporation

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1989

ANNUAL ENVIRONMENTAL OPERATING REPORT

OYSTER CREEK NUCLEAR

GENERATING STATION

LICENSE NO. DPR-16

DOCKET NO. 50-219

PREPARED BY

GPU NUCLEAR CORPORATION

FEBRUARY 1990

1.0 Introduction

This document is the Oyster Creek Nuclear Generating Station (OCNGS) Annual Environmental Operating Report (AEOR) for 1989. This report is required by Oyster Creek Environmental Technical Specification (OCETS) Section 3.5.1(A).

The OCNGS is a single cycle, forced circulation, boiling water reactor of 620 MWe maximum (summer) dependable net capacity, owned by Jersey Central Power & Light Company and operated by GPU Nuclear Corporation. The OCNGS is located in Lacey Township, Ocean County, New Jersey. The plant is subject to Provisional Operating License No. DPR-16 pursuant to Docket No. 50-219. The date of initial reactor criticality was May 3, 1969 and the commercial generation of power began on December 23, 1969.

This AEOR covers the period from January 1, 1989 through December 31, 1989. The report is organized in the following format:

- Section 1.0 - Introduction
- Section 2.0 - Environmental Monitoring
- Section 3.0 - Special Monitoring and Study Activities
- Section 4.0 - Additional Information

2.0 Environmental Monitoring

This section outlines the environmental monitoring programs to be conducted under Section 1.1 of the OCETS, and provides the status of submission of reports on these various programs. Reporting and notification requirements of events (planned shutdowns and/or fish kills) are specified in Sections 1.1.1 and 3.5.2 of the OCETS and, where applicable, have been met. The results of the monitoring programs are included below in accordance with Section 3.5.1 of the OCETS.

2.1 Biotic - Aquatic

Section 1.1.1 of OCETS specifies the following study:

a) Fish Kill Monitoring Program

One (1) reportable fish kill occurred during the reporting period (12/7-8/89). A Fish Kill Monitoring Program report covering this event was submitted to the NRC on January 8, 1990. An additional copy of that report is provided as Attachment I

3.0 Special Monitoring and Study Activities

This section is intended to present the results of any special monitoring and study activities required by Section 2.0 of the OCETS.

Section 2.0 of the OCETS does not require the performance of any special monitoring or study activities.

4.0 Additional Information

This section reports any additional information that is required by Section 3.5.1. of the OCETS which includes a summary of:

- a) All OCETS non-compliances (i.e., all NEORs) and the corrective action taken to remedy them.

- b) Changes made to State and Federal Permits and certificates which pertain to the requirements of the OCETS.
- c) Changes in station design which could involve an environmental impact.
- d) Changes to the OCETS

4.1 Summary of OCETS Non-Compliances

A Non-routine Environmental Operating Report (NEOR) was filed with the NRC during the reporting period. As mentioned in Section 2.1 of this report, the January 8, 1990 transmittal of information concerning a fish kill event is attached (reference Attachment I).

Included as Attachment II are copies of non-compliance reports submitted to the New Jersey Department of Environmental Protection during this reporting period for non-compliance with NJPDES Permit No. NJ 0005550. These permit non-compliances were minor in nature and did not result in an impact to public health or the environment.

Summary of Changes Made to Federal and State Permits and Certificates which Pertain to the Requirements of OCETS

An application was submitted on February 11, 1988 to the New Jersey Department of Environmental Protection (NJDEP) for the renewal of the Forked River Site (FRS) Water Diversion Allocation Permit No. 2164P. This application requested authorization to consolidate all existing and proposed wells at both the OCNGS, the FRS and for the combustion turbine project at the FRS, as well as requested changes in the nature and amount of the existing allocation. This application was approved and the permit was issued August 14, 1989.

On July 12, 1989, a request was made to the NJDEP for a major modification to the OCNGS NJPDES Discharge to Ground Water permit (NJ0005550). Due to oil contamination of the "Cape May" aquifer resulting from an underground pipe leak, the applicant would remove ground water and separate the floating product from it. This application was still under review as of December 31, 1989.

Summary of Changes in Station Design Which Could Involve an Environmental Impact

There were no changes in, or modifications of, station design during the reporting period which could involve an environmental impact.

4.2 Summary of Changes to the OCETS

There was no change to the OCETS during the reporting period.

DREW CHEMICAL CORPORATION

DREWGARD® 4100

FOOTNOTES

1. This component is considered hazardous as defined by CAL/OSHA regulations. Information presented and conclusions drawn are based on the product mixture itself and reflects our experience and/or available data. A Material Safety Data Sheet on each constituent hazardous substance identified is available upon request.
2. CAS numbers are noted only for hazardous substances (as defined by footnote 1).
3. Although this component is listed as hazardous, since the component is present at a concentration less than one (1) percent, it is not subject to the CAL/OSHA Regulations.
4. This component is considered hazardous by CAL/OSHA only when present as free crystal/powder; it is otherwise exempt from the regulations.

OTHER COMMENTS AND NOTES

N/A = Not Applicable
N/D = Not Determined

S = Skin
C = Ceiling limit

Major = More than 10%
Minor = 1-10%
Trace = Less than 1%

DREWGARD® is a registered trademark of Drew Chemical Corporation

Prepared by:

Michael A. Mullins
Michael A. Mullins
Group Leader

Date: August 8, 1984

Initial Telephone .
Report Date: July 25, 1989

Date of
Occurrence: July 25, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES
PERMIT NO. NJ 000 5550
REPORT NUMBER 060 5550/89/06

IDENTIFICATION OF OCCURRENCE:

Noncompliance with Part II, page 3, Section D of the permit (Dilution Pump Operations). Failure to have two dilution pumps operating when the water temperature at the U.S. Route 9 bridge exceeds 87°.

CAUSE OF NONCOMPLIANCE:

At 1725 hours on July 25, 1989, Dilution Pumps #2 and #3 were in operation when pump #2 tripped off line due to excessive water pressure differential across the grates. Dilution Pump #1 (reserve) could not be started until 1743 hours, exceeding the permitted 15 minutes period by 3 minutes.

DESCRIPTION OF NONCOMPLIANCE DISCHARGE:

Failure to have two dilution pumps operating when the water temperature at the Route 9 bridge exceeds 87°

DURATION OF NONCOMPLIANCE:

Three minutes (1740 - 1743 hours).

CORRECTIVE ACTION TO REDUCE NON-COMPLYING DISCHARGE:

Dilution Pump #1 was placed in service as soon as possible (three minutes past the permitted 15 minutes).

CORRECTIVE ACTION TO PREVENT RECURRENCE:

Continued vigilance in the removal of accumulated debris from the pump intake grates and continued pump maintenance.

Prepared By: Barry Durham/Mike Kennish

Date: August 22, 1989

Initial Telephone

Report Date: July 28, 1989

Date of

Occurrence: July 27, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES

PERMIT NO. NJ 000 5550

REPORT NUMBER 000 5550/89/07

IDENTIFICATION OF OCCURRENCE:

Noncompliance with Part II, page 3, Section D of the permit (Dilution Pump Operations). Failure to have two dilution pumps operating when the water temperature at the U.S. Route 9 bridge exceeds 87°.

CAUSE OF NONCOMPLIANCE:

At 2230 hours on July 27, 1989, Dilution Pumps #1 and #2 were in operation when pump #1 tripped off line due to failure of a lube oil cooling water control switch. Dilution Pump #3 (reserve) could not be started until 2247 hours exceeding the permitted 15 minutes period by 2 minutes.

DESCRIPTION OF NONCOMPLIANCE DISCHARGE:

Failure to have two dilution pumps operating when the water temperature at the Route 9 bridge exceeds 87°

DURATION OF NONCOMPLIANCE:

Two minutes (2245 - 2247 hours).

CORRECTIVE ACTION TO REDUCE NON-COMPLYING DISCHARGE:

Dilution Pump #3 was placed in service as soon as possible (two minutes past the permitted 15 minutes).

CORRECTIVE ACTION TO PREVENT RECURRENCE:

Continued maintenance of dilution pump components.

Prepared By: Barry Durham/Mike Kennish

Date: August 22, 1989

Initial Telephone -
Report Date: August 7, 1989

Date of
Occurrence: August 6, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES
PERMIT NO. NJ 000 5550
REPORT NUMBER 000 5550/89/08

IDENTIFICATION OF OCCURRENCE:

Noncompliance with Part II, page 3, Section D of the permit (Dilution Pump Operations). Failure to have two dilution pumps operating when the water temperature at the U.S. Route 9 bridge exceeds 87°.

CAUSE OF NONCOMPLIANCE:

At 2245 hours on August 6, 1989, Dilution Pump #2 tripped off line due to excessive water pressure differential across the grates. Dilution pump #2 was returned to service at 2302 hours.

DESCRIPTION OF NONCOMPLIANCE DISCHARGE:

Failure to have two dilution pumps operating when the water temperature at the Route 9 bridge exceeds 87°.

DURATION OF NONCOMPLIANCE:

Two minutes (2300 - 2302 hours).

CORRECTIVE ACTION TO REDUCE NON-COMPLYING DISCHARGE:

Dilution Pump #2 was returned to service as soon as possible (two minutes past the permitted 15 minutes).

CORRECTIVE ACTION TO PREVENT RECURRENCE:

Continued vigilance in the removal of accumulated debris from the pump intake grates and continued pump maintenance.

Prepared By: Barry Durham/Mike Kennish

Date: September 22, 1989

Initial Telephone

Report Date: December 6, 1989

Date of

Occurrence: December 6, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES

PERMIT NO. NJ 000 5550

REPORT NUMBER 000 5550/89/09

IDENTIFICATION OF OCCURRENCE:

Noncompliance with Part III, page 3, DSN 002 (Heat Exchanger Cooling Water).
Exceeding the maximum permitted Total Residual Chlorine concentration of 0.2 mg/l.

CAUSE OF NONCOMPLIANCE:

The flow gauge on the chlorination system would not deflect upon increasing or decreasing the adjustment and no visual indication of chlorine gas flow was observed. A sample immediately obtained indicated that the flow gauge and control mechanism was not properly operating.

DESCRIPTION OF NONCOMPLIANCE DISCHARGE:

Exceeding the maximum permitted Total Residual Chlorine concentration of 0.2 mg/l. The concentration of the sample obtained upon observation of gauge problems was measured at 1.8 mg/l.

DURATION OF NONCOMPLIANCE:

Approximately 35 minutes.

CORRECTIVE ACTION TO REDUCE NON-COMPLYING DISCHARGE:

The system was immediately removed from service and was not returned to service for the remainder of December to facilitate repair of the flow control mechanism.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

Continued preventive maintenance on the flow control mechanism.

Prepared By: Barry Durham/Mike Kennish

Date: January 22, 1990

ATTACHMENT I

January 8, 1990 NEOR Submittal

Concerning A Reportable Fish Kill

Date of Occurrence December 7-8, 1989

Fishkill Monitoring at the
Oyster Creek Nuclear Generating Station

December 7-8, 1989

GPU Nuclear Corporation
Oyster Creek Environmental Controls
January 1990

Introduction

The purpose of this report is to document the circumstances surrounding the death of approximately 3,330-3,830 fish in the discharge canal of the Oyster Creek Nuclear Generating Station (OCNGS) on the morning of December 8, 1989.

The OCNGS had been operating at full power on December 7 when a shut down was initiated at approximately 1630 hours in order to allow testing of safety-related pressure sensing switches that monitor the level of vacuum inside the plant's main condensers. Schools of Atlantic menhaden (Brevoortia tyrannus) and crevalle jack (Caranx hippos) had been observed in the condenser discharge since early fall. On December 8, subsequent to the station shut down, discharge canal temperature dropped from 57° to 34°F and these two species, as well as smaller numbers of 8 other species, died as a result of cold shock.

Materials and Methods

Monitoring of the discharge canal for dead or stressed fish began at 1830 hours on December 7 and continued through 1800 hours on December 8.

Dead and stressed fish were collected with dipnets along the banks of the discharge canal, from the condenser discharge to the mouth of Oyster Creek, including the four residential lagoons. All fish were identified to species and enumerated; length ranges were obtained.

A diver swam nine transects across the OCNGS discharge canal west of the US Route 9 bridge (Fig. 1) in order to determine the species composition and abundance of fish that sank to the bottom after death. All fish within the field of view of the diver (10 ft.) were identified and enumerated. For the only species found in abundance, Atlantic menhaden, the number of individuals per square foot along each transect was determined. These densities were used to estimate the

number of Atlantic menhaden on the entire canal bottom from the condenser discharge to the US Route 9 bridge.

Bottom trawl samples were collected at four locations in the discharge canal/Oyster Creek, east of the US Route 9 bridge, including the length of one of the residential lagoons (Fig. 1). Trawling was done with a 4.8 m semiballoon trawl with a 3.9 cm stretch mesh body, a 3.2 cm stretch mesh cod end, and a 1.3 cm stretch mesh liner.

Temperature data were obtained from the continuous temperature monitor located approximately 4 ft. below the surface at the condenser intake, condenser discharge, and the US Route 9 bridge on Oyster Creek (Fig. 2).

Results and Discussion

Surveys of the discharge canal banks and residential lagoons on foot and by boat yielded the following results:

<u>SPECIES</u>	<u>NUMBER OF</u>	
	<u>INDIVIDUALS</u>	<u>LENGTH RANGE (cm)</u>
Atlantic menhaden (<u>Brevoortia tyrannus</u>)	1,073	15.2-30.5
bluefish (<u>Pomatomus saltatrix</u>)	166	21.6-52.1
weakfish (<u>Cynoscion regalis</u>)	5	49.5-53.3
spotted seatrout (<u>Cynoscion nebulosus</u>)	3	46.4-59.7
northern kingfish (<u>Menticirrhus saxatilis</u>)	6	20.3-35.6
spot (<u>Leiostomus xanthurus</u>)	<u>1</u>	<u>16.5</u>
TOTAL	1,254	

Diver surveys of the discharge canal west of the US Route 9 bridge yielded 90 Atlantic menhaden, 4 red drum (Sciaenops ocellata), 2 American eel (Anguilla rostrata), 1 northern kingfish, and 1 spiny dogfish (Squalus acanthias). Based upon the number of individuals found by the diver, the total number of Atlantic menhaden on the canal bottom was estimated to be 1,568, including 623 between the condenser discharge and the railroad trestle and 945 from the railroad trestle to the US Route 9 bridge (Tables 1 and 2; Fig. 1).

No dead or stressed fish were found in the bottom trawl samples collected in the discharge canal east of the US Route 9 bridge. The species composition and abundance of the total trawl catch was as follows: 400 sand shrimp (Crangon septemspinosa), 200 sand lance (Ammodytes sp.), 60 Atlantic silverside (Menidia menidia), 5 threespine stickleback (Gasterosteus aculeatus) and 2 winter flounder (Pseudopleuronectes americanus).

Prior to the station shut down, a large school of crevalle jacks, estimated to include 500-1,000 individuals, was observed in the condenser discharge. The lower lethal limit for this species is known to be 50°F. Although no dead crevalle jack were found anywhere in the discharge canal, it is assumed that they died of cold shock because the condenser discharge temperature dropped from 57°F prior to shut down (1600 hours on Dec. 7) to 34°F the following morning (Fig. 2). It may be that they survived long enough to move out of the discharge canal and into Barnegat Bay before dying.

In summary, approximately 3,330-3,830 fish died as a result of cold shock subsequent to the shutdown of the OCNGS on December 8, 1989. The majority of these fish were Atlantic menhaden (2,641 individuals) although smaller numbers of eight other species were observed.

Table 1. ESTIMATE OF THE NUMBER OF ATLANTIC MENHADEN ON THE BOTTOM OF THE DISCHARGE CANAL
(Area North of Railroad Trestle) BASED UPON DIVER SURVEYS

Transect Number	Length Across Canal (ft)	Field of View for Diver (ft)	Total Area Observed (ft ²)	Number of Fish Observed	Number of Fish per ft ²	Total Area per Transect (ft ²)	Estimated Number of Fish per Transect
81	50	10	500	63	.126	2,500	315
82	80	10	800	5	.006	4,000	24
83	225	10	2,250	9	.004	22,500	90
84	180	10	1,800	3	.002	31,500	63
85	135	10	1,350	0	0	NA	0
86	150	10	1,500	1	.005	26,250	131
				Total 87			
							623 Total Estimated Fish North of Railroad Trestle

Table 2. ESTIMATE OF THE NUMBER OF ATLANTIC MENHADEN ON THE BOTTOM OF THE DISCHARGE CANAL
(Area South and Southeast of Railroad Trestle) BASED UPON DIVER SURVEYS

Transect Number	Length Across Canal (Ft)	Field of View for Diver (Ft)	Total Area Observed (Ft ²)	Number of Fish Observed	Number of Fish per Ft ²	Total Area per Transect (Ft ²)	Estimated Number of Fish per Transect
7	150	10	1,500	0	.0	7,500	0
8	150	10	1,500	1	.0007	7,500	5
9	150	10	1,500	2	.0013	7,500	10
Total				3			

NOTE Due to the excessive snow and ice along the canal bank only the above three transects could be reached for sampling.

Calculations - The total number of individuals south and southeast of the railroad trestle was calculated by multiplying the average number of fish per Ft² from transects #2, #3, #4, #6, #7, #8, #9 by the total area from the railroad trestle to the route 9 bridge.

$$\text{Total area} = 315,000 \text{ ft}^2 \times 0.003 = 945 \text{ Total Estimated Fish South and Southeast of Railroad Trestle}$$

(2,100' x 150') (mean number of fish per Ft²)

Transect #1 was not included in this analysis because the relatively large number of fish observed there was not representative of the rest of the canal. Fish tend to congregate in the dilution pump discharge area where a pocket of relatively warm water persists after the station shuts down and the dilution pumps are turned off.

Similarly, Transect #5 was not included because the absence of dead fish was believed to be caused by the strong current from the 30" discharge pipe preventing dead fish from settling to the bottom, and was not representative of the remainder of the canal.

Figure 1

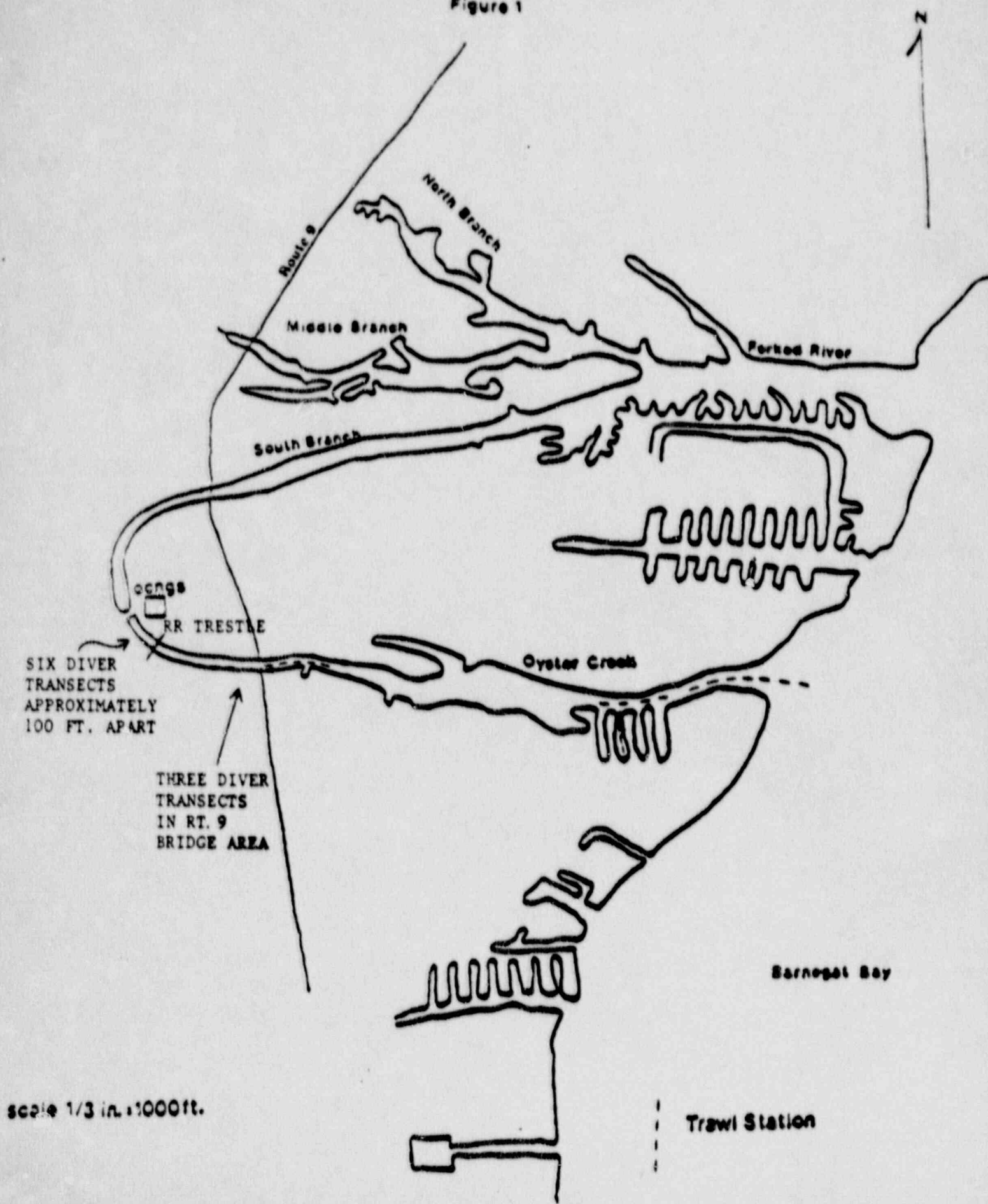
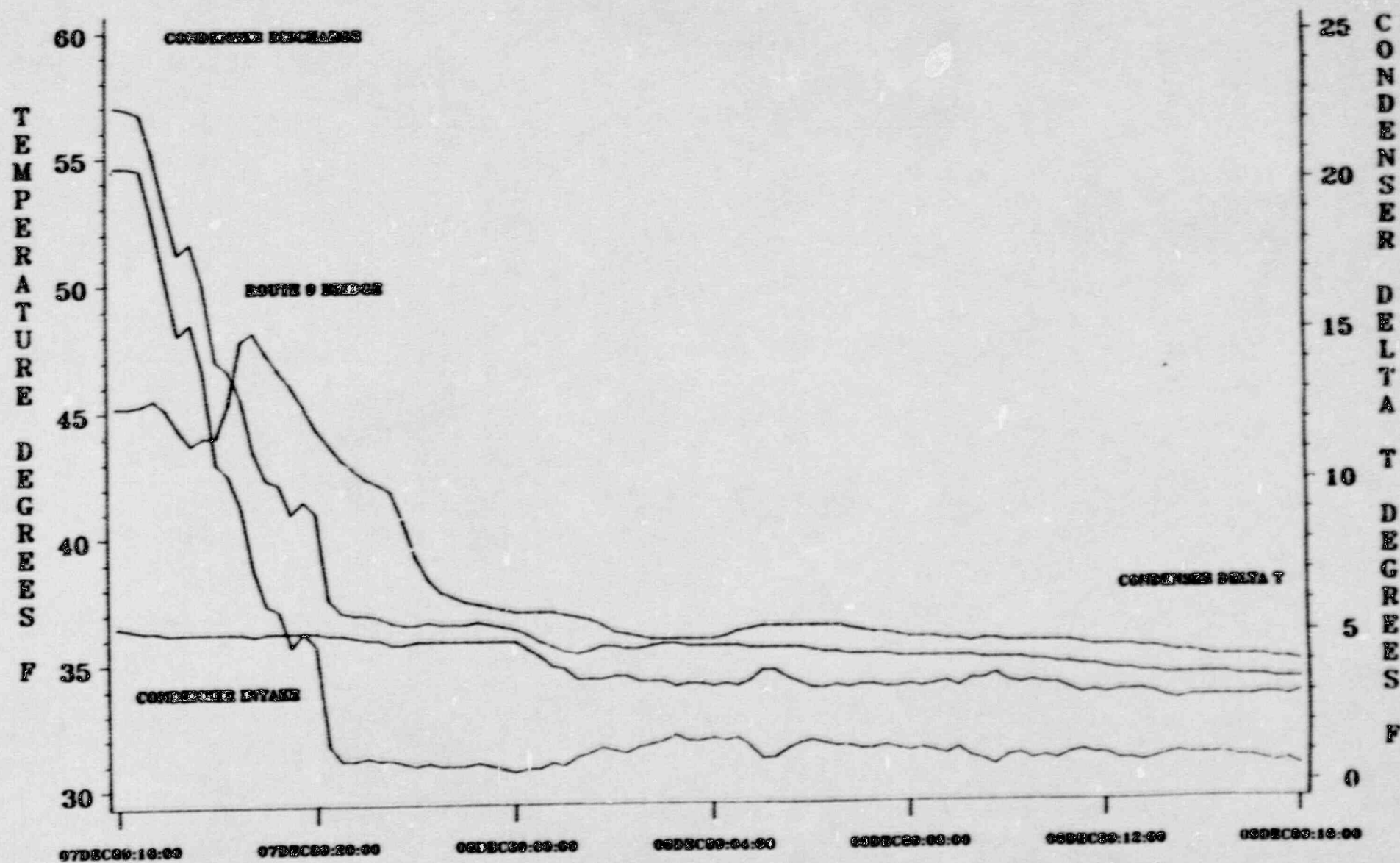


FIGURE 2

TEMPERATURE PROFILE AT OCNGS

DECEMBER 7-8, 1989



ATTACHMENT II

Copies of Noncompliance Reports for

NJDPES Permit No. NJ 0005550

Initial Telephone

Report Date: February 2, 1989

Date of
Occurrence: February 2, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES

PERMIT NO. NJ 000 5550
REPORT NUMBER 000 5550/89/01

IDENTIFICATION OF OCCURRENCE

Noncompliance with Part I, p. 1 of the permit. Discharging a pollutant not specifically authorized by the permit.

CAUSE OF NONCOMPLIANCE:

Refer to attached Hazardous Substance Release Notification Report No. 01-89.

DESCRIPTION OF NONCOMPLYING DISCHARGE:

Approximately 100 gallons of a solution containing Drew Guard 4109 (Boron corrosion inhibitor) was discharged via the Main Condenser Cooling Water discharge, DSH 001. The concentration of Boron in this solution was 162 ppm (0.015 gallons boron).

DURATION OF NONCOMPLIANCE:

Discharge was approximately 5 minutes in duration.

CORRECTIVE ACTION TO REDUCE THE NONCOMPLYING DISCHARGE:

The discharge had occurred before immediate correction action could be taken. However, one circulation pump was operating which diluted the discharge at a rate of 115,000 GPM.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

All valves associated with the noncompliance were inspected and re-aligned.

Prepared By: Barry Durham

Date: March 21, 1989

GPU NUCLEAR CORPORATION
OYSTER CREEK NUCLEAR GENERATION STATION
HAZARDOUS SUBSTANCE RELEASE NOTIFICATION FORM

REPORT NO. 01-89

INCIDENT DATE: 02/02/89

INCIDENT TIME: 1400

INCIDENT LOCATION: (Attach Site Map*)

EPA ID # NJ 0 9 8 0 6 4 9 1 2 2

SITE NAME: Oyster Creek NGS

PHONE: 609-971-4000

STREET: US Route 9

BLOCK: 1001 LOT: 4.01

CITY: Forked River COUNTY: Ocean

STATE: N.J. ZIP CODE: 08731

RELEASE TO: ☐ LAND ☒ SURFACE WATER

IDENTITY OF SPILLED/DISCHARGED SUBSTANCE:

TYPE(S): Dregard 4109 - See attached Material Safety Data Sheet

AMOUNT(S): 100 gallons water with 162 ppm of boron (0.016 gals Boron)

DESCRIPTION OF INCIDENT: Material was released from the Turbine Building Closed Cooling Water System via the main condenser discharge into the canal. Discharge was approximately 5 minutes.

ACTION TAKEN TO CONTAIN DISCHARGE AND/OR REMOVE ANY WASTE MATERIAL: Due to the brief duration and quantity of material released, no action was taken. One circulation pump was operating which diluted at a rate of 115,000 GPM.

*NAME OF CLEANUP CONTRACTOR: N/A PHONE: N/A

ESTIMATED QUANTITY OF WASTE MATERIAL AND COST OF REMOVAL: N/A

*MEASURES TAKEN/PLANNED TO PREVENT RECURRENCE OF INCIDENT: All valves were closed and inspected.

*SAMPLE TAKEN: ☐ YES (See Site Map) ☒ NO TYPE: ☐ SOLID ☐ LIQUID

NAME OF LAB: _____ CONTACT NAME: _____

NUMBER OF SAMPLES TAKEN: _____ PHONE NUMBER: _____

RESULTS (If known): _____

INCIDENT REPORTED BY:

NAME: Harry Leonard

PHONE: 609-971-4055

COMPANY NAME: GPU/Communications Dept.

STREET: US Route #9

CITY: Forked River

STATE: N.J.

*AGENCY OFFICIALS NOTIFIED OF INCIDENT:

AGENCY NJ DEP PERSON Operator #3 DATE 02-02/89 TIME 1525

AGENCY Ocean County Health Dept PERSON Lynn DATE 02-02-89 TIME 1530

AGENCY _____ PERSON _____ DATE _____ TIME _____



FEB 01 1995

Drew Chemical Corporation One Drew Chemical Plaza, Boonton, NJ 07005, (201) 263-7500, Cable Drewchems 8000

MATERIAL SAFETY DATA SHEET

003801550
010973791

014876530

2700E

SECTION I

Product NameEmergency Telephone No.

(201) 263-7500

Chemical Description

Aqueous solution of corrosion inhibitors, buffers and dispersants

Use

Corrosion and deposit control in closed cooling systems

SECTION II COMPOSITION INFORMATION

Component	%	CAS #	TLV/TWA
Sodium tetraborate	Minor	1303-96-4	
Sodium metaborate tetrahydrate*	Major	7775-19-1	
Sodium polyacrylate	Minor	9008-44-7	
Sodium nitrite ¹	Minor	7632-00-0	
Sodium hydroxide ¹	Trace	1310-73-2	2mg/m ³ (C)
Sodium metasilicate	Minor	6834-93-0	
Sodium tolyltriazole	Trace	6465-87-8	
Sodium mercaptobenzothiazole	Trace	2492-26-4	
Phenolphthalein	Trace	77-09-8	
Sodium nitrate	Minor	7631-99-4	

SECTION III PHYSICAL DATA

Specific Gravity (H₂O=1): 1.21-1.25Molecular Wt.: N/ABoiling Point: N/DpH/Concentration: 11.5-12.5 (neat)Melting Point: N/AFlash Point (Method): NoneSolubility in Water: CompleteFreezing Point: -10°C/14°F max.Appearance and Odor: Clear red-violet liquid

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media

N/A

Special Fire Fighting Procedures

N/A

Unusual Fire and Explosion Hazards

N/A

D045.00

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of accuracy, completeness or reliability is made with respect to the information contained herein. Employers should use this information only as a supplement to other information, and should make independent determinations of suitability and appropriateness of information from all sources to protect proper use of these materials.

07LW

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SECTION V HEALTH HAZARD DATA

Effects of Overexposure
IRRITANT - EYE & SKIN

Emergency and First Aid Procedures

EYE & SKIN: Flush with plenty of water for at least 15 minutes. Call a physician.

SECTION VI REACTIVITY DATA

Stability: Unstable
Stable X

Conditions to Avoid: None

Incompatibility (Materials to Avoid)
Strong acids

Hazardous Decomposition Products

None

Hazardous May Occur
Polymerization Will not Occur X

Conditions to Avoid: None

SECTION VII SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled
Absorb with inert material. Flush area with water.

Waste Disposal Method

Dispose of in accordance with local, state and federal environmental regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

Wear protective gloves and goggles while handling.

SECTION IX SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing
Wash thoroughly after handling.

Other Precautions
IRRITATING LIQUID

00.0400

DREW CHEMICAL CORPORATION

DREWGARD® 4109

FOOTNOTES

1. This component is considered hazardous as defined by CAL/OSHA regulations. Information presented and conclusions drawn are based on the product mixture itself and reflects our experience and/or available data. A Material Safety Data Sheet on each constituent hazardous substance identified is available upon request.
2. CAS numbers are noted only for hazardous substances (as defined by footnote 1).
3. Although this component is listed as hazardous, since the component is present at a concentration less than one (1) percent, it is not subject to the CAL/OSHA Regulations.
4. This component is considered hazardous by CAL/OSHA only when present as free crystal/powder; it is otherwise exempt from the regulations.

OTHER COMMENTS AND NOTES

N/A = Not Applicable
N/D = Not Determined

S = Skin
C = Ceiling limit

Major = More than 10%
Minor = 1-10%
Trace = Less than 1%

DREWGARD® is a registered trademark of Drew Chemical Corporation

Prepared by:

Michael A. Mullins
Michael A. Mullins
Group Leader

Date: August 8, 1984

Initial Telephone

Report Date: April 3, 1989

Date of

Occurrence: April 3, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES

PERMIT NO. NJ 000 5550

REPORT NUMBER 000 5550/89/02

IDENTIFICATION OF OCCURRENCE

Noncompliance with Part III, p.4 of the permit. Discharging total residual chlorine in excess of the maximum permitted concentration of 0.2 mg/l through the Combined Low Volume wastewater discharge (DSN 004).

CAUSE OF NONCOMPLIANCE:

The total residual chlorine concentration measured 0.45 mg/l for a sample obtained at approximately 0900 hours on April 3, 1989 resulted from lower than normal flow rates in the system due to the operation of only one Reactor Building Heat Exchanger. The chlorination system was operating at 4% pump stroke.

DESCRIPTION OF NONCOMPLYING DISCHARGE:

The total residual chlorine concentration of the Combined Low Volume wastewater discharge exceeded the permit limit of 0.2 mg/l. The total residual chlorine concentration measured was 0.45 mg/l.

DURATION OF NONCOMPLIANCE:

The duration was undetermined as the noncompliance was identified at the time of sampling.

CORRECTIVE ACTION TO REDUCE THE NONCOMPLYING DISCHARGE:

The chlorination system was immediately taken out of service.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

The chlorination system flow rate will be continually monitored and adjusted accordingly during periods of low flow rate operation associated with the number of heat exchangers in service.

Prepared By: Barry Durham/Michael Kennish

Date: May 19, 1989

Initial Telephone
Report Date: June 23, 1989

Date of
Occurrence: June 22, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES
PERMIT NO. NJ 000 5550
REPORT NUMBER 000 5550/89/03

IDENTIFICATION OF OCCURRENCE:

Noncompliance with Part I, p. i, Paragraph (A) of the permit. Discharging a pollutant not specifically authorized by the permit.

CAUSE OF NONCOMPLIANCE:

The sewage lift pumps which pump accumulated sewage from the holding pit to the municipal sewage system malfunctioned. The holding pit backed up forcing untreated sewage to slowly drain to a storm drain which leads to the station's Discharge No. DSN 004.

DESCRIPTION OF NONCOMPLIANCE DISCHARGE:

Approximately 50 gallons of untreated sewage was discharged through station Discharge No. DSN 004.

DURATION OF NONCOMPLIANCE:

The duration of the discharge was less than one (1) hour.

CORRECTIVE ACTION TO REDUCE NON-COMPLYING DISCHARGE:

A local septic pumping service was immediately contracted to keep the holding pit clean. This action terminated the offsite discharge and provided access to the pumps for maintenance and repair.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

Two new sewage lift pumps were installed on June 23, 1989.

Prepared By: Barry Durham

Date: July 20, 1989

Initial Telephone _____

Report Date: July 19, 1989

Date of

Occurrence: July 18, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES

PERMIT NO. NJ 000 5550

REPORT NUMBER 000 5550/89/04

IDENTIFICATION OF OCCURRENCE:

Noncompliance with Part I, page 1 of the permit. Discharging a pollutant not specifically authorized by the permit.

CAUSE OF NONCOMPLIANCE:

Refer to attached Hazardous Substance Release Notification Report No. 06-89.

DESCRIPTION OF NONCOMPLIANCE DISCHARGE:

Approximately 52 gallons of a solution containing Drewguard 4109 (boron corrosion inhibitor) was discharged via the Main Condenser Cooling Water Discharge, DSN 001. The concentration of boron in this solution was 190ppm.

DURATION OF NONCOMPLIANCE:

Duration undetermined as this discharge was the result of minor heat exchanger tube leaks.

CORRECTIVE ACTION TO REDUCE NON-COMPLYING DISCHARGE:

The discharge had occurred before immediate corrective action could be taken. However, upon discovery, the heat exchanger was taken out of service. Four circulation pumps were in operation which diluted the discharge at a rate of 460,000 gpm.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

The 1-1 Turbine Building closed cooling water heat exchanger was removed from service for repairs.

Prepared By: Barry Durham

Date: August 22, 1989

GPU NUCLEAR CORPORATION
OYSTER CREEK NUCLEAR GENERATION STATI
HAZARDOUS SUBSTANCE RELEASE NOTIFICATION FORM

REPORT NO. 06-89

INCIDENT DATE: 07/18/89

INCIDENT TIME: 2230

INCIDENT LOCATION: (Attach Site Map)

EPA ID # NJD980649172

SITE NAME: OYSTER CREEK NGS

PHONE: 609-971-4000

STREET: U.S. ROUTE #9

BLOCK: 1001 LOT: 4.01

CITY: FORKED RIVER

COUNTY: OCEAN

STATE: NT ZIP CODE: 08731

RELEASE TO: ☐ LAND ☒ SURFACE WATER

IDENTITY OF SPILLED/DISCHARGED SUBSTANCE:

TYPE(S): Dregard 4109 - See attached Material Safety Data Sheet

AMOUNT(S): 52 gallons of water with approximately 190 PPM of boron

DESCRIPTION OF INCIDENT: MATERIAL WAS RELEASED FROM THE 1-1 TURBINE BUILDING CLOSED COOLING WATER HEAT EXCHANGER VIA THE MAIN CONDENSER DISCHARGE INTO THE CANAL. FOUR CIRCULATION PUMPS WERE OPERATING WHICH DILUTED AT A RATE OF 460,000 GPM.

ACTION TAKEN TO CONTAIN DISCHARGE AND/OR REMOVE ANY WASTE MATERIAL: 1-1 HEAT EXCHANGER WAS DRAINED AND ISOLATED FOR REPAIRS. MATERIAL WAS UNRECOVERABLE AS IT WAS DISCHARGED THROUGH THE MAIN CONDENSER DISCHARGE (DSN 001).

*NAME OF CLEANUP CONTRACTOR: N/A PHONE: N/A

ESTIMATED QUANTITY OF WASTE MATERIAL AND COST OF REMOVAL: N/A

*MEASURES TAKEN/PLANNED TO PREVENT RECURRENCE OF INCIDENT: 1-1 HEAT EXCHANGER WAS REMOVED FROM SERVICE FOR REPAIRS.

*SAMPLE TAKEN: ☐ YES (See Site Map) ☒ NO TYPE: ☐ SOLID ☐ LIQUID

NAME OF LAB: _____ CONTACT NAME: _____

NUMBER OF SAMPLES TAKEN: _____ PHONE NUMBER: _____

RESULTS (if known): _____

INCIDENT REPORTED BY:

NAME: HARRY LEONARD

PHONE: (609)971-4055

COMPANY NAME: GPU NUCLEAR

STREET: P.O. BOX 388

CITY: FORKED RIVER

STATE: NT ZIP CODE: 08731

*AGENCY OFFICIALS NOTIFIED OF INCIDENT:

AGENCY NJDEP

PERSON

Communications

Officer #5

DATE 7/19/89

TIME 11:45 A.M.

AGENCY OCEAN COUNTY HEALTH DEPT

PERSON

Paula Boykins

DATE 7/19/89

TIME 11:49 A.M.

AGENCY NATIONAL RESPONSE CENTER

PERSON

David Benson

DATE 7/19/89

TIME 11:55 A.M.

Case No. 11862

*Not required for 24 hour report to DCHO.

1974g



FEB 01 1985

Drew Chemical Corporation One Drew Chemical Plaza, Boonton, NJ 07003, (201) 263-7600, Cable: DREWCHEM, BOONT

MATERIAL SAFETY DATA SHEET

003901550
010973791

014876530

27006

SECTION I

Product Name DREW-VERO 4109Emergency Telephone No.

(201) 263-7600

Chemical Description

Aqueous solution of corrosion inhibitors, buffers and dispersants

Use

Corrosion and deposit control in closed cooling systems

SECTION II COMPOSITION INFORMATION

<u>Component</u>	<u>%</u>	<u>CAS #</u>	<u>TLV/TWA</u>
Sodium tetraborate	Minor	1343-96-4	
Sodium metaborate tetrahydrate	Major	7775-19-1	
Sodium polyacrylate	Minor	9008-14-7	
Sodium nitrite	Minor	7632-00-0	
Sodium hydroxide	Trace	1310-73-2	
Sodium metasilicate	Minor	6834-93-0	2mg/m ³ (C)
Sodium tolyltriazole	Trace	6465-87-8	
Sodium mercaptobenzothiazole	Trace	2442-26-4	
Phenolphthalein	Trace	77-09-3	
Sodium nitrate	Minor	7631-99-4	

SECTION III PHYSICAL DATA

Specific Gravity (H₂O=1): 1.21-1.25Molecular Wt.: N/ABoiling Point: N/DpH/Concentration: 11.5-12.5 (neat)Melting Point: N/AFlash Point (Method): NoneSolubility in Water: CompleteFreezing Point: -10°C/14°F max.Appearance and Odor: Clear red-violet liquid

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media

N/A

Special Fire Fighting Procedures

N/A

Unusual Fire and Explosion Hazards

N/A

D045.00

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Employer's should use this information only as a supplement to other information, and should not rely on it for any independent determinations of suitability and consequences of exposures from all sources. In cases of doubt, please use of these materials.

07LW

DREXEL 4109

JAN 10 1987

SECTION V HEALTH HAZARD DATA

Effects of Overexposure
IRRITANT - EYE & SKINEmergency and First Aid Procedures

EYE & SKIN: Flush with plenty of water for at least 15 minutes. Call a physician.

SECTION VI REACTIVITY DATA

Stability: Unstable
Stable XConditions to Avoid: NoneIncompatibility (Materials to Avoid)
Strong acidsHazardous Decomposition Products

None

Hazardous Polymerization May Occur
Will not Occur XConditions to Avoid: None

SECTION VII SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled
Absorb with inert material. Flush area with water.Waste Disposal Method

Dispose of in accordance with local, state and federal environmental regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

Wear protective gloves and goggles while handling.

SECTION IX SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage
Wash thoroughly after handling.Other Precautions
IRRITATING LIQUID

00.2400

C DREW CHEMICAL CORPORATION

DREWGARD® 4109

FOOTNOTES

1. This component is considered hazardous as defined by CAL/OSHA regulations. Information presented and conclusions drawn are based on the product mixture itself and reflects our experience and/or available data. A Material Safety Data Sheet on each constituent hazardous substance identified is available upon request.
2. CAS numbers are noted only for hazardous substances (as defined by footnote 1).
3. Although this component is listed as hazardous, since the component is present at a concentration less than one (1) percent, it is not subject to the CAL/OSHA Regulations.
4. This component is considered hazardous by CAL/OSHA only when present as free crystal/powder; it is otherwise exempt from the regulations.

OTHER COMMENTS AND NOTES

C N/A = Not Applicable
N/D = Not Determined

S = Skin
C = Ceiling limit

Major = More than 10%
Minor = 1-10%
Trace = Less than 1%

DREWGARD® is a registered trademark of Drew Chemical Corporation

C Prepared by:

Michael A. Mullins
Group Leader

Date: August 8, 1984

Initial Telephone
Report Date: July 25, 1989

Date of
Occurrence: July 12, 1989

REPORT OF NONCOMPLIANCE WITH CONDITIONS OF NJPDES
PERMIT NO. NJ 000 5350
REPORT NUMBER 000 5350/89/05

IDENTIFICATION OF OCCURRENCE:

Noncompliance with Part I, page 1 of the permit. Discharging a pollutant not specifically authorized by the permit.

CAUSE OF NONCOMPLIANCE:

Refer to attached Hazardous Substance Release Notification Report No. 07-89.

DESCRIPTION OF NONCOMPLIANCE DISCHARGE:

Approximately 50 gallons of a solution containing Drewguard 4109 (boron corrosion inhibitor) diluted in an undetermined volume of water was discharged via the Main Condenser Cooling Water Discharge, DSN 001.

DURATION OF NONCOMPLIANCE:

Duration undetermined as this discharge was the result of minor heat exchanger tube leaks.

CORRECTIVE ACTION TO REDUCE NON-COMPLYING DISCHARGE:

The discharge had occurred before immediate corrective action could be taken. However, upon discovery, the heat exchanger was taken out of service. Two circulation pumps were in operation which diluted the discharge at a rate of 230,000 gpm.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

The 1-2 Turbine Building Closed Cooling Water Heat Exchanger was removed from service for repairs.

Prepared By: Barry Durham

Date: August 22, 1989



FEB 0 1 1988

Drew Chemical Corporation One Drew Chemical Plaza, Edison, NJ 08817, (201) 263-7800, Cable: DREWCHEM, BOON

MATERIAL SAFETY DATA SHEET

003901550
010973791

214876530

27008

SECTION I

Product Name DREW-425 4109Emergency Telephone No.

(201) 263-7800

Chemical Description

Aqueous solution of corrosion inhibitors, buffers and dispersants

Use

Corrosion and deposit control in closed cooling systems

SECTION II COMPOSITION INFORMATION

<u>Component</u>	<u>%</u>	<u>CAS #</u>	<u>TLV/TWA</u>
Sodium tetraborate	Minor	1303-96-7	
Sodium metaborate tetrahydrate*	Major	.7778-19-1	
Sodium polyacrylate	Minor	.9008-00-7	
Sodium nitrite*	Minor	.7632-00-0	
Sodium hydroxide*	Trace	.1310-73-2	2mg/m ³ (C)
Sodium metasilicate	Minor	.6884-98-8	
Sodium tolyltriazole	Trace	.6468-87-0	
Sodium mercaptobenzothiazole	Trace	.2443-25-9	
Phenolphthalein	Trace	.77-09-8	
Sodium nitrate	Minor	.7631-99-4	

SECTION III PHYSICAL DATA

Specific Gravity (H₂O=1): 1.21-1.25Molecular Wt.: N/ABoiling Point: N/DpH/Concentration: 11.5-12.5 (neat)Melting Point: N/AFlash Point (Method): NoneSolubility in Water: CompleteFreezing Point: -10°C/14°F max.Appearance and Odor: Clear red-violet liquid

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Extinguishing Media

N/A

Special Fire Fighting Procedures

N/A

Unusual Fire and Explosion Hazards

N/A

D045.00

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Employers should use this information only as a component in other information gathering in order to make independent determinations of suitability and consequences of information prior to placing it in service. Please print one of these documents in your files.

GPU NUCLEAR CORPORATION
OYSTER CREEK NUCLEAR GENERATION STATION
HAZARDOUS SUBSTANCE RELEASE NOTIFICATION FORM

REPORT NO. 07-89

INCIDENT TIME: 0800

INCIDENT DATE: 07/12/89

INCIDENT LOCATION: (Attach Site Map*)

EPA ID # NJD980649172

SITE NAME: OYSTER CREEK NGS

PHONE: 609-971-4000

STREET: U.S. ROUTE #9

BLOCK: 1001 LOT: 4 G1

CITY: FORKED RIVER COUNTY: OCEAN

STATE: NJ ZIP CODE: 08731

RELEASE TO: ☐ LAND ☒ SURFACE WATER

IDENTITY OF SPILLED/DISCHARGED SUBSTANCE:

TYPE(S): Drewgard 4109 - See attached Material Safety Data Sheet

AMOUNT(S): Approx. 50 gallons of Drewgard 4109 diluted in an undetermined volume of water

DESCRIPTION OF INCIDENT: MATERIAL WAS RELEASED FROM THE 1-2 TURBINE BUILDING CLOSED COOLING WATER HEAT EXCHANGER VIA THE MAIN CONDENSER DISCHARGE INTO THE CANAL. TWO CIRCULATION PUMPS WERE OPERATING WHICH DILUTED AT A RATE OF 230,000 GPM.

ACTION TAKEN TO CONTAIN DISCHARGE AND/OR REMOVE ANY WASTE MATERIAL: 1-2 HEAT EXCHANGER WAS DRAINED AND ISOLATED FOR REPAIRS. MATERIAL WAS UNRECOVERABLE AS IT WAS DISCHARGED THROUGH THE MAIN CONDENSER DISCHARGE (DSN 001).

*NAME OF CLEANUP CONTRACTOR: N/A PHONE: N/A

ESTIMATED QUANTITY OF WASTE MATERIAL AND COST OF REMOVAL: N/A

*MEASURES TAKEN/PLANNED TO PREVENT RECURRENCE OF INCIDENT: 1-2 HEAT EXCHANGER WAS REMOVED FROM SERVICE FOR REPAIRS.

*SAMPLE TAKEN: ☐ YES (See Site Map) ☒ NO TYPE: ☐ SOLID ☒ LIQUID

NAME OF LAB: _____ CONTACT NAME: _____

NUMBER OF SAMPLES TAKEN: _____ PHONE NUMBER: _____

RESULTS (If known): _____

INCIDENT REPORTED BY:

NAME: BARRY DURHAM PHONE: (609) 971-4630

COMPANY NAME: GPU NUCLEAR

STREET: P.O. BOX 388

CITY: FORKED RIVER STATE: NJ 08731

*AGENCY OFFICIALS NOTIFIED OF INCIDENT:

AGENCY	PERSON	DATE	TIME
<u>NJDEP</u>	<u>Communications Officer #2</u>	<u>7/25/89</u>	<u>10:25 a.m.</u>
_____	_____	_____	_____
_____	_____	_____	_____

*Not required for 24 hour report to OCID.

07LV

DREYER 4109

JAN 1 0 037

SECTION V HEALTH HAZARD DATA

Effects of Overexposure
IRRITANT - EYE & SKINEmergency and First Aid Procedures

EYE & SKIN: Flush with plenty of water for at least 15 minutes. Call a physician.

SECTION VI REACTIVITY DATA

Stability: Unstable
Stable XConditions to Avoid: NoneIncompatibility (Materials to Avoid)
Strong acidsHazardous Decomposition Products

None

Hazardous May Occur
Polymerization Will not Occur XConditions to Avoid: None

SECTION VII SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled

Absorb with inert material. Flush area with water.

Waste Disposal Method

Dispose of in accordance with local, state and federal environmental regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

Wear protective gloves and goggles while handling.

SECTION IX SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing

Wash thoroughly after handling.

Other Precautions

IRRITATING LIQUID

00.2400