Public Service
Electric and Gas
Company

Stanley LaBruna

Vice President - Nuclear Engineering

Public Service Electric and Gas Company P.O. Box 236, Hancocks Bridge, NJ 08038 609-339-1700

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
ARTICLE NUMBER Z 345 126 650

OCT 12 1994
NLR-E94227

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

SALEM GENERATING STATION, UNIT NOS. 1 AND 2
FACILITY OPERATING LICENSE NOS. DPR-70 AND DPR-74
DOCKET NOS. 50-272 AND 50-311
NJPDES PERMIT NO. NJ0005622

In accordance with Section 3.2 of the Salem Generating Station's Environmental Protection Plan (EPP), Public Service Electric and Gas Company (PSE&G) is forwarding a copy of the New Jersey Pollutant Discharge Elimination System (NJPDES) permit recently issued to this facility. This permit contains a number of new conditions related to ecological enhancements and studies in the Delaware Estuary. A summary of the new permit conditions is provided as Attachment 1 and a copy of the final permit is included as Attachment 2.

If you have any questions regarding this submittal, please contact Mr. F. X. Thomson, Jr., Manager - Licensing and Regulation at (609) 339-1229.

Sincerely,

S. LaBruna

Attachments (2)

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OCT 1 2 1994

Document Control Desk
NLR-E94227

C Mr. T. T. Martin, Administrator - Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. L. N. Olshan, Licensing Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Mr. C. Marshall (S09)
USNRC Senior Resident Inspector

Mr. K. Tosch, Chief
NJ Department of Environmental Protection
Division of Environmental Quality
Bureau of Nuclear Engineering
CN 415
Trenton, NJ 08625

ATTACHMENT 1

SUMMARY OF SPECIAL PERMIT CONDITIONS
NJPDES PERMIT NO. NJ0005622

SALEM GENERATING STATION
NJPDES PERMIT NO. NJ0005622
SUMMARY OF SPECIAL CONDITIONS

A. Intake Flow Limitations

A limitation has been placed on the circulating water system intake to restrict flow to approximately 95 percent of the pump design capacity. Annual dye studies are required to confirm pump flow rates.

B. Intake Screen Modifications

The following modifications are required on each of the twelve traveling screen located in the circulating water intake structure:

- incorporate a new fish bucket designed to minimize turbulence in the bucket and prevent fish escape;

- replace the current metallic wire mesh screen with a new metallic fabric to permit more efficient fish and detritus removal; and,

- ensure the 30-inch wide fish sluice has a minimum water depth of 3-inches.

These modifications shall be complete on Unit 2 by November 1995 and be followed by an eight month period of operability testing. Based on the results of this operability testing, additional changes may be incorporated into the traveling screen design. The revised traveling screen modifications will then be completed on Unit 1 by March 1997. Any design changes from the operability testing shall be incorporated on Unit 2 by September 1997 or the conclusion of the next refueling outage.

C. Wetlands Restoration and Enhancement

PSE&G shall undertake a program to restore, enhance or preserve an aggregate of between 10,000 and 14,000 acres of land in the Delaware Estuary of which a minimum of 8,000 acres shall be comprised of wetlands. The additional 2,000 to 6,000 acres may be comprised of wetlands and/or upland buffer at a credit ratio of 1:3, i.e., one acre of wetlands is equivalent to 3 acres of upland buffer. PSE&G shall submit management plans for all parcels of land obtained which identify the methods to be utilized to restore or preserve the wetland areas including breaching of dikes, construction of upland dikes and schedules for revegatation. Schedules for land acquisition, plan submittal and plan implementation are outlined in the NJPDES permit.

D. Elimination of Impediments to Fish Migration

PSE&G shall construct and maintain five fish ladders in the Delaware Estuary to remove fish migration barriers. Site selection must be completed by June 1995 with a workplan submitted for each candidate site by September 1995. Upon State approval, PSE&G has 60 days to implement the workplan with completion no later than September 1999.

E. Sound Deterrent Feasibility Study

PSE&G shall assess the feasibility of deterring fish from the area in front of the circulating water intake structure through the use of underwater speakers or sound projectors. PSE&G must submit a study plan to the State by September 1995 and implement the plan within 60 days of State approval. A final feasibility report shall be submitted to the State by March 1999.

F. Biological Monitoring

The current biological monitoring program at the Salem Generating Station shall be upgraded to include:

- comprehensive thermal monitoring;
- biothermal assessment on certain resident fish species;
- bay-wide abundance monitoring;
- impingement and entrainment monitoring;
- monitoring of fish ladder sites;
- detrital production monitoring;
- pesticide release monitoring (from wetlands sites); and,
- other special monitoring required by the State.

PSE&G shall submit a biological monitoring workplan for State approval by February 1995 and shall implement the plan within 60 days of approval. A committee shall also be formed to serve as technical advisor to PSE&G regarding design and implementation of the biological monitoring workplan.

ATTACHMENT 2

NJPDES PERMIT NO. NJ0005622

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
Division of Water Quality
CN 029 Trenton, NJ 08625-0029
FAX: (609) 984-7938

CHRISTINE TODD WHITMAN
Governor

ROBERT C. SHINN, JR.
Commissioner

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

PSE&G
80 Park Plaza T17G
P.O. Box 570
Newark, NJ 07101

JUL 20 1994

Attn: R. Edwin Selover

Re: NJPDES/DSW Permit No. NJ0005622
PSE&G Salem Nuclear Generating Station
Lower Alloways Creek Township, Salem County

Dear Mr. Selover:

Enclosed is the Final NJPDES/DSW Permit to discharge pollutants to the Delaware River, issued in accordance with the New Jersey Pollutant Discharge Elimination System (NJPDES) Regulations N.J.A.C. 7:14A-1 et seq.. Violation of any condition of this NJPDES permit may subject the permittee to significant penalties.

The Department's current Discharge Monitoring Report (DMR) Instruction Manual is enclosed for your use in completing DMR's. Please note that if there is a discrepancy between the NJPDES permit and the DMR Instruction Manual, the NJPDES permit always takes precedence.

The comments received on the draft permit and the Department's responses are enclosed.

The permittee, or any interested party pursuant to N.J.A.C. 7:14A-8.9(d), may submit a written request for an adjudicatory hearing within 30 calendar days following the receipt of this final NJPDES permit to contest the conditions of the permit. Any reasonably ascertainable issues must have been raised during the public comment period, pursuant to N.J.A.C. 7:14A-8.4. The requirements for requesting an adjudicatory hearing can be found in N.J.A.C. 7:14A-8.9. The enclosed **Administrative Hearing Request Checklist and Tracking Form for Permits** must be completed and a copy of the completed form, along with the information required by Part III of that form, including attachments, must be submitted to each party listed on the form.

All monitoring shall be conducted in accordance with the Department's current Field Sampling Procedures Manual, which is available from the Maps and Publications Sales Office, Bureau of Revenue, CN-417, Trenton, New Jersey 08625, (609) 777-1038.

An application for renewal of this NJPDES permit must be submitted at least 180 days prior to expiration of the permit pursuant to N.J.A.C. 7:14A-2.1(g)5.

Should you have any questions regarding this action, please contact Richard A. Hyjack of my staff at (609)292-4860.

Sincerely,

Richard DeWan, Chief
Bureau of Standard Permitting
Division Water Quality

Enclosure

c: Final DSW Distribution List

WFM362:rah

New Jersey Pollutant Discharge Elimination System

The New Jersey Department of Environmental Protection hereby [illegible] controls the discharge of pollutants to waters of the State from the subject facility [illegible] in accordance with applicable laws and regulations. The permittee is responsible for complying with all terms and conditions of this authorization and [illegible] conditions as a requirement for the construction, installation [illegible] operation of any facility for the collection, treatment or discharge of [illegible] the State.

PERMIT NUMBER NJ0005622

Permittee	Co-Permittee
PSE&G PO BOX 236/N21 HANCOCKS BRIDGE NJ 08038	

Property Owner	Location of Activity
PSE&G 80 PARK PLAZA T17G NEWARK NJ 07101	PSE&G SALEM GENERATING STATION ARTIFICIAL ISLAND LOWER ALLOWAYS CRE NJ 08038

Current Authorization Covered By This Approval And Previous Authorization	Issuance Date	Effective Date	Expiration Date
B :IND/COMMERCIAL SURFACE WATER	07/20/1994	09/01/1994	08/31/1999
C :THERMAL SURFACE WATER DISCH	07/20/1994	09/01/1994	08/31/1999
05 :GROUP I - STORMWATER RUNOFF	07/20/1994	09/01/1994	08/31/1999

DISCHARGE TO: Delaware River

CLASSIFICATION: Zone 5

By Authority of:
COMMISSIONER'S OFFICE

DEP AUTHORIZATION
DENNIS HART
DIRECTOR
DIVISION OF WATER QUALITY

(Terms, conditions and provisions attached hereto)

State of New Jersey Department of Environmental Protection/Division of Water Resources

Checklist of Parts and Modules Comprising this NJPDES Permit

1. Cover Letter

2. Public Notice (Draft Only)

3. Fact Sheet with Statement of Basis (Draft Only)

4. NJPDES Permit Authorization Page

5. Checklist

6. Part I - DSW - Standard Conditions for All NJPDES/DSW Permits

7. Part II - Additional Standard Conditions for All NJPDES Permits:

___ Part II - A (Municipal/Sanitary)
_X_ Part II - B/C (Industrial)
___ Part II - L (SIU)
___ Part II - IWMF (Industrial Waste Management Facility)
___ Part II - DGW (Groundwater) Specify type(s):_____

8. Part III - Limitations and Monitoring Requirements

___ Part III - A
_X_ Part III - B/C
___ Part III - L
___ Part III - DGW Specify type(s):_____

9. Part IV - Additional Requirements and Special Conditions

___ Part IV - A
_X_ Part IV - B/C
___ Part IV - L
___ Part IV - IWMF
___ Part IV - DGW Specify type(s):_____

10. _X_ Part V - Chronic Toxicity Methods

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
WASTEWATER FACILITIES REGULATION PROGRAM
10-30-92

GENERAL CONDITIONS FOR ALL NJPDES/DSW PERMITS

The permittee shall comply with all conditions set forth in this permit and the New Jersey Pollutant Discharge Elimination System (NJPDES) regulations, N.J.A.C. 7:14A-1 et seq., which are authorized by the New Jersey Water Pollution Control Act (the State Act), N.J.S.A. 58:10A-1 et seq. The permittee may be subject to penalties for any violations hereof. Specific conditions and requirements of this permit are incorporated herein by reference and are set forth as follows:

Subchapter 1:	**General Information**
7:14A-1.1	Purpose
7:14A-1.2	Scope
7:14A-1.3	General prohibitions
7:14A-1.4	Consolidation of permit processing
7:14A-1.5	Severability
7:14A-1.6	Conflict of interest
7:14A-1.7	Application
7:14A-1.8	Fee schedule for NJPDES permittees and applicants
7:14A-1.9	Definitions
Subchapter 2:	**General Requirements for the NJPDES Permit**
7:14A-2.1	Application for a NJPDES permit
7:14A-2.2	Emergency permits
7:14A-2.3	Continuation of expired permits
7:14A-2.4	Signatories
7:14A-2.5	Conditions applicable to all permits
7:14A-2.6	Establishing permit conditions
7:14A-2.7	Duration of permits
7:14A-2.8	Schedules of compliance
7:14A-2.9	Requirements for recording and reporting of monitoring results
7:14A-2.10	Effect of a permit
7:14A-2.11	Transfer of permits
7:14A-2.12	Modification, suspension, or revocation of permits
7:14A-2.13	Termination of permits
7:14A-2.14	Minor modification of permits
7:14A-2.15	(Reserved)
Subchapter 3:	**Additional Requirements Applicable to Discharges to Surface Water (DSW)**
7:14A-3.1	Scope
7:14A-3.2	Application for a permit
7:14A-3.3	Discharge allocation certificate (DAC)
7:14A-3.4	Concentrated animal feeding operations
7:14A-3.5	Concentrated aquatic animal production facilities
7:14A-3.6	Aquaculture projects
7:14A-3.7	Silvicultural activities
7:14A-3.8	Separate storm sewers
7:14A-3.9	General permits
7:14A-3.10	Additional conditions applicable to all DSW permits
7:14A-3.11	Additional conditions applicable to specified categories of DSW permits

7:14A-3.12	Emergency plans
7:14A-3.13	Establishing DSW permit conditions
7:14A-3.14	Calculating NJPDES permit conditions
7:14A-3.15	Duration of certain DSW permits
7:14A-3.16	Disposal of pollutants into wells, DTW's or by land application
7:14A-3.17	Criteria and Standards for the New Jersey Pollutant Discharge Elimination System

Subchapter 4: Additional Requirements for an Industrial Waste Management Facility

7:14A-4.1	Purpose
7:14A-4.2	Scope
7:14A-4.3	Definitions
7:14A-4.4	Application for an individual IWMF permit
7:14A-4.5	IWMF permits-by-rule
7:14A-4.6	Standards for wastewater treatment units subject to a permit-by-rule
7:14A-4.7	Standards for hazardous waste land treatment units

Subchapter 5: Additional Requirements for Underground Injection Control Program (UIC)
(Not applicable to DSW permits)

Subchapter 6: Additional Requirements for Discharges to Ground Water (DGW)
(Not applicable to DSW permits)

Subchapter 7: Procedures for Decision-Making

7:14A-7.1	Purpose and scope
7:14A-7.2	Procedures for decision-making
7:14A-7.3	Application review by the Department
7:14A-7.4	Consolidation of permit processing
7:14A-7.5	Modification, revocation and reissuance, or termination of permits
7:14A-7.6	Draft permits and draft DACs
7:14A-7.7	Statement of basis
7:14A-7.8	Fact Sheet
7:14A-7.9	Administrative record for the draft DAC and draft permits

Subchapter 8: Public Comment and Notice Procedures

7:14A-8.1	Public notice of permit actions and public comment period
7:14A-8.2	Public comments and requests for public hearings
7:14A-8.3	Public hearings
7:14A-8.4	Obligation to raise issues and provide information during the public comment period
7:14A-8.5	Action subsequent to public comment
7:14A-8.6	Issuance and effective date of permit
7:14A-8.7	Response to comments
7:14A-8.8	Administrative record for final permit and final DAC
7:14A-8.9	Adjudicatory hearing
7:14A-8.10	Stays of contested permit conditions
7:14A-8.11	Notice of adjudicatory hearing
7:14A-8.12	Conduct of an adjudicatory hearing
7:14A-8.13	Public participation in the State enforcement process

Subchapter 9: Specific Procedures Applicable to Discharges to Surface Water (DSW)

7:14A-9.1	Permits required on a case-by-case basis
7:14A-9.2	Fact Sheet
7:14A-9.3	Public notice of Section 316(a) request
7:14A-9.4	Conditions requested by the Corps of Engineers and other governmental agencies concerning DSW permits

7:14A-12.16	Expiration of a treatment works approval (Stage 2)
7:14A-12.17	Approval of operation of treatment works (Stage 3)
7:14A-12.18	Scope of review of treatment works approval
7:14A-12.19	Validity of permits to Construct and Operate
7:14A-12.20	Capacity assurance programs
7:14A-12.21	Sewer connection bans
7:14A-12.22	Sewer connection ban exemptions
7:14A-12.23	Application for sewer connection ban exemption
7:14A-12.24	Bans in effect prior to November 2, 1987
7:14A-12.25	Construction only permits
7:14A-12.26	Requests for adjudicatory hearings

Subchapter 13: Additional Requirements for Users of Domestic Treatment Works (DTWs) (Not applicable to DSW permits)

Subchapter 14: Oil and Grease Effluent Limitations

7:14A-14.1	Purpose and scope
7:14A-14.2	Definitions
7:14A-14.3	Implementation
7:14A-14.4	Oil and grease effluent limitations
7:14A-14.5	Minimum monitoring and reporting requirements
7:14A-14.6	Sampling protocol
7:14A-14.7	Analytical methods
7:14A-14.8	Exemptions

Copies of the NJPDES Regulations may be obtained, for a nominal charge, by contacting:

NJDEPE
Office of Administrative Law
Budget and Finance
CN 049
Trenton, NJ 08625-0049
(609) 588-6606

In addition to the requirements cited, the following are applicable to all NJPDES/DSW permits:

1. Penalties for Violations

A. Section 10 of the State Act provides that any person who violates a permit condition is subject to a civil penalty each day of violation. Any person who willfully or negligently violates permit conditions is sub to a fine each day of violation, or to imprisonment, or to both.

B. Section 10 of the State Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine per violation, or by imprisonment, or by both.

C. Section 10 of the State Act provides that any person who knowingly makes a false statement, represent or certification in any application, record, or other document filed or required to be maintained under t State Act shall, upon conviction, be subject to a fine, or imprisonment, or both.

D. Violation of any condition of this permit or the NJPDES regulations may subject the permittee to an Assessment of Civil Administrative Penalties of up to $50,000 per violation per day in accordance with N.J.A.C. 7:14-8.1 et seq.

2. Permit Expiration. This permit and the authorization to discharge shall expire at midnight on the expiration date of the permit. The permittee may only continue an activity regulated by a NJPDES permit after the expiration of the permit if the permittee has complied with the provisions of N.J.A.C. 7:14A-2.3.

3. Duty to Reapply. If the permittee wishes to continue an activity regulated by a NJPDES permit after the expiration date of the permit, the permittee shall apply for and obtain a new permit. (If the activity is contin the permittee shall complete, sign and submit such information, forms, and fees as are required by the Department at N.J.A.C. 7:14A-2.1 no later than 180 days before the expiration date.)

4. Facilities Operation and Operator Certification. The operation of any treatment works shall be under the supervision of an operator on the first day of operation of the treatment works and continually thereafter in accordance with N.J.A.C. 7:14A-2.5(a)7. The operator shall meet the requirements of the Department of Environmental Protection and Energy (Department) pursuant to the provisions of N.J.S.A. 58:11-64 et seq. a any amendments thereto. The name of the proposed operator shall be submitted to the Department in order t his/her qualifications may be determined prior to initiating operation of the treatment works. Further information regarding this section may be obtained from:

NJDEPE
Bureau of Revenue
Examinations and Licensing Unit
CN 417
Trenton, NJ 08625-0417
(609) 777-1012

5. Operation Restrictions. The operation of a waste treatment or disposal facility shall at no time create: (a) a direct discharge to surface waters of the State, except as authorized by the Department; (b) a persistent stanc or ponded condition for water or waste on the permittee's property except as specifically authorized by this o another permit, or (c) any standing or ponded condition for water or waste on adjacent properties unless thes activities are specifically included within this or another permit.

6. Liability and Other Laws

   A. Nothing in this permit shall be deemed to preclude the institution of any legal action or relieve the perm from any responsibilities or penalties to which the permittee is or may be subject under any federal, state local law, ordinance, rule, or regulation.

   B. Nothing in this permit shall be construed to exempt the permittee from complying with the rules, regulations, policies, and/or laws lodged in any agency or subdivision in this State having legal jurisdict

7. Inspection and Entry

   A. The permittee shall, upon the presentation of credentials, allow the USEPA, the Department, or any authorized representative(s) right of entry to the permittee's premises for purposes of inspection, sampli copying, or photographing as provided by N.J.A.C. 7:14A-2.5(a)11.

   B. Any refusal by the permittee, facility land owner(s), facility lessee(s), their agents, or any other person(s with legal authority, to allow entry to the authorized representatives of the Department and/or USEPA s constitute grounds for suspension, revocation and/or termination of this permit.

   C. By acceptance of this permit, the permittee hereby agrees, consents and authorizes the representatives o Department and/or USEPA to present a copy of this permit to any municipal or state police officer havi jurisdiction over the premises occupied by the permittee in order to have said officer effectuate compliai

with the right of entry, should the permittee at any time refuse to allow entry to said authorized representatives.

D. By acceptance of this permit, the permittee waives all rights to prevent inspections by authorized representatives of the Department and/or USEPA to determine the extent of compliance with any and a conditions of this permit and agrees not to, in any manner, seek to charge said representatives with the or criminal act of trespass when they enter the premises occupied by the permittee in accordance with t provisions of this authorization as set forth herein above.

8. Monitoring and Reporting

A. Monitoring results shall be summarized and reported on the appropriate Discharge Monitoring Reports (DMRs) following the completed reporting period. Unless otherwise specified or directed, signed copie these shall be submitted postmarked no later than the 25th day of the month following the completed reporting period to the following address:

NJDEPE
Bureau of Permits Management
CN-029
Trenton, New Jersey 08625
ATTN: Monitoring Reports

B. If a contract laboratory is utilized for analyses, the permittee shall submit the name and address of the laboratory and the parameters analyzed at the time it submits its monitoring reports as required by N.J. 7:14A-2.5(a)12(iv). Any change in the contract laboratory being used or the parameters analyzed shall reported prior to or together with the monitoring report covering the period during which the change w made.

C. All permit applications and associated information, and all effluent data shall be available for public inspection at the Department offices. All other submittals shall likewise be available unless a claim of confidentiality has been asserted and approved under N.J.A.C. 7:14A-11.1 et seq.

9. Severability. The provisions of this permit are severable, and if any provision of this permit, or the applicat of any provision of this permit to any circumstance, is held invalid, the application of such provision to othe circumstances, and the remainder of this permit, shall not be affected thereby.

10. Transfers. This permit is not transferable except after notice to the Department in accordance with N.J.A.C 7:14A-2.11.

11. Definitions. Unless otherwise stated, all terms shall be as defined in the NJPDES Regulations, N.J.A.C. 7:1 1 et seq.

"Aliquot" means a sample of specified volume used to make up a total composite sample.

"Composite sample" means a combination of individual (or continuously taken) samples (aliquots) of at le: 100 milliliters, collected at periodic intervals over a specified time period. Composites can be either time proportional or flow proportional. The type of composite to be used shall be specified in the permit. If not specifically stated in the permit, the sample type shall be considered to be a time proportional composite. Aliquots may be collected manually or automatically. For a continuous discharge, a minimum of 24 aliquo hourly intervals) shall be collected and combined to constitute a 24-hour composite sample. For intermitter discharges of more than 4 hours duration, aliquots shall be taken at a minimum of 30-minute intervals. Fo intermittent discharges of less than 4 hours duration, aliquots shall be taken at a minimum of 15-minute intervals.

"Daily" means seven days per week including holidays.

"EDP" means Effective Date of Permit.

"Flow Proportional Composite" means either the time interval between each aliquot or the volume of each aliquot must be proportional to either the wastestream flow at the time of sampling or the total wastestream f since the collection of the previous aliquot.

"Grab" means an individual sample of at least 100 milliliters collected over a period not exceeding 15 minu

"Monthly" means one day each calendar month (the same day each month) and a normal operating day (e.g the 2nd Tuesday of each month), except for stormwater, which shall be sampled during the first precipitation event of the month which causes a discharge at the site during working hours, unless otherwise directed in th permit. A normal operating day shall be a period of time reasonably representative of normal operating conditions.

"Multiple Grab Composite" means a combination of individual samples (aliquots) collected at a specified frequency over a specified time period. Each aliquot must be collected in a glass vial with a septum cap and until delivered for analysis. An air space should remain in the vial. Each aliquot shall be analyzed individu The recorded value will be the flow proportioned average of the individual analyses for the specific time per

"Seven day average value" or "Weekly average value" means the greatest sum of all daily discharges measured during any seven consecutive days, divided by the number of discharges measured during those seven consecutive days.

"Six hour composite" means a combination of individual aliquots obtained at a minimum frequency of one aliquot at 30-minute intervals over a 6-hour period.

"Thirty day average value" or "Monthly average value" means the sum of all daily discharges measured during a calendar month, divided by the number of daily discharges measured during that month.

"Time Proportional Composite" means a single sample which receives equal aliquots at equal time interva

"ug/l" means micrograms per liter.

"Weekly" means every seventh day (the same day each week) and a normal operating day, unless otherwise directed in the permit. A normal operating day shall be a period of time reasonably representative of norma operating conditions.

Miscellaneous Notes:

In N.J.A.C. 7:14A-2.5(a)(14)(vi)(2), (3), and (4), 7:14A-2.5(a)(14)(vii), 7:14A-3.10(a), (a)(1), (2), and (3), all references to 12 vi are incorrect and should be replaced with 14 vi.

ADDITIONAL STANDARD CONDITIONS FOR ALL NJPDES/DSW PERMITS FOR INDUSTRIAL DISCHARGES

1. Permit Conditions Relating to Treatment Works

A Treatment Works Approval (TWA) Permit is required prior to the construction, operation, or modification of a treatment works pursuant to N.J.A.C. 7:14A-22.1 et seq. and the amendments thereto. Applications for a TWA Permit shall be submitted to the following address:

New Jersey Department of Environmental Protection and Energy
Division of Water Quality
Bureau of Construction and Connection Permits
CN-029, Trenton, New Jersey 08625-0029
Attn. Chief

The operation of the treatment works shall be under the supervision of a licensed operator with the appropriate operator's classification in accordance with the "Rules Governing the Examination and Licensing of Operators", N.J.A.C. 7:10-13.1 et seq., which became effective July 2, 1984. The licensed operator shall meet the requirements of the TWA Permit pursuant to the provisions of N.J.S.A. 58:11-64 and the amendments thereto.

2. Permit Conditions Relating to Industrial Residuals Management

A. Collected grit and screenings, scums, sand bed sands, slurries, and sludges, and all other solids from the treatment process shall be managed in such a manner as to prevent such materials form entering the ground and/or surface waters of the State except in accordance with the NJPDES permit. If for any reason such materials are placed in the water or on the lands where they may cause pollutants to enter the ground and/or surface waters of the State or for any other noncompliance which may endanger public health or the environment, the following information shall be reported to the Water and Hazardous Waste Enforcement Element and to the Bureau of Pretreatment and Residuals pursuant to the requirements as outlined under N.J.A.C. 7:14A-2.5(a)(14):

(i) Dates of occurrence;
(ii) A description of the non-complying discharge (nature and volume);
(iii) Cause of noncompliance;
(iv) Steps taken to reduce and eliminate the non-complying discharge; and
(v) Steps taken to prevent recurrence of the condition of noncompliance.

B. The permittee shall not be permitted to store sludge on-site beyond the capacity of the structural treatment and storage components of the treatment works nor shall the permittee be permitted to store residual on-site in any manner which is not in accordance with Solid Waste Management Rules, N.J.A.C. 7:26.

C. The permittee shall comply with the Sludge Quality Assurance Regulations, N.J.A.C. 7:14-4. Where quality information is required by these regulations, analyses must reflect the quality of the final sludge product which the permittee must remove.

D. The permittee shall manage all residual generated from the treatment works in compliance with the New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and the New Jersey Water Quality Planning Act N.J.S.A. 58:11A-1 et seq., which require conformance with District Solid Waste Management Plans and Water Quality Management Plans. The permittee shall also comply with all applicable rules and regulations promulgated pursuant to the federal Resource Conservation and Recovery Act.

E. The permittee shall at all times have on file with the Department, proof of proper residuals management at a facility/operation duly licensed and permitted. To satisfy this requirement the permittee shall submit proof of ownership of or contractual arrangement with a permitted facility/operation for the ultimate management of residuals.

Where such permitted residuals management does not extend for the full term of this permit, the permittee shall submit similar proof of new permitted management arrangements which shall become effective no later than the expiration date of the previous arrangements. All such proofs of ultimate management must be submitted to:

New Jersey. Department of Environmental Protection and Energy
Division of Water Quality
Bureau of Pretreatment and Residuals
CN-029, Trenton, New Jersey 08625-0029
Attn. Chief

The permittee shall assure that residual produced by the treatment works is suitable for management at the site identified on such submitted proof of proper residuals management:

F. The permittee shall comply with the provisions concerning the management of sludge in the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E et seq., and the implementing regulations.

1.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning EDP and lasting through EDP + five (5) years, the Permittee is authorized to discharge non-contact cooling water, Non-Radioactive Liquid Waste Disposal System (NRLWDS) effluent and the Radioactive Liquid Waste (RLW) effluent from outfall serial numbers **481, 482, 483, 484, 485, and 486.**

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no visible sheen.

The abbreviation "N/A" in the table below denotes "Not Applicable" while the abbreviation "NL" denotes "Not Limited" with both monitoring and reporting required.

Samples taken in compliance with the specified monitoring requirements shall be taken at the outfalls of discharges 481, 482, 483, 484, 485, and 486 and reported monthly.

PARAMETER	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	DAILY MIN	MONTHLY AVG	DAILY MAX	FREQUENCY	SAMPLE TYPE
Influent Flow (MGD) (6)	N/A	3024	NL	Daily	Calculated
Effluent Flow (MGD)	N/A	NL	NL	Daily	Calculated
Temperature-Influent °F(°C)	N/A	NL	NL	Continuous	----
Temperature-Effluent °F(°C) (1) (2)	N/A	NL	115(46.1)	Continuous	----
Temperature-Diff. °F(°C) (1)	N/A	NL	27.5(15.3)	Daily	Calculated
Heat, Facility (MBTU/hr) (1)	N/A	NL	30,600	Daily	Calculated
Chlorine-Total Residual (mg/l) (3)	N/A	0.3	0.5	3x/Week	Grab
Chlorine-Total Residual (mg/l) (4)	N/A	NL	0.2	3x/Week	Grab
pH, Influent (S.U.)	NL	N/A	NL	Weekly	Grab
pH, Effluent (S.U.)	6.0	N/A	9.0	Weekly	Grab
Acute Toxicity, LC50 (% effluent)	≥50 (5)	N/A	N/A	Quarterly	See Part IV-B/C

(1) See Part IV-B/C, Section A.9 for clarification of thermal limitations and DMR reporting methods.

(2) This limitation shall apply from June 1st through September 30th. During the remainder of the year the effluent temperature limitation shall be 110°F (43.3°C).

(3) These limitations shall apply when only service water system non-contact cooling water is discharged. The maximum limitation of 0.2 mg/l shall apply at other times. See Part IV-B/C, Section A.5 for clarification.

1.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Continued

(4) The maximum limitation of 0.2 mg/l shall apply when circulating water system non-contact cooling water is discharged. See Part IV-B/C, Section A.5 for clarification.

(5) This limitation is equivalent to 2 TUa's (Acute Toxic Units) maximum.

(6) Influent flow shall be measured as the sum of the twelve individual intakes to the circulating water system (CWS). See Part IV-B/C.A.10. for calculation.

1.B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning EDP and lasting through EDP + five (5) years, the Permittee is authorized to discharge treated regenerant wastewater, chemical drains, analytical equipment wastewater, steam generator drains, and floor drains from the Non-Radioactive Liquid Waste Disposal System (NRLWDS) through outfall serial number **48C.**

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no visible sheen.

The abbreviation "N/A" in the table below denotes "Not Applicable" while the abbreviation "NL" denotes "Not Limited" with both monitoring and reporting required.

Samples taken in compliance with the specified monitoring requirements shall be taken at the NRLWDS monitoring location and reported monthly.

PARAMETER	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	DAILY MIN	MONTHLY AVG	DAILY MAX	FREQUENCY	SAMPLE TYPE
Flow (MGD)	N/A	NL	NL	Daily	Calculated
Petroleum Hydrocarbons (mg/l)	N/A	10	15	2/month	Grab
Total Organic Carbon (mg/l)	N/A	NL	50	2/month	Composite
Total Suspended Solids (mg/l) (1)	N/A	30	100	2/month	Composite
Ammonia as N (mg/l)	N/A	35	70	2/month	Composite

(1) Total Suspended Solids shall not exceed a 7-day average of 45 mg/l.

1.C. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning EDP and lasting through EDP + five (5) years, the Permittee is authorized to discharge the effluent from DSN 487B, stormwater, groundwater, and flood pump discharge through outfall serial number **487**.

This discharge shall no longer be a monitored outfall.

1.D. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning EDP and lasting through EDP + 5 years, the Permittee is authorized to discharge equipment drains, floor drains, auxiliary boiler blowdown, and stormwater through outfall serial number **487B**.

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no visible sheen.

The abbreviation "N/A" in the table below denotes "Not Applicable" while the abbreviation "NL" denotes "Not Limited" with both monitoring and reporting required.

Samples taken in compliance with the specified monitoring requirements shall be taken at the discharge monitoring point of the #3 skim tank and reported monthly.

PARAMETER	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	DAILY MIN	MONTHLY AVG	DAILY MAX	FREQUENCY	SAMPLE TYPE
Flow (MGD) (2)	N/A	NL	NL	1/discharge	Calculated
Temperature-Effluent °F(°C)	N/A	NL	110(43.3)	1/discharge	Grab
Petroleum Hydrocarbons (mg/l)	N/A	NL	15	1/discharge	Grab
Total Organic Carbon (mg/l)	N/A	NL	50	1/discharge	Grab
Total Suspended Solids (mg/l)	N/A	NL	100	1/discharge	Grab
pH (S.U.)	6.0	N/A	9.0	1/discharge	Grab

(1) Reserved.

(2) Flow is calculated based on non-precipitation related estimated discharged plus the calculated precipitation related discharge for the reporting period and reported in units of million gallons per day (MGD).

1.E. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning EDP and lasting through EDP + 5 years, the Permittee is authorized to discharge the effluent from former DSN 489A, the effluent from former DSN 489B, and stormwater through outfall serial number **489**. (1)

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no visible sheen.

The abbreviation "N/A" in the table below denotes "Not Applicable" while the abbreviation "NL" denotes "Not Limited" with both monitoring and reporting required.

Samples taken in compliance with the specified monitoring requirements shall be taken at the discharge monitoring point of the oil/water separator and reported monthly.

PARAMETER	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS	
	DAILY MIN	MONTHLY AVG	DAILY MAX	FREQUENCY	SAMPLE TYPE
Flow (MGD)	N/A	NL	NL	Monthly	Calculated
Petroleum Hydrocarbons (mg/l)	N/A	10	15	Monthly	Grab
Total Organic Carbon (mg/l)	N/A	NL	50	Monthly	Grab
Total Suspended Solids (mg/l) (2)	N/A	30	100	Monthly	Grab
pH (S.U.)	6.0	N/A	9.0	Monthly	Grab

(1) See Part IV-B/C.G.2.

(2) Total Suspended Solids shall not exceed a 7-day average of 45 mg/l.

2. **TOXIC POLLUTANT REOPENER CLAUSE**

Pursuant to N.J.A.C. 7:14A-3.13(a)3.iv., the Department may modify or revoke and reissue any permit to incorporate limitations or requirements to control the discharge of toxic pollutants, including whole effluent, chronic and acute toxicity requirements, chemical specific limitations or toxicity reduction requirements, as applicable.

3. **ADDITIONAL EFFLUENT LIMITATIONS**

The Permittee shall discharge so as not to violate the Delaware River Basin Commission Water Quality Regulations as amended through May 22, 1991, for Zone 5 waters in accordance with N.J.A.C. 7:9-4.5(b)(1).

4. **USE OF BIOCIDES OR OTHER WATER ADDITIVES WITH DISCHARGE POTENTIAL**

The Permittee uses the following corrosion inhibitors, biocides, or other water additives at the time of permit issuance that have a potential to discharge to surface waters of the State:

DSNs 481-486: Sodium hypochlorite may be used in the service water system (SWS) to control macroinvertebrate fouling. Sodium hypochlorite may also be added to the circulating water system (CWS) to control biofouling, upon prior notification to the Department.

DSN 487B: Ammonia and hydrazine are used for corrosion control in the auxiliary boiler blowdown.

If the Permittee decides to begin using or change any of these agents in the future, the Permittee must notify the Department at least 180 days prior to use so that the permit may be reopened to incorporate any additional limitations deemed necessary.

5. **MODIFICATION OF MONITORING REQUIREMENTS**

The Permittee may request a modification of their permit to decrease monitoring frequencies for limited parameters if site specific conditions indicate applicability of such a modification. The Department will consider reducing the

monitoring frequency of a limited parameter provided that:

1) ELGs applicable to the facility do not specify the required monitoring frequency;
2) the frequency reduction conditions are included in the public notice of the draft permit.
3) the Permittee has shown consistent compliance with all permit conditions for the affected parameter(s) for:
    a) a minimum period of one (1) year for a monitoring frequency of weekly;
    b) a minimum period of two (2) years for a monitoring frequency of twice per month;
    c) a minimum period of three (3) years for a monitoring frequency of monthly;
    d) a minimum period of five (5) years for a monitoring frequency of quarterly; and
    e) a minimum period of four tests for **Whole Effluent Toxicity (WET)** limitations;

4) A monitoring frequency can be reduced as follows:
    a) from weekly to monthly;
    b) from twice monthly to monthly;
    c) from monthly to quarterly; or
    d) from quarterly to semi-annually or annually.

5) For **WET** limitations, monitoring frequencies can be reduced as follows:
    a) a minimum of twice per year for major dischargers; and
    b) a minimum of annually for minor dischargers.

Reduction of monitoring frequency is not automatic; the Department shall determine whether or not a reduction is warranted. The Discharge Monitoring Reports (DMRs) shall be reviewed to verify consistent compliance with permit limitations and conditions for the affected parameter(s). If the Department agrees to grant the request, the Department will perform a conditional change to the permit to change the monitoring frequency of the affected parameters.

The monitoring frequency for the affected parameters cannot be reduced below annual frequency, in accordance with N.J.A.C. 7:14A-3.13.

A. ADDITIONAL REQUIREMENTS OF THIS PERMIT

1. Operation of Treatment Works

(a) The operation of the treatment works shall be under the supervision of a licensed operator. The operator shall meet the requirements of the Department of Environmental Protection of the State of New Jersey for **N2** or equivalent, pursuant to provisions of N.J.S.A. 58:11-64 et seq. and amendments thereto.

(b) If subsequent to the issuance of this permit the Permittee proposes to install or modify a treatment works, the Permittee shall submit to the NJDEP, for approval of the treatment works and determination of the operator's appropriate license classification, a complete application for Treatment Works Approval pertaining to the proposed treatment works installation/modification pursuant to N.J.A.C. 7:14A-12.1 et seq. A Treatment Works Approval is required to be obtained from NJDEP prior to beginning construction. Application for a Treatment Works Approval shall be submitted to the following address:

NJDEP
Wastewater Facilities Regulation Program
Bureau of Construction and Connection Permits
CN-029, Trenton, NJ 08625-0029

The Permittee shall obtain, the services of a licensed operator of the appropriate classification in accordance with the "Rules Governing the Examination and Licensing of Operators", N.J.A.C. 7:10-13.1 et seq., which became effective July 2, 1984, for any treatment works installed.

2. The Permittee shall also submit a duplicate signed copy of discharge monitoring reports (DMRs) submitted to NJDEP in accordance with Section 8.A. in Part I-DSW of this permit, to the following addresses:

U.S. Environmental Protection Agency
Water Permits and Compliance Branch
26 Federal Plaza, Room 845
New York, New York 10278

Delaware River Basin Commission
P.O. Box 7360
West Trenton, New Jersey 08628

All DMRs shall be submitted on a monthly basis.

3. In accordance with the DRBC Administrative Manual - Part III - Water Quality recodified and revised to include the amendments through May 22, 1991, the following shall be applied:

Stream Quality Objectives

Radioactivity:
(a) alpha emitters- maximum 3 pc/l (picocuries per liter); and
(b) beta emitters- maximum 1000 pc/l

4. State and Local Requirements - Radiation

(a) The Permittee shall comply with all regulations set forth in N.J.S.A. 26:2D-1 et seq. regarding Radiation Protection.

(b) All radioactive wastes shall be collected, removed, and disposed of in accordance with N.J.A.C. 7:28-11.1 et seq.

5. Biofouling Control

(a) Addition of sodium hypochlorite to the circulating water system is not routinely required at the Station. If chlorination is required, the Permittee shall notify the Department prior to reinitiating the addition of sodium hypochlorite to the circulating water system. As part of this notification, the Permittee shall provide the Department with a methodology for sodium hypochlorite addition. Upon approval, total residual chlorine (TRC) may not be discharged from any single generating unit for more than two hours per day. Also, TRC at permitted outfall DSNs 481-486, will be monitored three times per week, each during a two (2) hour period of chlorination. The amount of TRC discharged from each permitted outfall, DSNs 481-486, shall not exceed a daily maximum of 0.2 mg/l during the chlorination of the main condensers. The Permittee shall maintain a

log, noting the time and duration of chlorination of the main condensers.

(b) The Permittee has demonstrated that the service water system has a macroinvertebrate fouling problem. TRC discharges in excess of two hours per day are allowed to accommodate continuous chlorination of the service water system. Monitoring for TRC from continuous chlorination of the service water system shall be performed three (3) times per week at each permitted outfall, DSNs 481-486. The amount of TRC discharged from each of the permitted outfalls, DSNs 481-486, shall not exceed a monthly average of 0.3 mg/l or a daily maximum of 0.5 mg/l when ***only service water system non-contact cooling water*** is being discharged through the associated permitted outfalls, DSNs 481-486. The daily maximum limitation of 0.2 mg/l shall apply at all other times.

6. There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

7. The Permittee is licensed by the U.S. Nuclear Regulatory Commission (USNRC) and responsible to that agency for compliance with radiological effluent limitations, monitoring requirements, and other licensing conditions.

8. Threatened/Endangered Species

The Permittee is required to comply with Section 4.2 of Appendix B to the NRC Facility Operating Licenses Nos. DPR-70 and DPR-75 which includes National Marine Fisheries Service's (NMFS) Section 7 Consultation Biological Opinion related to the operation of Salem Units 1 and 2 Generating Stations, including attachments, and all subsequent amendments as may be approved by NMFS.

All correspondence between the Permittee and the NMFS specifically related to Salem's effects on threatened and endangered species shall be sent to the Department at the following address:

NJDEP
Division of Fish, Game and Wildlife
CN 400
Station Plaza 5
501 East State Street, Floor 3
Trenton, NJ 08625-0400

9. Thermal Reporting

(a) The net amount of heat per unit time is determined by the product of the heat capacity, discharge flow and discharge-intake temperature difference. Heat is reported as the total heat released from the facility, DSNs 481-486 (FAC C).

(b) The effluent temperature to be reported on the facility DMRs for the discharge from Unit 1, DSNs 481-483 (FAC A), shall be calculated as the flow-weighted average of the discharges, DSNs 481-483, and for the discharge from Unit 2, DSNs 484-486 (FAC B) shall be calculated as the flow-weighted average of the discharges, DSNs 484-486. Likewise, the calculations of the net temperature difference shall be determined by subtracting the ambient river water temperature from the flow-weighted average effluent temperature of Unit 1 (DSNs 481-483) and of Unit 2 (DSNs 484-486).

10. Circulating Water System Intake Flow

(a) Circulating water system intake flow is calculated as the sum of the twelve individual circulating water pump flows and reported as a Monthly Average in MGD. The flow of each individual circulating water pump is calculated as the product of the number of operating hours for that pump for the reporting period and the flow rate for that pump. The flow rate for each respective pump is calculated in accordance with (b) below.

(b) The flow rate for each individual circulating water pump shall be determined at least annually using a Rhodamine WT dye tracer evaluation (the Tracer Evaluation). The Permittee shall complete Tracer Evaluations for each circulating water pump within EDP + one hundred and eighty (180) days; provided, however, Tracer Evaluations for any pump performed within one hundred and eighty (180) days prior to the EDP may be submitted to the Department for the first year's test. The

appropriate Enforcement Element must be notified prior to the each use of any dye.

(c) Upon completion of the Tracer Evaluation for each individual pump, the Permittee shall report the following to the Department:

(i) date of Rhodamine WT dye tracer evaluation;

(ii) final concentration of dye in discharge;

(iii) total dye discharged; and

(iv) flow rate of circulating water pump(s) tested.

(d) The report required to be submitted pursuant to 10.(c) above shall be submitted with the DMR submitted for the first month following the month in which a Tracer Evaluation is performed. Tracer Evaluations performed within one hundred and eighty (180) days prior to EDP shall be submitted with the DMR submitted for the first month following EDP. The individual circulating water pump flow rates determined for each pump shall be used for the circulating water system intake flow calculation for the first month following completion of the Tracer Evaluation.

B. ACUTE TOXICITY BIOMONITORING REQUIREMENTS

The Permittee shall conduct definitive flow-through or definitive static renewal acute toxicity tests on its wastewater discharged at the circulating water system outfall(s) which are aligned to receive the effluent from DSN 48C during the sampling event. The circulating water system outfalls which can receive the effluent from DSN 48C are DSNs 481, 482, 484, and/or 485. Such testing will determine if appropriately selected effluent concentrations will affect the survival of the test species.

1. All toxicity tests shall be conducted in accordance with the following:

(a) Acute toxicity test procedures shall conform to the "Regulations Governing Laboratory Certification and Standards of Performance" (N.J.A.C. 7:18-1 et seq.). Subchapter 6 of the regulations contains the criteria and procedures

for acute toxicity testing and analysis. The laboratory performing acute toxicity testing shall be within the laboratory certification program included within those regulations.

(b) Test results shall be expressed in terms of the mortalities in each effluent concentration and, if they can be calculated, the median lethal concentration (LC50) with confidence interval.

(c) All samples taken for the purpose of monitoring shall be representative of the monitored DSN.

(d) If the acute toxicity test results trigger the provisions of Part IV - Section C, then the Permittee shall conduct a Toxicity Reduction Evaluation in accordance with that part.

2. Test Species and Test Duration

(a) The test duration shall be 96 hours.

(b) The test species is sheepshead minnow (Cyprinodon variegatus).

(c) The Department may require additional testing with a second species, or designate the use of an alternate test species. Any species so designated for acute toxicity testing will be from among those species approved for use by N.J.A.C. 7:18-6.

3. Monitoring Frequency

(a) The monitoring frequency shall be one test every three months.

(b) If a test, after a quality control review, is found to be invalid or otherwise unacceptable to the Department, the Permittee shall begin an additional definitive acute toxicity test no later than thirty (30) days after notification by the Department that the test is unacceptable/invalid.

4. If there is a change in the acute toxicity testing contract laboratory, the following information shall be submitted within two (2) months of that change:

(a) A fully completed "Methodology Questionnaire for Acute Toxicity Tests" form, which includes an identification of the certified acute toxicity

testing laboratory responsible for the testing. Copies of this form are provided to certified laboratories.

(b) A schematic diagram which depicts the location that the effluent samples will be taken; the diagram shall indicate the location of effluent sampling in relation to any wastewater treatment facilities (including chlorination/disinfection if present) and all DSNs.

(c) A photocopy of a county map or USGS quad with the location of the dilution water sampling site relative to the effluent discharge point marked (unless the use of a reconstituted water has been approved).

5. Acute toxicity test results shall be reported on the "NJPDES Biomonitoring Report Form - Acute Bioassays," copies of which are provided to certified laboratories.

(a) TWO COPIES of each completed report form shall be submitted within 60 days of test completion to:

Bureau of Standard Permits
Wastewater Facilities Regulation Program
CN-029
Trenton, New Jersey 08625
Attention: Industrial Biomonitoring Program

(b) The test results shall also be reported on the Permittee's DMR for the monitoring period during which the test was conducted. Such results shall be entered on the DMR in the following manner; the LC50 shall be reported as the percent effluent that killed or would kill 50% of the test organisms.

C. TOXICITY REDUCTION EVALUATION

1. The Permittee shall conduct a Toxicity Reduction Evaluation (TRE) if any two valid/acceptable acute toxicity tests for a DSN(s), conducted within any eighteen month period, violate the acute toxicity limitation. The TRE is intended to determine how the Permittee can consistently achieve compliance with the acute toxicity limitation.

2. The following additional conditions apply:

(a) If the Permittee demonstrates to the Department's satisfaction within ten (10) business days of the second violation that the cause of the second acute toxicity violation has been identified and corrective action(s) have been implemented, then the Permittee may have satisfied the requirement for a TRE pursuant to C.1. above and the Permittee may not have to submit a TRE plan and begin a full scale TRE pursuant to 3. below. A report detailing the corrective measures taken however, must be submitted to the Department.

(b) The Permittee may conduct additional acute toxicity testing during the reporting period in connection with an investigation or corrective action. Those test(s) will not be considered as failure of an acute toxicity test for the purposes of triggering a TRE if those tests are not 96hr definitive tests performed in accordance with N.J.A.C. 7:18-6.

3. The TRE shall be conducted as follows:

(a) The Permittee shall submit a proposed plan for conducting the TRE to the Department, within ninety (90) days of the occurrence of an acute toxicity test triggering a TRE pursuant to C.1. above. The proposed TRE plan shall include: an identification of the investigator performing the TRE; appropriate measures to characterize effluent variability; appropriate measures to identify the causative toxicants and/or evaluate toxicity treatability; and a schedule for completing the study.

(b) Upon notice that the Department has reviewed and approved the proposed schedule, the Permittee shall implement the TRE in accordance with the approved plan and schedule. Progress reports detailing all activities undertaken, including all data collected in connection with the TRE, shall be submitted to the Department beginning 90 days from the date of receipt of NJDEP's approval of the TRE. Progress reports shall then be submitted on or before January 1, April 1, July 1 and October 1 of each year until TRE completion.

(c) Within 90 days of TRE completion, the Permittee shall submit to the Department the final TRE

results. These results shall include the corrective actions identified in the TRE as necessary to attain compliance with the acute toxicity limitation and a schedule for its implementation.

(d) Upon receipt of written approval from the Department on the corrective action schedule, the Permittee shall implement those corrective actions consistent with that schedule. If, for any reason, the implemented measures do not result in consistent compliance with the acute toxicity limitation, the Permittee shall submit to the Department a plan for resuming the TRE. The TRE shall not be complete until the Permittee has attained consistent compliance (4 consecutive tests in compliance) with the acute toxicity limitation in this permit.

4. Two copies of all written submissions required above shall be sent to:

Bureau of Standard Permitting
Wastewater Facilities Regulation Program
CN-029
Trenton, New Jersey 08625
Attention: Industrial Biomonitoring Program

D. EFFLUENT CHARACTERIZATION STUDY

An Effluent Characterization Study is required for the monitoring locations and pollutants listed below as these pollutants have the potential to be present due to the nature of the facility and/or materials used. Based on all available information, there is insufficient data to substantiate whether or not certain pollutants are present in the discharge and at what levels. The results of the Effluent Characterization Study will be used to make a determination on whether to impose numerical limitations on these pollutants.

1. Monitoring Locations, Pollutants, and Sample Types

To represent the once-through, non-contact cooling water discharges, the Permittee shall sample outfalls DSN 481 and DSN 483 (Unit #1 discharge). If the discharge from Unit #1 is unavailable for monitoring due to a Unit outage or pump unavailability, sampling may be performed on the Unit #2 discharge at outfalls

DSN 484 and DSN 486. The effluent from DSN 48C shall be discharging (at some point during, but not necessarily for the entire 24-hour composite period) through DSN 481, or through DSN 484 if the effluent from Unit #2 is sampled during sample collection for the Effluent Characterization Study. If the DSN 48C effluent is discharging through more than one circulating system outfall during sampling for the Effluent Characterization Study, all circulating water outfalls for the Unit(s) to which DSN 48C effluent is aligned shall be sampled. The RLW effluent for the respective Unit shall normally be aligned to discharge through DSN 481 (DSN 484 if Unit No. 2 is sampled) consistent with USNRC discharge requirements. Sampling of the intake water is also required. The effluent from DSNs 481, 482, 483, 484, 485, and 486 shall be analyzed for the following parameters:

Appendix I Metals and Cyanide; (grab samples during both flood and ebb tide, timed so as to sample the same parcel of water as is traverses the facility)
Appendix I Base/Neutral Compounds;
Appendix I Acid Extractable Compounds;
Appendix I Volatile Compounds;
Ammonia as N;
Boron

The Permittee shall sample outfall DSN 48C, after the final clarifier, prior to commingling with the non-contact cooling water. The effluent from DSN 48C shall be analyzed for the following parameters:

Appendix I Metals and Cyanide;
Appendix I Base/Neutral Compounds;
Appendix I Acid Extractable Compounds;
Appendix I Volatile Compounds

The Permittee shall sample outfall DSN 489 after installation and operation of the oil water separator. The effluent from DSN 489 shall be analyzed for the following parameters:

Appendix I Metals and Cyanide;
Appendix I Base/Neutral Compounds;
Appendix I Acid Extractable Compounds;
Appendix I Volatile Compounds;
Ammonia as N

All sample points shall be required to be monitored for the following "Minimum Sampling Parameters" unless monitored/limited elsewhere in the permit:

COD (Chemical Oxygen Demand) or
TOC (Total Organic Carbon);
pH (Grab Only);
Petroleum Hydrocarbons (Grab Only);
TSS (Total Suspended Solids);

All samples shall be 24-hour composites, except for Appendix I Volatiles and Cyanide (grab samples) or where otherwise noted.

Monitoring for each location is required pursuant to N.J.A.C. 7:14A-3.14. All data collected from the Study shall be in accordance with Part IV-B/C(D)(3), Recommended Quantitation Levels, and N.J.A.C. 7:14A-2.5(a)(12).

2. Compliance Dates and Sampling Frequency

The Effluent Characterization Study shall be performed between EDP and EDP + 18 months. A total of 12 samples for each of the parameters listed above shall be collected over the Study time period. Ideally, samples should be collected on a monthly basis. However, due to facility discharge variables, samples may be taken more or less frequently than monthly, as long as a total of 12 samples are collected and the time period between samples is no less than 1 week and no greater than 2 months. If a sample cannot be collected for greater than two months due to no discharge (NODI) conditions, a letter shall be submitted to the Department detailing the reason(s) for such conditions and expected recommencement of sampling, if known. If, due to same conditions, the Permittee cannot complete the Study within the required time period, a letter shall be submitted informing the Department of the expected completion date. Further, any sampling occurring after EDP + 18 months shall be performed weekly (when discharge is occurring) until 12 samples are collected.

The Permittee shall submit to the Department an Effluent Characterization Study Report summarizing the data collected by outfall/sampling point for each parameter within 90 days of receipt of the last set of Effluent Characterization Data. The

Permittee shall retain copies of all analytical data including laboratory data sheets, for at least five years following submittal of the final report. Copies of this data shall be provided to the Department upon request.

3. **Recommended Quantitation Levels**

The Department, in order to ensure useful data to characterize the discharger's wastewaters, has developed the Recommended Quantitation Levels (RQLs) in Appendix I of this Part. The Department has determined that the quantitation levels listed therein can be reliably achieved by most State certified laboratories for the listed pollutants using the appropriate procedures specified in 40 CFR 136.

Effluent Characterization data is considered adequate where the detection levels achieved are at least as sensitive as the RQLs in Appendix I. The quantitation levels listed in Appendix I are to be used by the Permittee and its contract laboratory as a guideline of the quantitation levels the Department will accept without additional explanation and/or review. Less sensitive levels may be acceptable, but will require a detailed explanation on the part of the Permittee and/or contract laboratory and a more detailed review on the part of the Department. Where no RQL is furnished (N/A), the RQL shall be five times the value achieved by the laboratory.

If the Permittee or laboratory believes or determines that the detection levels achieved for any pollutant or pollutants generally will not be as sensitive as those specified in Appendix I, a justification for a less sensitive detection level is required to be submitted to the Department. Pollutants that are detected but not quantified must be reported as such.

4. **Deletion of Parameters from the Study**

If a parameter is shown to be consistently less than the recommended quantitation level (<RQL and/or "not detectable" -see Part IV-B/C(D)(3)) utilizing an approved methodology and detection level, in a minimum of the first four consecutive analyses, the monitoring for that parameter may be discontinued from the Study. Additionally, for once-through cooling water only, a sample may count as non-detect towards discontinuance

from the Effluent Characterization Study only if the parameter is detected in the influent and is either non-detect in the effluent or detected in the effluent at the same level as or less than the influent. Also for once-through cooling, samples taken during flood and ebb tides shall be considered separately, like two separate sampling points. Therefore, four samples during ebb tide and four samples during flood tide would need to be taken before either sampling point could be deleted.

If a parameter is detected in one out of the first five sets of samples in the same order of magnitude as the RQL, and the Permittee has reason to believe that the detection is "unwarranted" the Permittee may submit a request in writing to the Department to request deletion of the parameter from the Study. However, this parameter should continue to be included in the Study until response is received from the Department.

For priority pollutant scans, if a single (or several) parameter(s) (except for pollutants of concern) is detected in one of the first four sets of samples of a particular scan, and the Permittee has reason to believe that the detection(s) is "unwarranted", the scan should be continued as a part of the Study, and data for all parameters in the scan should continue to be submitted, even though other parameters were eligible for deletion from the Study. The Permittee may submit a request for deletion of the entire scan from the Study, as above, but should continue to perform the scans until approval is received from the Department.

"Minimum Sampling Parameters" are not eligible for deletion from the Study.

"Unwarranted" shall mean sample data which is greater than the RQL and attributable to laboratory or analytical interferences.

5. Correspondence

All submittals for the above study shall be sent to:

Bureau of Standard Permitting
Wastewater Facilities Regulation Program
CN-029
Trenton, NJ 08625-0029

E. DILUTION STUDY

1. To enable the Department to determine the need for Water Quality-Based Effluent Limitations in conjunction with the Effluent Characterization Study, the Permittee may be required to perform a Dilution Study. A Dilution Study shall be conducted for the non-contact cooling water outfalls (DSNs 481 - 486) and for DSN 489 if:

   a. toxic pollutants are determined to be added to the effluent as defined by the Effluent Characterization Study for each outfall. That is, after the first four samples, any of the Appendix I pollutants remain in the Effluent Characterization Study where deletion from the Study has not been requested (See Part IV-B/C(D)); or

   b. the effluent from any outfall exhibits acute toxicity at levels below an LC50 < 100% or chronic toxicity at levels below an NOEC < 100% during the performance of the Chronic Toxicity Characterization Study.

2. The procedures for these studies must be in accordance with the Department's "Mixing Zone Implementation Policies for the Discharge of Toxic Substances Into Tidally Influenced Waters" (Part IV-B/C Appendix A).

   Plans of study shall be submitted within:

   a. 90 days of receipt of the fourth set of sampling data from the Effluent Characterization Study for each outfall (if toxics are determined to be added); or

   b. 90 days after the discharge exhibits toxicity;

   whichever comes first.

   Since the Effluent Characterization Study may not be conducted concurrently for the non-contact cooling water outfalls (DSNs 481 - 486) and DSN 489 due to construction of the oil water separator, separate Dilution Study Work Plan(s) may be developed and submitted for these outfalls.

3. The Permittee shall commence field work during the first designated "critical period" which occurs at least ninety (90) days after approval by the Department

of the Dilution Study Work Plan(s). If a critical period exists during the 90 days after approval from the Department, the Permittee is not precluded from commencing the Study during that period. The "critical periods" shall be defined in the Dilution Study Work Plan and is that period which produces the minimal dilution.

4. The Permittee shall submit to the Department a report of the results obtained from the Dilution Study within ninety (90) days of completion of the field work associated with the Dilution Study.

F. CHRONIC TOXICITY CHARACTERIZATION STUDY

The Permittee shall conduct a Chronic Toxicity Characterization Study as part of the Effluent Characterization Study required in Part IV-B/C, D above. This study shall consist of concurrent chronic toxicity testing with two species, conducted on the wastewater discharge at the circulating water system outfall(s) which are aligned to receive the effluent from DSN 48C during the sample collection. Such testing will provide data regarding the effects of appropriately selected effluent concentrations on the survival, growth and/or reproduction of the test species and determine which test species is consistently most sensitive to the effluent.

1. All testing shall be conducted in accordance with the following procedures:

   (a) Testing shall be in conformance with the guidelines contained in the "Interim Chronic Toxicity Testing Methodologies for Use in the NJPDES Permit Program, Version 1.0, February 1989" (Part V of this Permit).

   (b) The laboratory performing the toxicity testing shall be within the existing acute toxicity testing laboratory certification program established under N.J.A.C. 7:18-6.

   (c) Test results shall be expressed as the NOEC (No Observable Effect Concentration) and the LOEC (Lowest Observable Effect Concentration) for each test endpoint.

2. Test Species and Test Duration

(a) Chronic toxicity tests shall be conducted concurrently with split samples, using the following test species and test durations:

i. Sheepshead minnow (Cyprinodon variegatus), 7 day larval survival and reproduction test; and,

ii. Inland Silverside (Menidia beryllina), 7 day larval survival and reproduction test.

(b) The Permittee has the option of concurrently testing with a third species from among the methods specified in F. 1. a. above. The selection of the third species must be approved by the Department prior to initiating testing with this species.

3. Monitoring Frequency .

(a) The first test shall be conducted no later than thirty (30) days after commencement of the Effluent Characterization Study required in Part IV-B/C, D. above. Subsequent tests shall be conducted at intervals to ensure the completion of four tests during the Effluent Characterization Study. Those intervals however should not be less than fifteen (15) days apart.

(b) The chronic toxicity characterization study shall not be complete until four tests, using split samples on the two species, which are acceptable to the Department, have been completed. This study, including report submissions, shall be completed by the time the Effluent Characterization Study is completed (EDP + 18 months.

(c) If a test has been reviewed for quality control and found to be unacceptable to the Department, the split sample tests shall be repeated within thirty (30) days of notification from the Department that the test is unacceptable.

4. The following information shall be submitted to the address in F.5.(a). below prior to conducting the first chronic toxicity test for this study:

(a) an identification of the certified laboratory responsible for conducting the chronic toxicity tests;

(b) a completed chronic methodology summary questionnaire (copies of this form will be provided to the certified laboratories); and

(c) a schematic diagram of the facility with the sampling point and all other discharges clearly marked.

5. Test results shall be reported on the "NJPDES Biomonitoring Report Form - Chronic Toxicity Tests" which have been provided to the certified laboratories by the Department.

(a) Two copies of all test reports shall be submitted within thirty (30) days of each test completion to:

Bureau of Standard Permitting
Wastewater Facilities Regulation Program
CN-029
Trenton, New Jersey 08625
Attention: Industrial Biomonitoring Program

G. TREATMENT SYSTEM MODIFICATIONS

1. DSN 487B Modification

(a) The Permittee shall redirect the discharge from outfall DSN 487B to the Non-Radioactive Liquid Waste Disposal System (NRLWDS) for treatment prior to discharge through DSN 48C. Outfall DSN 487B shall remain a permitted outfall to accommodate any emergency overflow conditions. In the event of the occurrence of an emergency resulting in a discharge (e.g., an extraordinary storm event or a pump failure), the DSN 487B limitations and monitoring requirements shall apply.

(b) This modification shall be completed by December 31, 1993.

2. DSN 489 Modification

(a) The Permittee shall install an Oil/Water Separator System at outfall DSN 489. Once this modification

is completed, wastewater discharged through DSNs 489A, 489B, and 489 will be treated in this system and discharged through DSN 489.

(b) This modification shall be completed no later than April 30, 1994. Upon commencement of operation of the Oil/Water Separator System, the Permittee shall notify the Department of same, at which time DSNs 489A and 489B will cease to be outfalls.

H. SPECIAL CONDITIONS

1. Intake Flow Limitations

The Permittee shall limit the circulating water system intake flow to a monthly average rate not to exceed 3,024 million gallons per day. Compliance with this limitation shall be determined in accordance with the calculations set forth in Part IV - B/C.A.10. above.

2. Intake Screen Modifications

(a) The Permittee shall implement modifications to the circulating water system intake traveling screens to incorporate a new fish bucket design including without limitation: an extended lip which bends inward toward the screen face at the top based on the fish bucket design to prevent fish escape; smooth woven mesh screen having rectangular pore openings; 30 inch wide fish sluice providing an approximate 3 inch depth of water (Intake Screen Modifications);

(b) The Permittee shall:

(i) not later than EDP + six (6) months, complete the engineering design for the Intake Screen Modifications;

(ii) not later than EDP + fourteen (14) months, complete installation and initiate operation of the Intake Screen Modifications to the first unit to be modified;

(iii) not later than EDP + twenty-two (22) months, complete operability testing of the first unit's Intake Screen Modifications including without limitation, study of best placement of inside and outside high pressure and low

pressure fish sprays; and study of combining or separating fish return and debris water systems high pressure provided, however, that the operability testing shall be conducted during the months May through September;

(iv) not later than EDP + thirty (30) months, incorporate any necessary changes into the design for the second unit's intake screens and complete installation and initiate operation of the Intake Screen Modifications as specified in 2.(a) and (b)(iii) above to the second unit to be modified's screens; and

(v) not later than EDP + thirty-six (36) months or the conclusion of the next regularly scheduled refueling outage for the first unit which was modified, whichever is later, complete installation and initiate operation of any necessary changes in the engineering design identified as a result of the operability testing described in 2.(b)(iii) above to the first unit's intake screens.

3. Wetlands Restoration and Enhancement

(a) The Permittee shall undertake a wetlands restoration and enhancement program within the region of the Delaware Estuary (primarily within New Jersey; not more than 20% of the acres restored or enhanced under the program to be located within Delaware and/or Pennsylvania. unless the Department determines that there are not sufficient available wetlands in New Jersey to meet the requirements of this Permit) as follows:

(i) restore an aggregate of no less than 8,000 acres of (1) diked wetlands (including salt hay farms, muskrat impoundments and/or agricultural impoundments) to normal daily tidal inundation so as to become functional salt marsh; and/or (2) wetlands dominated by common reed (Phragmites australis) to primarily Spartina species with other naturally occurring marsh grasses (e.g. Distichlis spicata, Juncus spp.). No less than 4,000 of the 8,000 acres required to be restored above must have been diked wetlands. The Permittee shall secure access to or

control of such lands such that said lands will have title ownership or deed restriction as may be necessary to assure the continued protection of said lands from development;

(ii) restore an additional 2,000 acres of wetlands as set forth in paragraph H.3.(a)(i) above and/or preserve in a state that precludes development through appropriate title ownership or Conservation Restriction of no less than 6,000 acres of uplands adjacent to Delaware Estuary tidal wetlands ("Upland Buffer"). For purposes of this paragraph 3.(a)(ii), an Upland Buffer shall mean an area of land adjacent to wetlands which minimizes adverse impacts on the wetlands and serves as an integral component of the wetland ecosystem;

(iii) the acreage restored, enhanced and/or preserved pursuant to 3.(a)(i) and/or (ii) above will aggregate no less than 10,000 acres; provided, however, the Permittee only will be credited one acre toward the 10,000 acre aggregate for every three acres of Upland Buffer acquired or restricted pursuant to 3.(a)(ii) above; and

(iv) all lands restored, enhanced, or preserved pursuant to paragraph 3.(a) above shall be subject to Conservation Restriction.

(b) The Permittee shall impose a Conservation Restriction on the approximately 4,500 acres of land in Greenwich Township, Cumberland County, commonly known as the Bayside Tract. The approximate 1,900 acres of Upland Buffer on the Bayside Tract shall be applied on a 3:1 basis toward satisfying the acreage requirement in 3.(a)(iii) above. Not later than EDP + 180 days, the Permittee shall provide the Department with evidence that this special condition has been satisfied.

(c) The Conservation Restriction imposed pursuant to paragraphs 3.(a) and 3.(b), shall name the Department as a Grantee of the Conservation Restriction. The Conservation Restriction shall be in the form of Attachment A to this Permit and shall be recorded by the Permittee. Attachment A

provides for the submission of schedules which will be site-specific. There shall be no liens superior to the Conservation Restriction on the lands in question (except those liens or encumbrances created by virtue of the PSE&G Corporate Mortgage dated August 1, 1924, including all amendments, to Fidelity Union Trust Company, Trustee, on lands owned by the Permittee which are subject to this Conservation Restriction), proof of which shall be provided by the Permittee through a title search and/or title insurance. The Permittee shall regularly inspect the Property and take appropriate action to prevent or correct a violation of the Conservation Restriction notwithstanding that such violation was by a person other than Permittee.

(d) For salt hay farm lands identified in paragraph 3.(a) above, the Permittee shall:

(i) not later than EDP + twelve (12) months, select and secure control of said lands through acquisition, deed restriction, termination of life estate or termination of leasehold interests;

(ii) not later than EDP + twelve (12) months or not later than ninety (90) days after securing control of said lands, whichever comes first, design and file with the Department for approval a Management Plan(s), except that no Management Plan shall be required to be submitted until sixty (60) days after a Management Plan Advisory Committee (MPAC) is established pursuant to 3.(j) below. (Provided, however, that in the event that the Permittee secures control of a parcel of said lands but intends to secure control of a contiguous parcel(s) of said lands, the Management Plan encompassing all contiguous parcels of said land must be filed no later than EDP + twelve (12) months). The Management Plan(s) shall include, but not be limited to, techniques by which the Permittee shall breach dikes and construct and maintain upland dikes, and implement steps to protect all roadways, property and improvements thereon located on or adjacent to said lands from damage due to flooding at both normal

and high tides, and an anticipated schedule for natural revegetation; and

(iii) not later than sixty (60) days after receipt of the Department's approval of the Management Plan(s), implement the Management Plan(s) as approved by the Department. The Management Plan(s) is automatically incorporated as a condition of this permit upon final approval by the Department.

(e) For muskrat or agricultural impoundment lands and/or wetlands dominated by common reed as specified in paragraph 3.(a) above, the Permittee shall:

(i) not later than EDP + eighteen (18) months, select and secure access and/or control of said lands;

(ii) not later than EDP + eighteen (18) months, design and file with the Department for approval a Management Plan(s). The Management Plan(s) shall include, but not be limited to: for wetlands dominated by common reed, techniques for application of herbicides and/or burning to remove dead common reed, techniques by which the Permittee shall breach dikes and construct and maintain upland dikes, and implement steps to protect all roadways, property and improvements thereon located on or adjacent to said lands from damage due to flooding at both normal and high tides, and an anticipated schedule for natural revegetation; and for muskrat or agricultural impoundments, techniques for restoration of tidal flow, techniques by which the Permittee shall breach dikes and construct and maintain upland dikes, and implement steps to protect all roadways, property and improvements thereon located on or adjacent to said lands from damage due to flooding at both normal and high tides, and an anticipated schedule for natural revegetation; and

(iii) not later than sixty (60) days after receipt of the Department's approval of the Management Plan(s), implement the Management Plan(s)as approved by the Department. The

Management Plan(s) is automatically incorporated as a condition of this permit upon final approval by the Department.

(f) For lands described in 3.(a)(ii) above, the Permittee shall:

(i) not later than EDP + eighteen (18) months, select and secure access and/or control of said lands;

(ii) not later than EDP + eighteen (18) months, design and file with the Department for approval a Management Plan(s) for such lands; and

(iii) not later than sixty (60) days after receipt of the Department's approval of the Management Plan(s), implement the Management Plan(s) as approved by the Department. The Management Plan(s) is automatically incorporated as a condition of this permit upon final approval by the Department.

(g) For the lands described in 3.(b) above, the Permittee shall:

(i) not later than EDP + six (6) months, design and file with the Department for approval a Management Plan for these lands, except that no Management Plan shall be required to be submitted until sixty (60) days after a Management Plan Advisory Committee (MPAC) is established pursuant to 3.(j) below; and

(ii) not later than sixty (60) days after receipt of the Department's approval of the Management Plan, implement the Management Plan as approved by the Department. The Management Plan(s) is automatically incorporated as a condition of this permit upon final approval by the Department.

(h) No later than EDP + sixty (60) months, complete implementation of the Management Plans specified in paragraphs (d), (e), (f) and/or (g). However, the Permittee must continue to implement the Management Plan(s) with respect to maintenance during any period of time the permit is extended pursuant to N.J.A.C. 7:14A-2.3.

(i) The Permittee shall be deemed to have complied with the requirements of Special Condition H.3. upon completion of the Department-approved Management Plans.

(j) Not later than EDP + sixty (60) days, the Permittee shall establish a Management Plan Advisory Committee (MPAC). The Permittee shall request, subject to the Department's approval, at least three agencies having jurisdiction over wetland restoration activities to provide a technical representative to serve on the MPAC. The Permittee shall request, subject to the Department's approval, a coastal geologist and two scientists with appropriate expertise, to serve on the MPAC. The Department and shall also designate a representative from its Division of Fish, Game and Wildlife and its Mosquito Control Commission to serve on the MPAC. The Permittee shall also designate a representative to serve on the MPAC. The Permittee shall also request, subject to the Department's approval, the governments of Cape May, Cumberland, and Salem Counties to appoint a representative(s) to serve on the MPAC.

The MPAC will serve as a body to provide technical advice to the Permittee concerning the development and implementation of the Management Plans identified in this Section 3. Management Plans must be submitted to the MPAC for technical advice prior to submission to the Department for approval. Contemporaneous with the submission of a Management Plan to the Department, the Permittee shall provide copies of said Plan to the County Library in the affected County. The Permittee shall cause to be published in a daily or weekly newspaper circulated in the affected County a public notice advising of the time and place that the Management Plan is available for review.

The MPAC shall be chaired by the Permittee's representative. The MPAC shall conduct business when, as, and how the MPAC so decides.

4. <u>Elimination of Impediments to Fish Migration</u>

(a) The Permittee shall construct and maintain five fish ladders. The Permittee shall fund an escrow account in an amount of $500,000 within EDP +

sixty (60) days. The monies in the escrow account will be used exclusively for a program to eliminate impediments for fish migration in accordance with the provisions of this Special Condition H.4. (Fish Migration Project) (the Permittee's obligations under this Special Condition H.4.(b), (c), and (d) are subject to the amount of monies deposited in the Escrow Account; provided, however, that with respect to the $500,000, at least $425,000 must be used exclusively to fund construction and maintenance of the fish ladders and not more than $75,000 can be used to fund engineering designs).

(b) In connection with the Fish Migration Project, the Permittee shall:

(i) not later than EDP + six (6) months, complete an engineering feasibility study of not less than five candidate sites which will be selected based on a site selection study conducted in consultation with the Department;

(ii) not later than EDP + nine (9) months, solicit access rights and/or necessary authorizations with respect to the implementation of the Fish Migration Project at the candidate sites; and

(iii) not later than EDP + nine (9) months, complete site selection(s) in consultation with the Department.

(c) For those sites selected for implementation in the Fish Migration Project, and in consultation with the Department the Permittee shall:

(i) not later than EDP + twelve (12) months, complete an engineering design and submit a Work Plan which will include at a minimum a schedule for installation of fish ladders for Department approval;

(ii) not later than sixty (60) days after receipt of the Department's approval of the Work Plan, implement the Department-approved Work Plan in accordance with the schedule approved by the Department;

(iii) not later than EDP + sixty (60) months, complete implementation of the Work Plan; and

(iv) the Work Plan is automatically incorporated as a condition of this permit upon final approval by the Department.

(d) For those sites at which fish ladders are installed, the Permittee shall conduct operational and maintenance activities during the term of the permit and during any period of time the permit is extended pursuant to N.J.A.C. 7:14A-2.3.

5. Sound Deterrent Feasibility Study

The Permittee shall:

(a) not later than EDP + twelve (12) months, submit a Plan of Study to the Department for approval to assess the feasibility of deterring fish from the area in front of the CWS intake structure through the use of underwater speakers or sound projectors (such Study shall also assess the potential detrimental effects on fish species in the Delaware Estuary);

(b) not later than sixty (60) days after receipt of the Department's approval of the Plan of Study, implement the Plan of Study in accordance with the schedule approved by the Department subject to species availability; and

(c) not later than EDP + fifty-four (54) months, complete the Plan of Study and file a report of the results to the Department in accordance with the schedule approved by the Department.

6. Biological Monitoring

The Permittee shall:

(a) develop and implement a biological monitoring program for the Delaware Estuary. The biological monitoring program shall include comprehensive thermal monitoring and performance of a biothermal assessment on the RIS, bay-wide abundance monitoring, impingement and entrainment monitoring, abundance monitoring for ichthyoplankton and juvenile blueback herring and alewife in connection with fish ladder sites,

detrital production monitoring, and residual pesticide release monitoring (in salt hay impoundments) and such other special monitoring studies including effects of sound deterrents as may be required by the Department.

(b) not later than EDP + sixty (60) days, the Permittee shall establish a Monitoring Advisory Committee (MAC). The Permittee shall request, subject to the Department's approval, at least three resource agencies having expertise in the aquatic resources of the Delaware Estuary to provide a representative to serve on the Committee. In addition, the Permittee shall request, subject to the Department's approval, at least three scientists having similar expertise to serve on the MAC. The Department shall designate representatives from its Division of Fish, Game and Wildlife and its Mosquito Control Commission to serve on the MAC. The Permittee shall also designate a representative to serve on the MAC.

(c) the MAC will serve as a body to provide technical advice to the Permittee concerning the following:

(i) design of the Biological Monitoring Program;

(ii) implementation of the Biological Monitoring Program;

(iii) modifications to the Biological Monitoring Program; and

(iv) interpretation of the Biological Monitoring Program results.

(d) the MAC shall be chaired by the Permittee's representative. The MAC shall conduct business when, as, and how the MAC decides.

(e) The Biological Monitoring Program Work Plan shall be submitted to the MAC for technical advice prior to submission of the Work Plan to the Department for approval.

(f) not later than EDP + one hundred fifty (150) days, the Permittee shall submit to the Department for approval a Biological Monitoring Program Work Plan (Work Plan) (which will include a reporting

schedule). Contemporaneous with the submission of a Work Plan to the Department, the Permittee shall provide copies of said Work Plan to the County Library in Salem, Cape May, and Cumberland Counties. In addition, the Permittee shall cause to be published in a daily or weekly newspaper circulated in the general area a public notice advising of the time and place that the Monitoring Program is available for review.

(g) not later than sixty (60) days after receipt of the Department's approval of the Work Plan, the Permittee shall implement the Work Plan. The Biological Monitoring Program Work Plan is automatically incorporated as a condition of this permit upon final approval by the Department.

(h) the Permittee shall submit to the Department the Biological Monitoring Program results in accordance with the schedule specified in the Work Plan. Contemporaneous with submission of said results to the Department, the Permittee shall forward the results to each member of the MAC for technical review. Any proposed modifications to the Work Plan (as may be necessary based on Biological Monitoring Program results) shall be submitted to the MAC for technical review prior to submission to the Department for the Department's approval.

7. Financial Assurance Requirements

Not later than EDP + thirty (30) days, the Permittee shall establish and maintain both an irrevocable letter of credit in the amount of twenty million dollars ($20,000,000) and a standby trust for a term of EDP + sixty (60) months and during any period of time the permit is extended pursuant to N.J.A.C. 7:14A-2.3. The irrevocable letter of credit and the standby trust shall meet the following requirements:

(a) Irrevocable Letter of Credit

(i) Is identical to the wording specified in Attachment B for letter of credit; and

(ii) Is issued by a federally chartered bank or savings bank, or state chartered bank, savings bank, or savings and loan

association, which has its principal office in New Jersey.

(b) Standby Trust

(i) Is identical to the wording specified in Attachment C for standby trusts;

(ii) At the discretion of the Department, the irrevocable standby trust fund shall be the depository for all funds paid pursuant to a draft by the Department against the letter of credit as directed by the Department'

(iii) The standby trustee shall be an entity which has the authority to act as a trustee whose trust operations are regulated and examined by a Federal or New Jersey agency; and

(iv) Is accompanied by an executed certification of acknowledgment that is identical to the wording specified in Attachment C.

8. Force Majeure

(a) (i) If any event occurs which PSE&G reasonably believes will or may cause delay in the compliance with Special Conditions H.2, H.3., H.4., H.5. and/or H.6., PSE&G shall notify the Department in writing within ten (10) calendar days of the delay or anticipated delay, as appropriate, referencing this paragraph and describing the anticipated length of the delay, the precise cause or causes of the delay, any measures taken or to be taken to minimize the delay, and the time required to take any such measures to prevent or minimize any such delay. PSE&G shall take necessary actions to prevent or minimize any such delay.

(ii) If the Department finds that: (a) PSE&G has complied with the notice requirements of paragraph (i) above; and (b) that any delay or anticipated delay has been or will be caused by a fire, flood, strike, riot, or any other circumstance(s) beyond the control of PSE&G; and (c) that PSE&G has taken necessary actions to prevent or minimize the delay, the Department shall extend the time for performance for a period no longer than the delay resulting from such circumstances. If the Department determines that PSE&G has not complied

with the notice requirements of the preceding paragraph, or the event causing the delay is not beyond the control of PSE&G, or PSE&G has not taken necessary actions to prevent or minimize the delay, this paragraph shall not be applicable and such failure to comply with Special Conditions H.2., H.3., H.4., H.5., and/or H.6., shall constitute a violation of the terms and conditions of this permit. The burden of proving that any delay is caused by circumstances beyond the control of PSE&G, the length of delay attributed to those circumstances and that necessary actions were taken to prevent or minimize the delay shall rest with PSE&G. Increases in the cost or expenses incurred by PSE&G in fulfilling the requirements of this permit shall not be a basis for an extension of time. Delay in an interim requirement shall not automatically justify or excuse delay in the attainment of subsequent requirements in Special Conditions H.2., H.3., H.4., H.5., and/or H.6.

9. Termination of Section 316(a) Variance/Penalties

Notwithstanding any other provision of this Permit, the Department specifically reserves the right to seek termination of the Section 316(a) variance granted in this Permit or termination of this Permit based on the Permittee's noncompliance with any term or condition of this Permit. Further, the Department specifically reserves the right to seek penalties pursuant to N.J.S.A. 58:10A-10 et seq. based on the Permittee's noncompliance with any term or condition of this Permit.

10. The Permittee shall submit all documents, including without limitation workplan feasibility studies and reports required by the Special Conditions of Part IV-B/C(H) to the following person:

Director
Division of Fish, Game and Wildlife
501 East State Street
CN 400
Trenton, NJ 08625-0400

11. Section 316 Determinations Upon Reissuance

The Department proposes to grant a variance pursuant to Section 316(a). If the Draft Permit is finalized, the variance will automatically be terminated upon the expiration of the Final NJPDES Permit. Procedures for reissuance of a Section 316(a) variance are virtually unchanged from an initial Section 316(a) determination.

If upon renewal, the Permittee wants the variance to be continued, the request for the variance along with a basis for its continuance must be submitted at the time of application for the renewal permit. In the event that the Permittee wants the variance to be continued, the Department's Section 316(a) determination will include, but not be limited to, a review of whether the nature of the thermal discharge or the aquatic population associated with the Station have changed, whether the measures required under the proposed Special Conditions have, in fact, assured the protection and propagation of the balanced indigenous population, whether the best scientific methods to assess the effect of the Permittee's cooling system have changed and whether the technical knowledge of stresses caused by cooling systems has changed. With respect to Section 316(b), the Department's determination will include, but not be limited to, an evaluation of whether technologies, their costs and benefits, and potential for application at the Station have changed.

REQUIREMENTS FOR DETERMINATION OF WATER QUALITY BASED EFFLUENT LIMITATIONS

The following information shall be submitted by the applicant for a water quality based effluent limitation, in addition to any information required pursuant to N.J.A.C. 7:14A:

1. Type of waste (domestic or industrial) to be discharged, accompanied by an analysis of the treated and untreated wastewater characteristics (analysis to include chemical specific and also whole effluent toxicity testing, if available).

2. Type of treatment process and level of treatment either existing or being considered.

3. U.S. Geological Survey Topographic Maps, 7.5 Quadrangle series, showing treatment facility locations, discharge point, and the location of other treatment facilities on the receiving waterbody in the vicinity of the existing or proposed discharge. Site map showing more detail of discharge point, receiving stream, or other relevant information is also requested.

4. Name and classification of receiving waterbody including a description of the waterbody's existing beneficial uses. Indicate if discharge is or will be directly to receiving waterbody or via storm sewer.

5. Receiving waterbody analysis, which shall include:

   - A determination of the Critical Instream Waste Concentration (IWC - see definition below), with documentation.

   - A water quality analysis program to be developed in coordination with the Department and to include, at a minimum, sampling stations upstream an downstream of all existing discharges, as well as any proposed discharge.

For guidance see the U.S. Environmental Protection Agency documents given in the attached list.

Determination of Critical Instream Waste Concentration

For discharges into non-tidal streams, or small tidal streams with a cross-sectional area not greater than 1,000 square feet at mean sea level and inflow MA7CD10 (minimum average 7 consecutive day flow with a statistical recurrence interval of 10 years) not greater than 10 cubic feet per second:

$$I = \frac{Q_e}{Q_e + Q_s}$$

where I = Critical Instream Waste Concentration

Q_e = Effluent Flow

Q_s = Upstream Freshwater MA7CD10 flow

For all other waterbodies the instream waste concentration, "I" will be determined on a case-by-case basis utilizing applicable scientific methods, including, but not limited to, plume models and the mixing zone concept.

MIXING ZONE IMPLEMENTATION POLICIES FOR THE DISCHARGE OF TOXIC SUBSTANCES INTO TIDALLY INFLUENCED WATERS

Regulatory Authority

N.J.A.C. 7:14A-3.14 sets the procedures for calculating New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Surface Water (DSW) permit conditions. Paragraph (k) states that:

"Water quality based effluent limitations applicable to discharge into surface waters of the state shall be developed in accordance with 'Wastewater Discharge Requirements', N.J.A.C. 7:9-5 and/or 'Surface Water Quality Standards', N.J.A.C. 7:9B-1."

Paragraph (b) of N.J.A.C. 7:9B-1.6 relates how water quality based effluent limitations are to be included in draft and final NJPDES permits and Discharge Allocation Certificates (DACs). Specifically, this paragraph states, "...the water quality based effluent limitations incorporated into the Final NJPDES Permit or DAC must be consistent with the provisions of N. J.A.C. 7:9B-1 (including, but not limited to 7:9B-1.5, 1.6(c), and 1.9). Paragraph (c)4 of N.J.A.C. 7:9B-1.5 contains the mixing zone policies. Although mixing zone requirements are determined on a case-by case basis, the purpose of this implementation policy is to assure consistency among dischargers while providing for attainment and maintenance of water quality criteria and standards.

This implementation policy will also be used in the development of water quality based whole effluent toxicity limitations, where appropriate, to determine the instream waste concentration in accordance with N.J.A.C. 7:9B-1.6(c)5ii(2).

Implementation Policy

The mixing zone implementation policy is based on and is consistent with the following U.S. Environmental Protection Agency (EPA) publications:

> Technical Support Document for Water Quality-based Toxics Control, March 1991, EPA/505/2-90-001
>
> Permit Writer's Guide to Water Quality-Based Permitting for Toxic Pollutants, July 1987, EPA-440/4-87-005
>
> Water Quality Standards Handbook, December 1983

The following mixing zone implementation policies are to be applied during critical conditions. Critical conditions are those that produce minimal dilution and/or have maximum environmental impact on aquatic life and the designated uses of the receiving waterbody.

For submerged outfalls using a high-rate diffuser (exit velocity greater than 10 feet per second) chronic criteria will be applied at the edge of the mixing zone; the edge of the mixing zone being defined as the point where the effluent plume is indistinguishable from background conditions measured with a conservative dye. Acute criteria will be applied at the edge of the zone of initial dilution (ZID). The ZID is the region of initial mixing surrounding or adjacent to the end of the outfall diffuser. Initial dilution is the flux-averaged dilution (averaged over the cross-sectional area of the plume) achieved during the period when dilution is primarily a result of plume entrainment (i.e. mixing is due to the initial momentum and buoyancy of the plume).

For submerged outfalls that do not have a high-rate diffuser chronic criteria will be applied at the ZID and acute criteria will be applied at the end-of-pipe.

Use of the ZID and edge of mixing zone as physical mixing zone dimensions must conform to the following mixing zone policies as stated in N.J.A.C. 7:9B-1.5(c)4:

iii. The total area and volume of a waterway or waterbody assigned to mixing zones shall be limited to that which will not interfere with biological communities or populations of important species to a degree which is damaging to the ecosystem or which diminishes other beneficial uses disproportionately. Furthermore, significant acute mortality of aquatic biota shall not occur within the mixing zone.

iv. Zones of passage shall be provided for the passage of free-swimming and drifting organisms wherever mixing zones are allowed.

Physical mixing zones that occupy less than 1/4 the cross-sectional area of a waterbody up to a maximum of 100 meters in any direction from the discharge outlet structure are assumed to be in compliance with the above narrative.

For discharges that are not submerged, both chronic and acute criteria will be applied at the end-of-pipe unless site specific conditions warrant otherwise.

PROCEDURES AND REQUIREMENTS FOR CONDUCTING WATER QUALITY ANALYSIS PROGRAMS AND DILUTION STUDIES

All water quality analysis programs and dilution studies must be performed in accordance with an approved Work/Quality Assurance Plan. The plan must conform to the guidance contained in:

> Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Environmental Monitoring. (OWRS QA-1), Office of Water Regulations and Standards, USEPA.

Critical Conditions

Critical conditions are those that produce minimal dilution and/or cause the maximum environmental impact on aquatic life and the designated uses of the receiving waterbody. One of the primary concerns in defining critical conditions is stratification of the receiving waterbody. For the purposes of this document stratification refers to salinity and/or thermal variations which occur over a vertical profile in the receiving waterbody.

For non-tidal streams and rivers, critical conditions are periods of low fresh water flows. These conditions generally occur between August 15 and October 15.

In large lakes or stagnant lakes and ponds, critical conditions occur if the water stratifies. Stratification of these waterbodies is most likely during the summer months.

For tidal, non-stratified waterbodies minimal dilution occurs when fresh water inflows are at a minimum and a low water slack period during a spring tide occurs. These conditions should occur between August 15 and October 15. Also, to determine the maximum areal extent of the plume, maximum velocity during a tidal cycle should be examined.

For tidal, stratified waterbodies minimal dilution may occur at either minimal fresh water flows or at times of maximum stratification. In addition to the above non-stratified conditions the following should also be examined. For estuaries and tidal portions of streams that are likely to be salinity stratified maximum stratification would occur during periods of high fresh water inflows at low water slack during a neap tide. This should occur between March 1 and April 15. For coastal waters that are likely to be thermally stratified maximum stratification should occur between May 1 and August 1.

Water Quality Analysis Program

Additional specific guidance for conducting water quality analysis programs is found in the following publications:

> Field Sampling Procedures Manual, NJDEPE, 1992. This manual is available from the Maps and Publications Sales Office, Bureau of Revenue, CN-417, Trenton, NJ 08625
>
> USEPA Handbook - Stream Sampling for Waste Load Allocation Applications

The guidance given here represents minimum requirements for water quality sampling. Additional requirements may be necessary on a case by case basis.

Frequency of sampling shall be weekly for 8 weeks. At least 2 sample sets must be taken during critical conditions. Water column samples shall be analyzed for each parameter for which a surface water quality criteria for aquatic life and/or human health protection exists (*see Appendix A* or the most recently promulgated State and Federal water quality criterion). Sampling frequency may be reduced or eliminated

if a parameter is proven absent from the wastewater (non-detectable in 4 representative samples) or if a parameter is non-detectable after 4 rounds of in-stream sampling. Grab sampling shall be utilized.

For non-tidal waterbodies, at a minimum, samples shall be taken at the point of discharge (existing or proposed) and at least one location instream and one location downstream. For tidal waterbodies, at a minimum, samples shall be taken at the point of discharge (existing or proposed) at high, low, and slack tide (either high or low slack). Attempt to sample at or near the highest current velocity during the high and low tidal phases.

Depending on site specific conditions, additional samples may be required to define loads from other point sources, tributaries, non-point sources, etc. For an existing discharge the effluent shall be sampled and analyzed concurrently with each water column sampling.

Dye Studies

Conducting effluent dilution studies for mixing zone considerations and determination of critical Instream Waste Concentrations (IWC) requires the release and sampling of a conservative tracer dye during critical conditions and use of a computer model to simulate the movement of the effluent plume under various conditions.

The release and sampling of a conservative tracer dye is used to determine the mixing characteristics and movement of an effluent plume in a receiving waterbody. The results of a dye study are also used to calibrate and verify computer simulation models that can be used to describe the behavior of the effluent plume for conditions not sampled using dye. In order to conduct the study a conservative dye must be continuously introduced into the effluent maintaining a constant concentration in the effluent. The effluent discharge rate should be kept at as constant a rate as possible at a level that reflects the average discharge rate. Dye concentrations in the receiving waterbody should be sampled and analyzed in sufficient number, horizontal and vertical extent, and time duration to delineate the ZID and the edge of the mixing zone. The recommended dye is Rhodamine WT. Use of another dye requires that the following information be submitted 21 days prior to the planned release of dye:

1. Name of dye.
2. Physical characteristics of the dye.
3. Available toxicity information on the dye.
4. Concentration at which dye is visible.
5. Planned concentration and total mass of dye to be discharged in the effluent.

Before any dye is released the appropriate Regional Bureau of Water and Hazardous Waste Enforcement shall be notified at least 48 hours prior to release of dye.

Metro Bureau - (201) 669-3900
Bergen, Essex, Hudson, Union Counties

Central Bureau - (609)) 584-4201
Burlington, Mercer, Middlesex, Monmouth, Ocean Counties

Northern Bureau - (201) 299-7592
Hunterdon, Morris, Passaic, Somerset, Sussex, Warren Counties

Southern Bureau - (609) 346-8032
Atlantic, Camden, Cape May, Cumberland, Gloucester, Salem Counties

Computer Models

There exist several models developed for USEPA that simulate effluent plumes from submerged or surface discharges. The following are the minimum data requirements to use the models:

Ambient current speed and direction outfall characteristics
Number of ports
Port effective diameter
Port spacing
Port orientation
Discharge depth
Effluent flow rate
Density (or salinity and temperature) of effluent
Density (or salinity and temperature) gradient in receiving waterbody

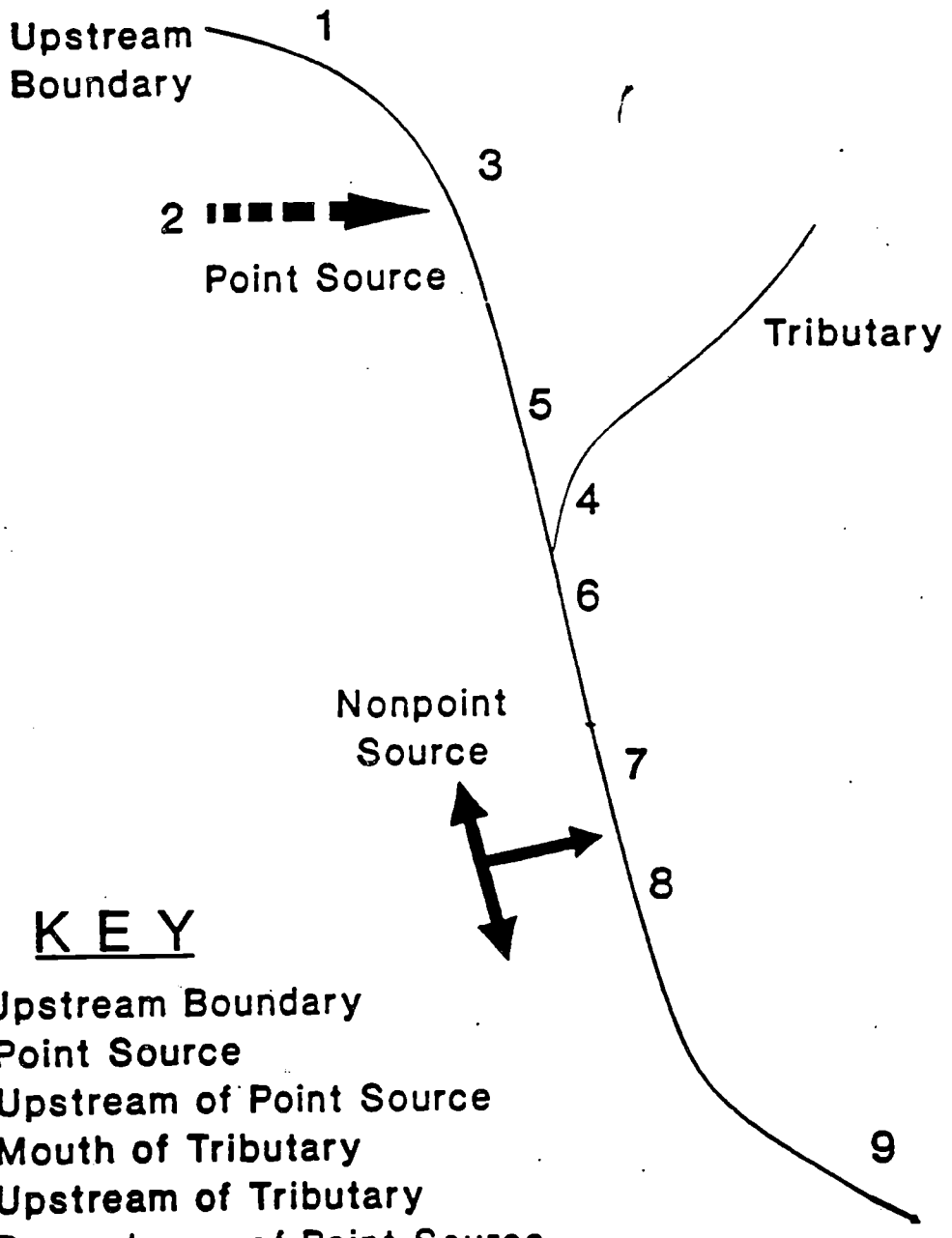
For submerged outfalls the following USEPA models are available:

PLUME, OUTPLM, DKHDEN, MERGE, LINE, CORMIX1

For surface discharges the following USEPA models are available:

PDS, PDSM, MOBEN, PSY

Recommended Locations for Sampling Program



KEY

1. Upstream Boundary
2. Point Source
3. Upstream of Point Source
4. Mouth of Tributary
5. Upstream of Tributary
6. Downstream of Point Source
   (at O2 Sag Point for D.O. Analysis)
7. Upstream of Nonpoint Source
8. Downstream of Nonpoint Source
9. Downstream of Study Area

The following EPA documents can be obtained from : National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650.

TITLE	EPA NUMBER	NTIS REFERENCE NUMBER
Technical Guidance Manual for Performing Waste-load Allocations - Book II Streams and Rivers - Chapter 1 Biochemical Oxygen Demand/Dissolved Oxygen	EPA 440/4-84-020	PB86178936
Technical Guidance Manual for Performing Waste-load Allocations - Book II Streams and Rivers - Chapter 2 Nutrient/Eutrophication Impacts	EPA 440/4-84-021	PB86178944
Technical Guidance Manual for Performing Waste-load Allocations - Book II Streams and Rivers - Chapter 3 Toxic Substances	EPA 440/4-84-022	PB86170628
Technical Guidance Manual for Performing Waste-load Allocations - Book IV Lakes and Impoundments - Chapter 2 Nutrient/Eutrophication Impacts	EPA 440/4-84-019	PB86178928
Technical Guidance Manual for Performing Waste-load Allocations - Book VII Permit Averaging	EPA 440/4-84-023	PB86178951
Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water - Part I and Part II (Revised 1985)	EPA 600/6-85/002a EPA 600/6-85/002b	PB86122496 PB86122504
Technical Support Document for Water Quality-Based Toxics Control	EPA 440/4-85-032	PB86150067
Initial Mixing Characteristics of Municipal Ocean Discharges Volume 1 - analytical solutions and descriptions of the five models: PLUME, OUTPLM, LINE, MERGE, and DKHOEK Volume 2 - FORTRAN IV program listings of the 5 models IBM-PC compatible diskettes containing the 5 models	 EPA 600/3-85-073a EPA 600/3-85-073b 	 PB86137478 PB86137460 PB86137486
Handbook - Stream Sampling for Waste Load Allocation Applications	EPA 625/6-86-013	
Revised Section 301(h) Technical Support Document	EPA 430/9-82-011	

Recommended Quantitation Levels for Toxic Parameters

BASE/NEUTRAL COMPOUNDS	RQL (ug/l)
Acenaphthene	9.5
Acenaphthylene	10
Anthracene	10
Benzidine	50
Benzo (a) Anthracene	10
Benzo (a) Pyrene	20
Benzo (b) fluoranthene	10
Benzo (ghi) Perylene	20
Benzo (k) Fluoranthene	20
Bis (2-Chloroethoxy) Methane	26.5
Bis (2-Chloroethyl) Ether	10
Bis (2-Chloroisopropyl) Ether	10
Bis (2-Ethylhexyl) Phthalate	30
4-Bromophenyl Phenyl Ether	9.5
Butyl Benzyl Phthalate	20
2-Chloronaphthalene	9.5
4-Chlorophenyl Phenyl Ether	21
Chrysene	20
Dibenzo (a,h) Anthracene	20
1,2-Dichlorobenzene	9
1,3-Dichlorobenzene	9
1,4-Dichlorobenzene	20
3,3'-Dichlorobenzidine	60
Diethyl Phthalate	10
Dimethyl Phthalate	10
Di-N-Butyl Phthalate	20
2,4-Dinitrotoluene	10
2,6-Dinitrotoluene	9.5
Di-n-Octyl Phthalate	12.5
1,2-Diphenylhydrazine (as Azobenzene)	N/A
Fluoranthene	10
Fluorene	10
Hexachlorobenzene	10
Hexachlorobutadiene	10
Hexachlorocyclopentadiene	10
Hexachloroethane	10
Indeno (1,2,3-cd) Pyrene	20
Isophorone	10
Naphthalene	8
Nitrobenzene	10
N-Nitrosodimethylamine	20
N-Nitrosodi-N-Propylamine	N/A
N-Nitrosodiphenylamine	20

BASE/NEUTRAL COMPOUNDS (cont.)	RQL (ug/l)
Phenanthrene	10
Pyrene	20
1,2,4-Trichlorobenzene	10

PESTICIDES

Aldrin	0.04
Alpha-BHC	0.02
Beta-BHC	0.04
Gamma-BHC (Lindane)	0.03
Delta-BHC	0.02
Chlordane	0.2
4,4'-DDT	0.06
4,4'-DDE	0.04
4,4'-DDD	0.04
Dieldrin	0.03
Endosulfan, Total	N/A
Alpha-Endosulfan	0.02
Beta-Endosulfan	0.04
Endosulfan Sulfate	0.08
Endrin	0.04
Endrin Aldehyde	0.1
Heptachlor	0.02
Heptachlor Epoxide	0.4
PCB-1016	N/A
PCB-1242	N/A
PCB-1254	N/A
PCB-1221	N/A
PCB-1232	N/A
PCB-1248	N/A
PCB-1260	N/A
PCB, Total	0.5
2,3,7,8-Tetrachlorodibenzo-p-dioxin (1)	0.01
Toxaphene	1

Recommended Quantitation Levels for Toxic Parameters (continued)

METALS & CYANIDE	RQL (ug/l)
Antimony, Total Recoverable	20
Arsenic, Total Recoverable	8
Barium, Total Recoverable	20
Beryllium, Total Recoverable	20
Cadmium, Total Recoverable	4
Chromium, Total Recoverable	10
Copper, Total Recoverable	2
Lead, Total Recoverable	1
Mercury, Total Recoverable	1
Nickel, Total Recoverable	10
Selenium, Total Recoverable	10
Silver, Total Recoverable	2
Thallium, Total Recoverable	10
Zinc, Total Recoverable	10
Cyanide, Total	40

ACID COMPOUNDS	
2-Chlorophenol	20
4-Chloro-3-methyl-phenol (P-Chloro M-Cresol)	15
4,6-Dinitro-O-Cresol	60
2,4-Dichlorophenol	10
2,4-Dinitrophenol	40
2,4-Dimethylphenol	13.5
2-Nitrophenol	18
4-Nitrophenol	12
Pentachlorophenol	30
Phenol	10
2,4,6-Trichlorophenol	20

VOLATILE COMPOUNDS	RQL (ug/l)
Acrolein	50
Acrylonitrile	50
Benzene	7
Bromoform	8
Carbon Tetrachloride	6
Chlorobenzene	6
Chlorodibromomethane (Dibromochloromethane)	6
Chloroethane	N/A
2-Chloroethylvinyl Ether	N/A
Chloroform	5
Dichlorobromomethane (Bromodichloromethane)	5
1,1-Dichloroethane	23.5
1,2-Dichloroethane	3
1,1-Dichloroethene (1,1-Dichloroethylene)	6
1,2-Dichloropropane	30
cis-1,3-Dichloropropene	5
trans-1,3-Dichloropropene	7
Ethylbenzene	6
Bromomethane (Methyl Bromide)	9
Chloromethane (Methyl Chloride)	10
Methylene Chloride (Dichloromethane)	6
1,1,2,2-Tetrachloroethane	10
Tetrachloroethylene	9
Toluene	6
1,2-Trans-Dichloroethylene	4
1,1,1-Trichloroethane	6
1,1,2-Trichloroethane	6
Trichloroethylene	5
Vinyl Chloride	10

RQL: Recommended Quantitation Level
N/A: Recommended Quantitation Level equals five times the method detection level achieved by the laboratory

(1) Method 625 must be used to screen samples for 2,3,7,8 Tetrachlorodibenzo-p-dioxin. If detected using Method 625, then a conclusive determination of the presence and concentration level must be obtained through the use of Method 613 or other approved alternate test procedure (40 CFR Part 136, Appendix A). If Method 613 is used, the RQL of 0.01 µg/l applies. If not detected using Method 625, provide an explanation.

Recommended Quantitation Levels for Parameters with no Practical Quantitation Levels

BASE/NEUTRAL COMPOUNDS	USEPA Test Method	MDL	RQL	RQL Basis	Notes
Acenapthalene	625	1.9	9.5	5*MDL	
Bis (2-Chloroethoxy) Methane	625	5.3	26.5	5*MDL	
4-Bromophenyl Phyenyl Ether	625	1.9	9.5	5*MDL	
2-Chloronaphthalene	625	1.9	9.5	5*MDL	
4-Chlorophenyl Phenyl Ether	625	4.2	21	5*MDL	
2,6-Dinitrotoluene	625	1.9	9.5	5*MDL	
Di-n-Octyl Phthalate	625	2.5	12.5	5*MDL	
1,2-Diphenylhydrazine (Azobenzene)			N/A		(1)
Naphthalene	625	1.6	8	5*MDL	
N-Nitrosodi-N-Propylamine			N/A		(1)
N-Nitrosodi-N-Butylamine			-		(3)
N-Nitrosodiethylamine			N/A		Detected by Method 625
VOLATILE COMPOUNDS					
Chloroethane			N/A		(2)
2-Chloroethylvinyl Ether			N/A		(2)
1,1-Dichloroethane	624	4.7	23.5	5*MDL	
1,2-Dichloropropane	624	6	30	5*MDL	
ACID COMPOUNDS					
4-Chloro-3-methyl-phenol	625	3.0	15	5*MDL	
2,4-Dimethylphenol	625	2.7	13.5	5*MDL	
2-Nitrophenol	625	3.6	18	5*MDL	
4-Nitrophenol	625	2.4	12	5*MDL	
PESTICIDE COMPOUNDS					
Delta-BHC	625	3.1	15.5		
PCB-1016			N/A		Detected by Method 608
PCB-1242			N/A		Detected by Method 608
PCB-1254			N/A		Detected by Method 608
PCB-1221			N/A		Detected by Method 608
PCB-1232			N/A		Detected by Method 608
PCB-1248			N/A		Detected by Method 608
PCB-1260			N/A		Detected by Method 608
Demeton			-		(3)
Guthion			-		(3)
Mirex			-		(3)
Parathion			-		(3)

RQL: Recommended Quantitation Level
MDL: Method Detection Level
PQL: Practical Quantitation Level

For those parameters listed as N/A, the RQL shall be five times the MDL achieved by the laboratory.

(1) An MDL exists for this parameter for Method 1624. However, as this method is rarely used, rather expensive, and the parameter is detected by Method 624, the RQL shall be five times the MDL achieved by the laboratory for 624.

(2) An MDL exists for this parameter for Method 1625. However, as this method is rarely used, rather expensive, and the parameter is detected by Method 625 the RQL shall be five times the MDL achieved by the laboratory for 625.

(3) This parameter has been deleted from the RQL list as it is not a priority pollutant and has no MDL.

Prepared By:

_____
Deputy Attorney General
State of New Jersey
N.J.S.A. 46:15-1.1(a)(6)

ATTACHMENT A - NJ0005622
DEED OF CONSERVATION RESTRICTION

This Deed of Conservation Restriction ("Conservation Restriction"), pursuant to N.J.S.A. 13:8B-1 et seq., is made and entered into this _____ day of _____, 199_, between _____, whose address is _____, hereinafter referred to as "Grantor", and the State of New Jersey, Department of Environmental Protection, having its principal office located at 401 East State Street, Trenton, New Jersey 08625, hereinafter referred to as "Grantee".

BACKGROUND

TAX MAP REFERENCE. Grantor owns in fee simple certain lands in the _____ of _____, County of _____ and State of New Jersey, the tax map, block and lot numbers for which are specified in Schedule A attached hereto, and which lands are more fully described on Schedule B attached hereto and incorporated by this reference (hereinafter referred to as the "Property").

PURPOSE. The purpose of this Conservation Restriction is to preserve the Property in a predominantly natural state consistent with a site-specific Management Plan, which will be reviewed and approved by the Grantee, to effectuate Special Condition H.3. of NJPDES Permit No. NJ0005622 ("Permit") as it currently exists (Schedule C attached hereto).

DEED BOOK REFERENCE. The Property consists of the same premises conveyed to _____ (Grantors) by Deed from _____ (prior owner) dated _____ and recorded in the _____ County Clerk's Office on _____ in Deed Book _____, Page _____.

EXISTING USE(S) OF PROPERTY. Immediately prior to the execution of this Conservation Restriction, agricultural, silvicultural or other non-developmental activities existed on the Property as indicated on Schedule D attached hereto ("Schedule D Use(s)").

GRANT AND CONVEYANCE

TRANSFER OF CONSERVATION RESTRICTION. Grantor, for and in consideration of good, valuable and sufficient consideration, hereby transfers, assigns, and grants to Grantee, its successors, and its assigns, a Conservation Restriction on the Property. Public Service Electric and Gas Company submitted an application for a NJPDES Permit on March 4, 1993 which proposed, among other things, that Public Service Electric and Gas would obtain conservation restrictions for approximately 14,500 acres of land. The Department has issued NJPDES Permit No. NJ0005622 requiring such conservation restrictions as set forth in Special Condition H.3. (Schedule C). Public Service Electric and Gas has paid Grantor good, valuable and sufficient consideration for this Conservation Restriction to which the Grantee is the sole third party beneficiary.

Any activity on or use of the Property inconsistent with the Purpose of the Conservation Restriction is prohibited. In addition, specific prohibitions are set forth below. Schedule D Use(s), however, may be continued by the Grantor; provided: (1) that they do not preclude or interfere with the Permit; (2) that agricultural activities are conducted consistent with a farm conservation plan developed by the local Soil Conservation District, including all amendments ("Farm Conservation Plan"), and (3) that, if it does not already presently exist, a buffer may have to be created and maintained between farming activities and any wetlands on the Property or any wetlands on property adjoining the Property (the size and time frame for establishment of such buffer will be set forth in a site-specific Management Plan ("Management Plan"), which will be reviewed and approved by the Grantee.

1) There shall be no trees, shrubs or other vegetation now existing on the Property removed or destroyed. In order to remove or destroy any existing trees, shrubs, or other vegetation unless required or authorized under the Permit, the Farm Conservation Plan, or the Management Plan for the Property, the Grantor must submit a woodland management plan as defined by N.J.A.C. 18:15-2.7, to NJDEP for approval;

2) There shall be no topsoil, sand, gravel, loam, rock, coal salt, sulfur, petroleum, natural gas or other mineral excavated, dredged, removed from or placed upon the Property;

3) There shall be no construction or placement of any non-historic building, tennis court, aircraft landing strip,

mobile home, swimming pool, golf course, ball field, fence or sign (other than those required by Grantee for appropriate management), asphalt, concrete or impervious surface, billboard or other advertising display, antenna, utility pole, tower, conduit, line or any other temporary or permanent, non-historic structure or facility or road on, above or below the Property, other than those structures, facilities or roads which currently exist (Schedule E attached hereto). The structures listed in Schedule E may be maintained, repaired, or replaced, but not expanded, on the same site, in whole or in part by like structures used for the same or similar purposes;

4) There shall be no dumping, placing or storage of soil, ashes, trash, manure, garbage, hazardous substances as defined by N.J.S.A. 58:10-23.11b, or contaminants as currently defined by N.J.A.C. 7:26E-1.8, permitted in, on, or under the Property;

5) There shall be no uses of pesticides or biocides, including but not limited to insecticides, fungicides, rodenticides, and herbicides other than with respect to continuation of Schedule D Use(s);

6) There shall be no changing of the topography of the Property through the placing of soil or other substance or material such as land fill or dredging spoils, nor shall activities be conducted on the Property which could cause erosion or siltation on or adjacent to the Property; and

7) There shall be no pollution, alteration, depletion or extraction of surface water, natural watercourses, lakes, ponds, marshes, subsurface water or any other water bodies, nor shall be there be activities conducted on the Property other than those which existed on the Property immediately prior to the execution of this Conservation Restriction (all such activities and uses being listed on Schedules D and E attached hereto) which could alter the natural water level and/or flow in or over the Property.

RIGHTS OF GRANTEE. To accomplish the purpose of this Conservation Restriction, Grantor hereby grants and conveys to Grantee the following rights, and further covenants and agrees to and for the benefit of Grantee, as follows:

1) to enter upon the Property at reasonable times to conduct activities as may be necessary to implement the Management Plan for the Property; and

2) to enter upon the Property at reasonable times in order to monitor Grantor's maintenance of the Property and compliance with the terms of this Conservation Restriction.

The Grantor covenants as follows:

3) to preserve the Property in a predominantly natural state consistent with the Management Plan for the Property to effectuate the purposes of Special Condition H.3. of the Permit as it currently exists (Schedule C);

4) that no action(s) will be taken under this Conservation Restriction which will preclude or interfere with the Permit; and

5) that in the event of a violation of this Conservation Restriction, the Grantee, their designees, representatives, agents, and/or assigns may institute suit or take any other action it deems necessary in its sole discretion to enjoin ex parte such violation and to require restoration of the Property to its prior condition and additionally to seek damages and costs incurred in bringing the action and curing the violation. Grantor further agrees to pay whatever costs and expenses the Grantee, their designees, representatives, agents, and/or assigns incurs in enforcing the Conservation Restriction. Such costs and expenses shall include, without limitation, labor, personnel costs, court costs, attorneys' fees, contractors' fees and consultants' fees.

RIGHTS OF GRANTOR. The Grantor hereby reserves the following rights:

1) The right to use the Property and to continue to use the Property for the existing Schedule D Use(s) as described and subject to the restrictions set forth in the TRANSFER OF CONSERVATION RESTRICTION paragraph above; and

2) The right to sell, lease, mortgage, give or otherwise convey the Property; provided, however, that such conveyance is subject to the terms of this Conservation Restriction and that the terms, conditions, restrictions, and purposes of this Conservation Restriction or reference thereto will be inserted by Grantor in any subsequent deed or other legal instrument the Grantor divests either the fee simple title or any possessory interest in the Property, and provided further, however, that Grantor agrees to notify Grantee of

any pending transfer at least thirty (30) calendar days in advance.

PUBLIC ACCESS. Subject to the rights of the Grantor to maintain existing Schedule D Use(s) of the Property, the public is conveyed a right of access in a manner consistent with the Management Plan for the Property.

COSTS AND LIABILITIES.

1) Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Property. The Grantor shall at all times maintain comprehensive general liability insurance coverage in an amount not less than $100,000. The policy amount shall be increased by Grantor automatically every 5 years consistent with the Consumer Price Index. The coverage shall be with an insurance company licensed to do business in New Jersey or Delaware.

2) Grantor agrees to release, hold harmless, defend, indemnify and protect Grantee from any and all liabilities including, but not limited to, injury, losses, damages, judgments, costs, expenses (including, without limitation, attorneys', contractors' and consultants' fees), claims, obligations, fines, penalties, actions, suits, proceedings, and fees which Grantee may suffer or incur as a result of or arising out of claims related to or resulting from any condition or other activities (including, without limitation, the breaching of dikes and remediation of the Property) of Grantor on or relating to the Property.

TAXES. The Grantor agrees to pay any real estate taxes or other assessments levied on the Property.

TITLE. The Grantor covenants and represents that: the Grantor is the sole owner and is seized of the Property in fee simple and has good right to grant and convey the within Conservation Restriction; that the Grantee shall have the use of and enjoy all of the benefits derived from and arising out of the within Conservation Restriction; and that the Property is free and clear of any and all superior encumbrances, including but not limited to, a mortgage(s) covering all or any part of the Property.

HAZARDOUS WASTE. The Grantor covenants and represents that, to the best of its knowledge, no hazardous substance, as currently defined by N.J.S.A. 58:10-23.11b, or contaminants, as currently defined by N.J.A.C. 7:26E-1.8, exists nor has been generated, treated, stored, used, disposed of, or deposited in or on the

Property, other than those used for Schedule D Use(s) and, to the best of its knowledge, there are no underground storage tanks located on the Property other than those for existing Schedule D Use(s) or for residential heating purposes (as identified on Schedule E).

DISCRETIONARY CONSENT.

1) Grantee's consent for activities otherwise prohibited by this Conservation Restriction may be given in Grantee's sole discretion under the following conditions and circumstances: a) approval for such activities is subject to all conditions of law, e.g., see currently N.J.S.A. 13:1D-51 et seq.; and b) such activities do not preclude or interfere with the Permit.

2) Such request for consent for prohibited activities shall be in writing and submitted to:

Director
or the Director's successor in office
Division of Fish, Game and Wildlife
CN 400
Station Plaza 5
501 East State Street, Floor 3
Trenton, NJ 08625-0400

PARTIES SUBJECT TO CONSERVATION RESTRICTION. This Conservation Restriction is binding on the Grantor, its lessees, agents, personal representatives, successors, and assigns, and all other successors in interest to Grantor. This Conservation Restriction shall run with the land and shall continue as a servitude in perpetuity.

EMINENT DOMAIN. In the event all or part of the Property is taken in exercise of eminent domain by public, corporate, or other authority so as to abrogate this Conservation Restriction, the Grantor and Grantee shall each be compensated to the extent of their respective shares of the full value of the taking and all incidental or direct damages resulting from the taking.

SEVERABILITY. If any provision of this Conservation Restriction or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of the Conservation Restriction and the application of such provisions to persons or circumstances other than those as to which it is found to be invalid shall not be affected thereby.

SUCCESSORS AND ASSIGNS. The term "Grantor" shall include the Grantor and the Grantor's heirs, executors, administrators, successors and assigns and shall also mean the masculine, feminine, corporate, singular or plural form of the word as needed in the context of its use. The term "Grantee" shall included the Department of Environmental Protection and its successors and assigns.

RE-RECORDING. The Grantee is authorized to record or file any notices or instruments appropriate to assuring the perpetual enforceability of this Conservation Restriction. If Grantor refuses or fails to execute, acknowledge any necessary instrument within thirty (30) days following receipt thereof from Grantee, the Grantor appoints the Grantee its attorney-in-fact to execute, acknowledge and deliver any necessary instrument on its behalf.

CAPTIONS. The captions herein have been inserted solely for convenience of reference and are not a part of this Conservation Restriction and shall have no effect upon construction or interpretation.

COUNTERPARTS. The parties may execute this instrument in two or more counterparts, which shall, in the aggregate, be signed by both parties; each counterpart shall be deemed an original instrument as against any party who has signed it. In the event of any disparity between the counterparts produced, the recorded counterpart shall be controlling.

NOTICES. Any notices required in this Conservation Restriction shall be sent by registered or certified mail to the following addresses or such address as may be hereafter specified by recording an Amendment to the Conservation Restriction with the County Clerk:

Grantor: _____

Grantee: Department of Environmental Protection
Director, Division of Fish, Game and Wildlife
CN 400
Station Plaza 5
501 East State Street, Floor 3
Trenton, NJ 08625-0400

Department of Law and Public Safety
Division of Law
Section Chief for Environmental Permitting and Counseling
CN 093
Trenton, NJ 08625-0093

SIGNATURES. This Deed of Conservation Restriction is signed and attested to by the Grantor's and Grantee's proper and authorized officers or directors, and with its corporate seal, if any, as of the date at the top of the first page.

Attest:

By:_____
(Signature)

_____
(Print name and title)

GRANTOR:

By:_____
(Signature)

_____
(Print name and title of authorized officer

Attest:

By:_____
(Signature)

_____
(Print name and title)

GRANTEE:
STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

By:_____
(Signature)

_____
(Print name and title)

Checklist of Attachments

Schedule A - Tax map reference of the Property
Schedule B - Legal description of the Property
Schedule C - Permit Special Condition H.3.
Schedule D - Existing Use(s) of the Property
Schedule E - Description of structures, etc. on the Property

(INDIVIDUAL ACKNOWLEDGMENT)

STATE OF NEW JERSEY, COUNTY OF _____ SS.:
I CERTIFY that on _____, 19___,
_____ personally came before me and acknowledged under oath, to my satisfaction, this that person (or if more than one, each person):

(a) is named in and personally signed this DEED OF CONSERVATION RESTRICTION;

(b) signed, sealed and delivered this DEED OF CONSERVATION RESTRICTION as his or her act and deed; and

(c) made this DEED OF CONSERVATION RESTRICTION for and in consideration of mutual obligations and benefits to each party.

_____
Print name and title below signature

(CORPORATE ACKNOWLEDGMENT)

STATE OF NEW JERSEY, COUNTY OF _____ SS.:
I CERTIFY that on _____, 19___, the subscriber _____ personally appeared before me, who, being duly sworn on his or her oath, deposes and makes proof to my satisfaction, that he or she is the Secretary of _____, the Corporation named in the within Instrument; that _____ is the President of said Corporation; that the execution, as well as the making of this Instrument, has been duly authorized by a proper resolution of the Board of Directors of the said Corporation, the deponent well knows the corporate seal of said Corporation; and that the seal affixed to said Instrument is the proper corporate seal and was thereto affixed and said Instrument signed and delivered by said President as and for the voluntary act and deed of said Corporation, in presence of deponent, who thereupon subscribed his or her name thereto as attesting witness.

Sworn to and subscribed before me, the date aforesaid

_____
Print name and title below signature

I CERTIFY, that on _____ day of _____, _____, before me a Notary Public of New Jersey, personally appeared, who being by me duly sworn on his or her oath deposes and makes proof to my satisfaction that he or she is the Director, Division of Fish, Game and Wildlife, Department of Environmental Protection of the State of New Jersey, the Grantee named in this instrument; that he or she knows the Great Seal of the State of New Jersey; that the seal affixed to this instrument is said seal and was affixed by him or her as the act and deed of the Grantee; that on the date of this instrument, _____ was the Commissioner of the Department of Environmental Protection, and he or she delegated his or her authority to review, approve and sign this instrument to the Director of the Division of Fish, Game and Wildlife.

Sworn to be and Subscribed
before me the date aforesaid

_____
A Notary Public of New Jersey

ATTACHMENT B - NJ0005622

PLACE AND DATE OF ISSUE: NEWARK, N.J. ___DATE_____
LETTER OF CREDIT NO. _____

*********DIRECT********

APPLICANT:
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
TREASURER'S CASH MANAGEMENT (6B)
PO BOX 570, NEWARK, NJ 07101

BENEFICIARY:
COMMISSIONER
NEW JERSEY DEPARTMENT OF
ENVIRONMENTAL PROTECTION
CN 028, TRENTON,
NEW JERSEY 08625

AMOUNT: USD _____
(AND 00/100)

ATTENTION: ASSISTANT DIRECTOR, DIVISION OF FISH, GAME AND WILDLIFE

RE: NJPDES Permit No. NJ0005622
Salem Generating Station

DEAR SIR OR MADAM:

WE HEREBY ESTABLISH OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. _____ IN YOUR FAVOR, AT THE REQUEST AND FOR THE ACCOUNT OF PUBLIC SERVICE ELECTRIC AND GAS COMPANY ("PSE&G"), 80 PARK PLAZA, NEWARK, NEW JERSEY 07101, UP TO THE AGGREGATE AMOUNT OF _____ U.S. DOLLARS ($_____) AVAILABLE UPON PRESENTATION BY YOU OF:

(1) YOUR SIGHT DRAFT, BEARING REFERENCE TO THIS LETTER OF CREDIT NO. _____, AND

(2) YOUR SIGNED STATEMENT READING AS FOLLOWS: "I CERTIFY THAT A FAILURE HAS OCCURRED UNDER AND, ACCORDINGLY, THE AMOUNT OF THE DRAFT IS PAYABLE PURSUANT TO THE PROVISIONS OF NJPDES PERMIT NO. NJ0005622.

THIS LETTER OF CREDIT IS IRREVOCABLE AND ISSUED FOR A PERIOD OF AT LEAST ONE (1) YEAR. THIS LETTER OF CREDIT IS EFFECTIVE AS OF _____ AND SHALL EXPIRE ON _____, BUT SUCH EXPIRATION DATE SHALL BE AUTOMATICALLY EXTENDED FOR A PERIOD OF ONE (1) YEAR AND ON EACH SUCCESSIVE EXPIRATION DATE. ISSUER MAY TERMINATE THIS LETTER OF CREDIT IF AT LEAST 120 CALENDAR DAYS BEFORE THE EXPIRATION DATE, WE NOTIFY BOTH YOU AND PSE&G BY CERTIFIED MAIL THAT WE HAVE DECIDED NOT TO EXTEND THIS LETTER OF CREDIT BEYOND THE CURRENT EXPIRATION DATE. IN THE EVENT YOU ARE SO NOTIFIED, ANY UNUSED PORTION OF THE CREDIT SHALL BE AVAILABLE UPON PRESENTATION OF A SIGHT DRAFT FOR 120 CALENDAR DAYS AFTER THE DATE OF RECEIPT BY BOTH YOU AND PSE&G AS SHOWN ON THE SIGNED RETURN RECEIPTS.

WHENEVER THIS LETTER OF CREDIT IS DRAWN ON UNDER AND IN COMPLIANCE WITH THE TERMS OF THIS CREDIT, WE SHALL DULY HONOR SUCH DRAFT UPON PRESENTATION TO US, AND WE SHALL DEPOSIT THE AMOUNT OF THE DRAFT DIRECTLY INTO THE STANDBY TRUST FUND OF PSE&G IN ACCORDANCE WITH YOUR INSTRUCTIONS.

THIS LETTER OF CREDIT IS SUBJECT TO THE UNIFORM CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS (1983 REVISION), INTERNATIONAL CHAMBER OF COMMERCE PUBLICATION NUMBER 400 OR THE UNIFORM COMMERCIAL CODE.

VERY TRULY YOURS,

FIRST FIDELITY BANK, N.A., NEW JERSEY

_____

NAME:
TITLE:

NJ0005622 - ATTACHMENT C

TRUST AGREEMENT

This Trust Agreement, ("Agreement"), entered into as of _____ 1993, by and between Public Service Electric and Gas Company, known as the "Grantor", and _____, known as the "Trustee".

Whereas, the New Jersey Department of Environmental Protection, ("NJDEP"), an agency of the State of New Jersey, has issued a surface water discharge permit (NJPDES Permit No. NJ0005622, dated _____) to Grantor for the Salem Generating Station, which requires, in pertinent part, that Grantor will implement certain Special Conditions more specifically described as H.3 through H.6 of Part IV-B/C of the NJPDES Permit NJ0005622;

Whereas, the NJPDES Permit No. NJ0005622 further provides, in pertinent part, for the issuance by Grantor of a Letter of Credit and the establishment of a trust fund to assure the availability of funds to secure the performance of Grantor's obligations under Special Conditions H.3 through H.6 of Part IV-B/C of the NJPDES Permit No. NJ0005622, all as more specifically described in Special Conditions H.7 of the Permit; and,

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee.

Now, Therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions

As used in this Agreement:

(a) The term "Grantor" means PSE&G and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into the Agreement and any successor Trustee, who has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or New Jersey agency. The name, address, and title of the Trustee is:

(c) The term "Commissioner" means the Commissioner of the New Jersey Department of Environmental Protection.

(d) The term "Beneficiary" means the New Jersey Department of Environmental Protection.

(e) The term "NJDEP" means the New Jersey Department of Environmental Protection and.

Section 2. Identification of Project

This Agreement pertains to Special Conditions H.3 through H.6 of NJPDES Permit No. NJ0005622.

Section 3. Establishment of Fund

The Grantor and the Trustee hereby establish a trust fund, the "Fund", for the benefit of NJDEP. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund will be established initially with a deposit of One Hundred Dollars ($100.00). This deposit of monies and any other deposit of monies subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as herein provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the NJDEP.

Section 4. Payments

The Trustee shall make payment(s) from the Fund as the NJDEP Commissioner shall direct, in writing, to make payment for costs of performing Grantor's obligations under Special Condition H.3 through H.6 of Part IV-B/C of NJPDES Permit No. NJ0005622. The Trustee shall reimburse the Grantor or other persons, as specified by NJDEP, in such amounts as the NJDEP shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts, as the NJDEP specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund, as defined herein.

Section 5. Payments Comprising the Fund

Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management

The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income. In investing, reinvesting, exchanging, selling and managing the Fund, the Trustee shall discharge his/her duties with respect to the Trust fund solely in the interest of the beneficiary and with the care, skill, prudence and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity

and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities or any of their affiliates, as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment

The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled or collective trust fund created by the Trustee in which the Fund is

eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee

Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expedience of any such sale or other disposition;

(b) To make, execute, acknowledge and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person or to deposit or arrange for the deposit of any securities issued by the United States Government or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in

any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses

All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation

The Trustee shall annually, at least 30 calendar days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the NJDEP a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 calendar days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90

calendar days after the statement has been furnished to the Grantor and the NJDEP shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel

The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any questions arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation

The Trustee shall be entitled to reasonable compensation for its services, as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee

The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the

appointment, the Trustee shall assign, transfer and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason, the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the Trust in a writing sent to the Grantor, the NJDEP and the present Trustee by certified mail 10 calendar days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee

All orders, requests and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Schedule. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests and instructions. All orders, requests, and instructions by the NJDEP to the Trustee shall be in writing, signed by the NJDEP Commissioner or his/her designee and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a

termination of the authority of any person to act on behalf of the Grantor or NJDEP hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests and instructions from the Grantor and/or NJDEP, except as provided for herein.

Section 15. Amendment of Agreement

This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee and the NJDEP or by the Trustee and the NJDEP if the Grantor ceases to exist and no successors or assigns are named.

Section 16. Irrevocability and Termination

Subject to the right of the parties to amend this Agreement, as provided in Section 15, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee and the NJDEP or of the Trustee and the NJDEP, if the Grantor ceases to exist. Upon termination of the Trust, all remaining Trust property, less final Trust administration expenses, shall be delivered to the Grantor.

Section 17. Immunity and Indemnification

The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust or in carrying out any directions by

the Grantor or the NJDEP issued in accordance with this Agreement. The Trust shall be indemnified and saved harmless by the Grantor or the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. Choice of Law

This Agreement shall be administered, construed and enforced according to the laws of the State of New Jersey.

Section 19. Interpretation

As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers, duly authorized, and their corporate seals to be hereunto affixed and attested, as of the date first above written:

DATE:_____ [NAME OF GRANTOR]

BY:_____

TITLE:_____

DATE:_____ [NAME OF TRUSTEE]

BY:_____

TITLE:_____

CERTIFICATION OF ACKNOWLEDGMENT

TO BE EXECUTED BY BOTH THE GRANTOR AND TRUSTEE

State of _____

County of _____

On the ____ day of _____ before me personally came [name] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the Trust Agreement; that she/he known the seal of said corporation; that the seal affixed to such instruments is such corporate seal; that is [was] so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like other.

_____

[Signature of Notary Public]

SCHEDULE A

Instruction to the Grantor:

Include here a copy of NJPDES Permit No. NJ0005622

SCHEDULE B

Instruction to the Grantor:

Include here the initial amount of money you are required to deposit the irrevocable standby trust fund.

$ 100.00 in cash
$_____ in securities

SCHEDULE C

Instruction to the Grantor:

Include here the required information of your designee for communication with the Trustee.

individual's name, title
[Person]

CERTIFICATE OF ACKNOWLEDGMENT

State of _____

County of _____

On this _____ day of _____, 19___, before me personally came [name] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the Trust Agreement pursuant to NJPDES Permit No. NJ0005622, that she/he known the seal of said corporation; that the seal affixed to such instruments is such corporate seal; that is [was] so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____

[Signature of Notary Public]

Part V

INTERIM CHRONIC TOXICITY TESTING METHODOLOGIES FOR USE IN THE NJPDES PERMIT PROGRAM

Version 1.0

February 1989

TABLE OF CONTENTS

Notice: Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

AUTHORITY AND PURPOSE

These interim methods for the conduct of whole effluent chronic toxicity testing are established under the authority of the NJPDES permitting program (N.J.A.C. 7:14A-2.9) for discharges to the waters of the State. They are intended as interim measures until the formal establishment of a laboratory certification program to govern the conduct of whole effluent chronic toxicity testing is established under N.J.A.C. 7:18. As such these methods are intended to be used to determine compliance with discharge permits issued under the authority of the NJPDES permit program. Tests are to be conducted in accordance with the general conditions and test organism specific method specifications contained in this document. All other conditions and specifications can be found in the cited USEPA methodologies (USEPA 1988, 1989).

Until a subchapter on chronic toxicity testing within the "Regulations Governing Laboratory Certification and Standards of Performance" (N.J.A.C. 7:18) becomes effective, tests shall be conducted in conformance with the interim methodologies as designated herein. The laboratory performing the testing shall be within the existing acute toxicity testing laboratory certification program established under N.J.A.C. 7:18-6, as required by N.J.A.C. 7:9-4.5(c)5.

Testing shall be in conformance with the subchapter on chronic toxicity testing within the "Regulations Governing Laboratory Certification and Standards of Performance" (N.J.A.C. 7:18) when such regulations become effective. The laboratory performing the toxicity testing shall be within the chronic toxicity testing laboratory certification program to be established under that subchapter when it becomes effective.

These interim methods are incorporated into discharge permits as enforceable permit conditions. Each discharge permit will specify in Part IV of the permit the test species specific methods from this document which will be required under the terms of the discharge permit. Therefore, each individual permittee affected by these permit conditions has the right to comment on the methods applicable to their specific discharge during the public comment period on each individual permit. Although the test species specific methods for each permit are determined on a case-by-case basis, the purpose of this methods document is to assure consistency among dischargers and to provide certified laboratories with information on the universe of tests to be utilized so that they can make the necessary preparations.

GENERAL CONDITIONS

LABORATORY SAFETY, GLASSWARE, ETC.

All safety procedures, glassware cleaning procedures, etc., shall be in conformance with "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 2nd edition", (USEPA 1989), "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms" (USEPA 1988), or "Regulations Governing Laboratory Certification and Standards of Performance" (N.J.A.C. 7:18).

TEST CONCENTRATIONS

All testing is to be performed at a minimum of five effluent concentrations plus a dilution water control. One effluent concentration shall be the chronic permit limitation unless the existing data for the discharge indicate that the NOEC is expected to be significantly less than the permit limit. An effort shall be made to bracket the anticipated NOEC/LOEC test result.

DILUTION WATER - MARINE AND ESTUARINE WATERS

A high quality natural water, such as the Manasquan River Inlet (collected at high tide), is strongly recommended as the dilution water source for chronic toxicity testing with marine and estuarine organisms. The use of the receiving water as the dilution water source is not required. Saline waters prepared with hypersaline brine and deionized water may also be used as the base dilution water. Hypersaline brines shall be prepared from a high quality natural seawater and shall not exceed a concentration of 100 ppt.

The standard test salinity shall be 25 ppt, except for Champia parvula, which shall be tested at 30 ppt. Since most effluents are freshwater based, in most cases it will be necessary to adjust the salinities of the test concentrations to the standard test salinity.

The use of artificial seawater, prepared using artificial sea salts, is permitted but not recommended, only for the sheepshead minnow test (USEPA 1988, Method 1004) and for the mysid shrimp test (USEPA 1988, Method 1007). The acceptable sea salts include FORTY FATHOMS and HW MARINEMIX, as per the EPA marine chronic methods document (USEPA 1988). Use of any other salt(s) will require the submission in advance of adequate documentation, including at a minimum adequate standard reference toxicant data to demonstrate the acceptability of the salt(s) for use in chronic toxicity testing. They must be approved by the Department prior to the use.

Unless artificial seawater is to be used as the dilution water, hypersaline brine, concentrated to no more than 100 ppt, shall be the primary means of adjusting the test concentrations' salinities. In any test concentration, if the standard test salinity cannot be attained using 100 ppt hypersaline brine, the following procedure shall be used. This procedure shall not apply for any chronic toxicity testing using Champia parvula as the test organism.

1. Hypersaline brine, 100 ppt, shall be used to adjust the salinities of all test concentrations up to the standard test salinity, or the highest salinity attainable.

2. In those test concentrations where the standard test salinity cannot be attained using 100 ppt hypersaline brine, the salinity shall be brought up to the maximum attainable salinity using 100 ppt. hypersaline brine and shall then be adjusted above that salinity using artificial sea salts. Restrictions on the type of artificial sea salts as discussed above also apply.

3. A control prepared with hypersaline brine shall be included. An additional control prepared with artificial sea salts is recommended if sea salts are utilized as per paragraph 2, above.

The type of a dilution water for a permittee may not be changed without the prior approval of the Department.

Special attention should be given to the presence of required micronutrients in waters to be used for crustaceans. Refer to the specific test methodologies for more details.

If any distilled or deionized water is used, it should be prepared with Millipore Super Q^{R} or equivalent.

DILUTION WATER - FRESH WATERS

A high quality natural water, such as Round Valley Reservoir (if access is allowed) or Lake Hopatcong, is strongly recommended as the dilution water source for chronic toxicity testing with freshwater organisms. It is not required to perform the toxicity testing with the receiving water as dilution water. Tests performed with a reconstituted water or up to 20% Diluted Mineral Water (DMW) as dilution water are acceptable. The hardness of the dilution water must be within 10% of the hardness of the receiving water or 50 mg/L as $CaCO_3$, whichever is greater. The source of a dilution water for a permittee may not be changed without the prior approval of the Department. Reconstituted water and DMW should be prepared with Millipore Super Q^R or equivalent.

Special attention should be given to the presence of required micronutrients in waters to be used for crustaceans. Refer to the specific test methodologies for more details.

EFFLUENT SAMPLE COLLECTION

Effluent samples shall be representative of the discharge being regulated. For each discharge serial number (DSN), the effluent sampling location shall be the same as that specified in the NJPDES permit for other sampling parameters unless an alternate sampling point is specified in the NJPDES discharge permit. For industrial dischargers with a combined process/sanitary waste stream, effluent sampling shall be after chlorination, unless otherwise designated in the permit.

For continuous discharges, effluent sampling shall consist of 24 hour composite samples consisting either of equal volumes taken once every hour or of a flow-proportionate composite sample, unless otherwise approved by the Department. Effluent holding times and test solution renewal shall be consistent with the test organism specific methods in USEPA 1988 and 1989. For all other types of discharges, effluent sampling shall be conducted according to specifications contained within the discharge permit, or otherwise specified by the Department.

Except for filtration through a 2 mm or larger screen or an adjustment to the standard test salinity, no other adjustments to the effluent sample shall be made without prior written approval by the Department.

PHYSICAL CHEMICAL MEASUREMENTS

At a minimum, the physical chemical measurements must be consistant with the referenced test methodology (USEPA 1988, 1989).

The photoperiods should be phased in and out over a period of thirty (30) minutes for each transition period.

STATISTICS

Statistical analysis should follow the protocols in USEPA (1988, 1989) to evaluate adverse effects. Generally, a significance level of 0.05 will be utilized to evaluate such effects.

A dilution factor of 0.3 or 0.5 can be used. However, the Department recommends the use of the 0.5 dilution factor due to the increased test precision. Note that this may require more than five dilutions to cover the entire range of effluent concentrations.

If separate NOEC's can be calculated from multiple test end-points, as for example a reproductive end-point and a growth end-point, the most sensitive end-point will be used to determine permit compliance.

NOTE: Use of nonparametric statistical analyses requires a minimum of four (4) replicates per test concentration. If the data for any particular test is not conducive to parametric analyses and if less than four (4) replicates were included, the test may not be acceptable to the Department.

STANDARD REFERENCE TOXICANT TESTING

All chronic testing shall be accompanied by testing with a standard reference toxicant as a part of the each laboratory's internal quality control program. Such a testing program should be consistent with the quality assurance/quality control protocols described in the USEPA chronic testing manuals for freshwater organisms and for marine and estuarine organisms (USEPA 1989, 1989). Laboratories may utilize the standard referance toxicant of their choice.

At a minimum, this testing should include an initial series of at least five reference toxicant tests for each test species method. This testing should be completed prior to the initiation of any chronic effluent toxicity testing for each test species method. The laboratory should forward two copies of the initial testing, including control charts, the name of the standard reference toxicant utilized, the supplier, and appropriate chemical analysis of the toxicant, to the following address:

Municipal/Industrial Biomonitoring Programs
Wastewater Facilities Management Element
Division of Water Resources
CN-029
Trenton, NJ 08625-029

Subsequent testing should include testing of each batch of organisms obtained from a supplier and/or monthly testing of organisms cultured by the laboratory. Control charts should be maintained by the laboratory. Two copies of the control charts are to be forwarded annually to the Biomonitoring Programs at the above address. Results of appropriate chemical analyses of each lot of standard reference toxicant utilized must be included.

If standard reference toxicant tests fall outside the expected range of the control chart at a frequency greater than one in any twenty tests, a report shall be forwarded to the Biomonitoring Programs at the address above. This report shall include the identified problem which caused the value to fall outside the expected range and the corrective actions that have been taken by the laboratory. The Department may not accept or may require repeat testing for any required toxicity testing that may be affected by such an occurance.

METHODS SPECIFICATIONS

PART V

SUMMARY OF TEST CONDITIONS FOR
THE FATHEAD MINNOW (PIMEPHALES PROMELAS)
LARVAL SURVIVAL AND GROWTH TEST

1.	Test Type:	Static Renewal
2.	Test Duration:	7 days
3.	Renewal of Test Solution:	Daily
4.	Age of Test Organisms:	Newly hatched larvae (< 24 hours old). Testing with organisms up to 48 hours is allowed if they are all within one age group
5.	Dilution ~~Factor~~:	0.3 or 0.5
6.	Number of Test Concentrations:	minimum 5 plus a control (a second control is optional when a dilution water other than the culture water is used)
7.	Number of Replicates per Each Concentration & Control:	4 (minimum of 3)
8.	Number of Larvae per Replicate:	15 (minimum of 10)
9.	Test Chamber Size:	500 ml recommended (covered)
10.	Test Solution Volume:	minimum 250 ml/chamber
11.	Loading Factor:	20 ml/organism
12.	Test Dilution Water:	natural water (60 micron mesh filtered), reconstituted water or up to 20% diluted mineral water (DMW). Reconstituted and DMW waters should be prepared with Millipore Super-Q^{R} or equivalant water. Aerate a minimum of 24 hours.
13.	Test Temperature:	25 $\pm$ 1° C
14.	Aeration:	none, unless the DO concentration falls below 40% saturation then all

		replicates. Rate should be less than 100 bubbles/min.
15.	Feeding Regime:	Feed 0.1 ml newly hatched brine shrimp naupli twice daily, 6 hr. between feedings (at the beginning of the work day at time of renewal and at the end of the work day). No feeding day 7. Sufficient naupli should be added to produce an excess.
16.	Photoperiod:	16 hr. light, 8 hr. darkness. 30 min. phase in and phase out recommended.
17.	Light Intensity:	Ambient laboratory levels (10-20 uE/m2/s or 50-100 ft-c)
18.	Cleaning:	Siphon daily, immediately before test solution renewal
19.	Effects Measured:	Survival and growth (dry weight)
20.	Test Acceptability:	$\geq$80% control survival, ave. dry weight of surviving controls $\geq$ 0.25 mg
21.	Weighing/Drying Proceedures:	Immediately prepare for drying and weighing or preserve in 70% ethanol to dry and weigh at a later date. Dry at 100°C for a min. 2 hrs or until constant weight is achieved.
22.	Other Test Specifications in:	USEPA, 1989. Method 1000.0

SUMMARY OF TEST CONDITIONS FOR *CERIODAPHNIA DUBIA* SURVIVAL AND REPRODUCTION TEST

1.	Test type:	Static renewal
2.	Test duration:	3 broods (see 19)
3.	Temperature (°C):	25 + 1°C
4.	Light quality:	Ambient laboratory illumination
5.	Light intensity:	10-20 uE/m^2/s, or 50-100 ft-c (ambient laboratory levels). Caution should be taken to avoid excessive photosynthetically mediated elevations in pH.
6.	Photoperiod:	16 h light, 8 h dark
7.	Test chamber size:	30 ml recommended (covered)
8.	Test solution volume:	15 ml recommended. Test chambers should contain sufficient test solution to provide adequate surface area to maintain dissolved oxygen concentrations at or above 40 percent saturation.
9.	Loading factor:	Minimum 15 ml/animal
10.	Renewal of test solutions:	Daily
11.	Age of test organisms:	Less than 24 h; and all released within a 8-h period
12.	Number of neonates per replicates:	Maximum of 1
13.	Number of replicates per each concentration and control:	Minimum of 10
14.	Number of test concentrations:	Minimum of 5 effluent concentrations and a control. (A second control is optional when a dilution water other than the culture water is used.)

15.	Feeding regime:	Diet must include an algal component. USEPA (1989) recommends feeding 0.1ml/15ml each of YTC (yeast, trout chow and Cerophyl) and Selenastrum capricornatum suspension per exposure chamber daily. Alternatives include algal diets of: 1. Ankistrodesmus convolutus and Nitzschia frustulum, and 2. A. convolutus, Chlamydomonas reinhardti and N. frustulum (Cowgill et al., 1985, 1988; Keating and Dagbusan, 1986). Algal feeding rates and other algal diets must be approved prior to use.
16.	Aeration:	None.
17.	Dilution water:	Natural water (60um mesh filtered), reconstituted water, or up to 20% diluted mineral water (DMW). Reconstituted and DMW waters should be prepared with Millipore Super Q® or equivalent. Addition of 5 ug/l selenium (2 ug/l selenium with natural water) and 1 ug/l vitamin B12 is recommended (Keating and Dagbusan, 1984; Keating, 1985 1988). Aerated prior to the test for a minimum of 24 hours, but not supersaturated.
18.	Dilution factor:	0.3 or 0.5
19.	Test duration:	Until 60% of control females have three broods, up to a maximum of eight days.
20.	End points:	Survival and reproduction
21.	Test acceptability:	80% or greater survival and an average of 15 or more young/surviving female in the controls. At least 60% of surviving females in the controls produced their third brood within eight days. No ephippa produced in the controls. The number of males in the controls and test concentrations should be minimal and not influence the determination of the NOEC and LOEC.
22.	Other test specifications in:	USEPA, 1989. Method 1002.0

SUMMARY OF TEST CONDITIONS FOR ALGAL (*SELENASTRUM CAPRICORNUTUM*) GROWTH TEST

1. Test Type:	Static, Non Renewal
2. Test Duration:	9 hours
3. Age of Test Organisms at Test Start:	4 to 7 days
4. Dilution Factor:	0.3 or 0.5
5. Number of Test Concentrations:	Minimum of 5 plus a control (A second control is optional when a dilution water other than the algal culture medium is used).
6. Number of Replicates per Each Concentration and Control:	4 (Minimum of 3)
7. Initial Cell Density per Replicate:	10,000 cells/ml
8. Test Chamber Size:	125 ml or 250 ml chamber recommended (covered)
9. Test Solution Volume:	50 ml or 100 ml recommended
10. Dilution Water:	Algal culture medium or filtered natural surface waters using a 0.45 um pore diameter filter, followed by addition of nutrient solutions (USEPA 1989, Method 1003, Table 1). The use of EDTA or other nutrient solutions is not recommended.
11. Reagent Water:	Carbon filtered distilled or deionized water which does not contain substances which are toxic to the test organism. A water purification system may be used to generate reagent water (ie. Millipore Super Q^{R} or equivalent).
12. Test Temperature:	25° ± 1° C
13. Photoperiod:	Continuous illumination

14. Light Quality:	"Cool White" Fluorescent lighting
15. Light Intensity:	86±8.6 uE/m^2/s (400±40 ft-c)
16. Shaking Rate:	100 cpm continuous or twice daily by hand
17. Effects Measured:	Growth (cell counts, chlorophyll content, fluorescence, absorbance, biomass)
	The algae in the test solutions must be checked under a microscope to detect abnormalities in cell size or shape.
	Algal growth determined daily
18. Test Acceptability:	Algal density ≥2 x 10^5 cells/ml in the controls (without EDTA). Variability of controls should not exceed 20 percent.
19. Other Test Specifications in:	USEPA, 1989. Method 1003.

SUMMARY OF TEST CONDITIONS FOR SHEEPSHEAD MINNOW (CYPRINODON VARIEGATUS) LARVAL SURVIVAL AND GROWTH TEST

1.	Test Type:	Static Renewal
2.	Test Duration:	7 days
3.	Renewal of Test Solutions:	Daily
4.	Age of Test Organisms at Test Start:	Newly Hatched Larvae. (24 hrs old). Testing with organisms up to 48 hrs old is permitted if they are all within one age group.
5.	Dilution Factor:	0.3 or 0.5
6.	Number of Test Concentrations:	Minimum of 5 plus a control (a second reference water control is optional when a dilution water other than the culture water is used)
7.	Number of Replicates per Each Concentration and Control:	Minimum of 3
8.	Number of Organisms per Replicate:	Minimum of 10
9.	Test Chamber Size:	Minimum of 600 mL chamber (covered)
10.	Test Solution Volume:	Minimum of 500 mL/replicate
11.	Loading Factor:	Minimum 50 mL/larvae
12.	Dilution Water:	Natural sea water or hypersaline brine

13.	Salinity of Test Concentrations:	25 ppt +/- 2 ppt (varying not more than 2 ppt among replicate chambers each day)
14.	Adjustment of Salinity of Test Concentrations:	Hypersaline brine to 75% effluent. Acceptable artificial sea salts above 75% effluent.
15.	Test Temperature:	25 +/- 2°C
16.	Aeration:	None unless the Dissolved Oxygen falls below 60% saturation, then all chambers. Rate less than 100 bubbles/min
17.	Food Source:	24 hour post hatch Artemia nauplii. (Other supplements or variations approved prior to use.)
18.	Feeding Regime:	Days 0-2: feed once per day 0.1 g wet weight Artemia nauplii per replicate. Days 3-6: feed once per day 0.15 g wet weight Artemia nauplii per replicate.
19.	Photoperiod:	16 Light:8 Dark
20.	Effects Measured:	Survival and Growth
21.	Weighing/drying Procedures:	Immediately prepare for drying and weighing or preserve in formalin or ethanol to dry and weigh at later date.
22.	Test Acceptability:	80% survival in controls and an average dry weight of ≥ 0.60 mg (unpreserved larvae) or 0.50 mg (preserved larvae)
23.	Other test specifications available in:	USEPA 1988, Method 1004

SUMMARY OF TEST CONDITIONS FOR INLAND SILVERSIDE (*MENIDIA BERYLLINA*) LARVAL SURVIVAL AND GROWTH TEST

1.	Test Type:	Static Renewal
2.	Test Duration:	7 days
3.	Renewal of Test Solutions:	Daily
4.	Age of Test Organisms at Test Start:	7-11 days post hatch Larvae
5.	Dilution Factor:	0.3 or 0.5
6.	Number of Test Concentrations:	Minimum of 5 plus a control (a second reference water control is optional when a dilution water other than the culture water is used)
7.	Number of Replicates per Each Concentration and Control:	Minimum of 3
8.	Number of Organisms per Replicate:	Minimum of 10
9.	Test Chamber Size:	Minimum of 600 mL chamber (covered)
10.	Test Solution Volume:	Minimum of 500 mL/replicate
11.	Loading Factor:	Minimum 50 mL/larvae
12.	Dilution Water:	Natural sea water or hypersaline brine
13.	Salinity of Test Concentrations:	25 ppt +/- 2 ppt (varying not more than 2 ppt among replicate chambers each day)

14.	Adjustment of Salinity of Test Concentrations:	Hypersaline brine to 75% effluent. Acceptable artificial sea salts above 75% effluent.
15.	Test Temperature:	25 +/- 2°C
16.	Aeration:	None unless the Dissolved Oxygen falls below 60% saturation, then all chambers. Rate less than 100 bubbles/min
17.	Food Source:	24 hour post hatch Artemia nauplii. (Other supplements or variations approved prior to use.)
18.	Feeding Regime:	Days 0-2: feed once per day 0.1 g wet weight Artemia nauplii per replicate. Days 3-6: feed once per day 0.15 g wet weight Artemia nauplii per replicate.
19.	Photoperiod:	16 Light:8 Dark
20.	Effects Measured:	Survival and Growth
21.	Weighing/drying Procedures:	Immediately prepare for drying and weighing or preserve in formalin or ethanol to dry and weigh at later date.
22.	Test Acceptability:	80% survival in controls and an average dry weight of ≥ 0.50 mg (unpreserved larvae) or 0.43 mg (preserved larvae)
23.	Other test specifications available in:	USEPA 1988, Method 1006

SUMMARY OF TEST CONDITIONS FOR
MYSID (*MYSIDOPSIS BAHIA*) SURVIVAL, GROWTH,
AND FECUNDITY TEST

1. Test Type:	Static Renewal
2. Test duration:	7 days
3. Renewal of Test Solutions:	Daily
4. Age of Test Organisms at Test Start:	7 days; 8 days maximum (all released within 24 hours from a single source).
5. Dilution Factor:	0.3 or 0.5
6. Number of Test Concentrations:	Minimum of 5 plus a control (a second control is optional when a dilution water other than the culture water is used).
7. Number of Replicates per Each Concentration and Control:	Minimum of 5 recommended
8. Number of Organisms per Replicate:	Minimum of 10 recommended
9. Test Chamber Size:	Minimum of 500 ml recommended (covered)
10. Test Solution Volume:	Minimum of 400 ml recommended
11. Dilution Water:	Natural Sea Water or Hypersaline Brine
12. Salinity of Test Concentrations:	25 ppt $\pm$ 2 ppt (varying not more than 2 ppt among replicates each day)
13. Adjustment of Salinity of Test Concentrations:	Hypersaline Brine to 75 percent effluent. Artificial sea salts acceptable above 75 percent effluent.
14. Test Temperature:	26°- 27°C recommended

15. Aeration:	None unless the Dissolved Oxygen falls below 60% saturation, then all chambers.
16. Food Source:	24 hour post hatch Artemia naupli (other supplements or variations should be approved prior to use).
17. Feeding Regime:	150 naupli per mysid (approximately 0.1 ml of concentrated naupli) - half after test solution renewal and half at 8 - 12 hours.
18. Photoperiod:	16 h light, 8 h dark
19. Light Intensity:	50-100 ft-c
20. Effects Measured:	Survival, Growth and Fecundity
21. Weighing/Drying Procedures:	Animals examined within 12 hours of test termination. Pieces of aluminum foil or small aluminum foil weighing boats less than 10 mg in weight.
22. Physical/Chemical Measurements (In additon ot those specified in the General Conditions Section):	Ammonia, Nitrite and Nitrate shall be measured in the controls at the test beginning.
23. Recommended Culture Water Specifications (Ward, 1989, 1989b):	Salinity = 25 ppt Temperature = 25 degrees pH = 7.8 - 8.2 SU Dissolved Oxygen = 6.5 - 7.1 mg/l Ammonia = $\leq$0.05 mg/l Nitrite = $\leq$0.05 mg/l Nitrate = $\leq$20 mg/l Alkalinity = 45 - 120 mg/l
24. Test Acceptability:	$\geq$80% control survival, an average weight of $\geq$0.2 mg per mysid in the controls and egg production by 50 percent of the control females.
25. Other Test Specifications in:	USEPA, 1988. Method 1007.

SUMMARY OF TEST CONDITIONS FOR *CHAMPIA PARVULA* SEXUAL REPRODUCTION TEST

1.	Test type:	Static, non-renewal
2.	Test duration:	2-day exposure to effluent, followed by 5- to 7-day recovery period for females only in control medium for cystocarp development
3.	Test solution volume:	100 mL
4.	Dilution water:	30 ppt salinity natural seawater, or a combination of 50% - 30 ppt salinity natural seawater and 50% - 30 ppt salinity artificial seawater as per USEPA (1988), method 1009.
5.	Dilution factor:	0.3 or 0.5
6.	Number of test concentrations:	At least 5 and a control, the concentration of effluent used in this test is limited to a maximum of 50%.
7.	Number of replicates per each concentration and control:	4 (minimum of 3)
8.	Number of organisms per replicate:	5 female branch tips approximately 1cm in length and 1 male plant approximately 2cm in length (visibly producing spermatia).
9.	Salinity:	30 ppt $\pm$ 2 ppt
10.	Temperature:	22 - 24°C
11.	Photoperiod:	16 h light, 8 h dark
12.	Light intensity:	100 uE/m^2/s (500 ft-c)
13.	Light source:	Cool-white fluorescent lights
14.	Test chamber:	200 mL polystyrene cups (covered), or 250 mL Erlenmeyer flasks (recommended)
15.	Aeration:	None during exposure period; chambers are either shaken at 100 rpm on a rotary shaker or handswirled twice a day.
16.	Effects measured:	Significant reduction in the number of cystocarps formed in test concentrations compared to controls.

17.	Test acceptability:	80% survival in the controls (generally there is no control mortality), controls shall average 10 cystocarps or more per plant, plants in the control and lower test concentrations shall not fragment so that individual plants cannot be identified.
18.	Other test specifications in:	USEPA, 1988. Method 1009.

TERATOGENICITY ENDPOINTS

If for any reason the Department has concerns regarding the teratogenicity of a particular effluent to aquatic life, in addition to the methods contained in the Methods Specifications section, the following methods may be used:

Fathead Minnow (Pimephales promelas) Embryo-larval Survival and Teratogenicity Definitive Test, Method 1001.0. (USEPA 1989).

Sheepshead Minnow (Cyprinodon variegatus) Embryo-larval Survival and Teratogenicity Definitive Test, Method 1005. (USEPA 1988).

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