Duke Power Company
Catawba Nuclear Station
4800 Concord Rd.
York, S.C. 29745

(803) 831-3000

DUKE POWER

March 16, 1993

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

Subject: Catawba Nuclear Station
Docket No. 50-413 and 50-414
Environmental Protection Plan Reporting

The Environmental Protection Plan (Appendix B to the Catawba Facility Operating License) requires that the Nuclear Regulatory Commission (NRC) be informed of changes to, or renewal of, the facility's National Pollutant Discharge Elimination System (NPDES) permit within thirty days of approval. Also to be reported within thirty days are any appeals or stays to the permit.

Additionally, the Environmental Protection plan requires that proposed changes to the NPDES permit be reported to the NRC at the time it is submitted to the permitting agency. The permitting agency is the South Carolina Department of Health and Environmental Control (SCDHEC).

This reporting was not accomplished within the specified time limits due to personnel changes and will be listed as a non-compliance item in the Annual Environmental Operating Report, required by Appendix B, to be submitted prior to May 1, 1993. Corrective measures have been implemented to ensure proper reporting.

Attached are those items not properly reported to the NRC as follows:

Attachment I - March 12, 1992 letter from SCDHEC approving the discharge of Ethanolamine.

Attachment II - July 1, 1992 letter to SCDHEC requesting a revision of the proposed delta temperature revision from seven (7) degrees F to ten (10) degrees F for April through August.

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Attachment III - July 30, 1992 letter to SCDHEC providing follow-up release Notification of Hydrazine Release.

Attachment IV - NPDES General Permit for Storm Water Discharges Associated With Industrial Activity effective October 1, 1992.

Attachment V - SCDHEC Water Pollution Control Permit # SC0004278 effective October 1, 1992.

Attachment VI - October 13, 1992 letter to SCDHEC requesting adjudicatory hearing for NPDES Permit # SC0004278.

Attachment VII - December 29, 1992 letter to SCDHEC submitting Preliminary Engineering Report for Sanitary Waste Dechlorination.

Attachment VIII - March 4, 1993 letter to SCDHEC providing Notification of Maintenance Chemical Use.

Very truly yours,

M. S. Tuckman

M. S. Tuckman

GCD\01.EM

Attachment

xc: S. D. Ebneter
Regional Administrator, Region II

W. T. Orders
Senior Resident Inspector

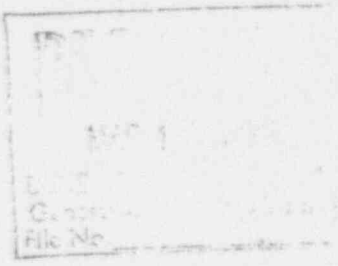
R. E. Martin, ONRR

ATTACHMENT I

March 12, 1992 Letter from SCDHEC Approving the Discharge of Ethanolamine

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

March 12, 1992



Mr. Robert Wylie, Design Engineer
Environmental Division
Duke Power Company
P.O. Box 1007
Charlotte, N.C. 28201-1007

Re: Use of Ethanolamine
Duke Power Co./Catawba Nuclear Station
NPDES Permit #SC0004278
York County

Dear Mr. Wylie:

Our Office has received the December 17, 1991 and your February 17, 1992 letters concerning a request to discharge low levels of Ethanolamine in discharge Outfalls 002 and 004 at the Duke Power Company/Catawba Nuclear Station in York County. After a review of the request, we approve of this discharge at the levels less than the no observed effect level (NOEL) of 40.0 mg/l.

If you should have any questions, please call me at (803)734-5241.

Sincerely,

Timothy M. Eleazer

Timothy M. Eleazer
Environmental Engineer Associate
Industrial and Agricultural
Wastewater Division

TME/jf

cc: Al Williams, Catawba EQC

Duke Power Company
Wachovia Center
P.O. Box 1007
Charlotte, N.C. 28201-1007

DUKE POWER

December 17, 1991

CERTIFIED MAIL

Mr. Timothy M. Eleazer
Industrial and Agricultural Wastewater Division
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subject: Catawba Nuclear Station
Use of Ethanolamine
File: CN-702.00, 703.13

Dear Mr. Eleazer:

Part II.B.1. of the Catawba Nuclear Station NPDES permit (SC0004278) specifies that the permit issuing agency is to be notified when process modifications are made that will result in the discharge of different pollutants. This letter is to notify you of our intention to begin using ethanolamine for pH control in the feedwater/condensate system at Catawba. It will be used as a method to reduce feedwater/condensate system corrosion and subsequently reduce corrosion product transfer to the steam generators. We request approval to discharge low concentrations of ethanolamine in Discharges 002 and 004. We anticipate no contravention of the NPDES permit effluent limitations. This request is similar to our January 29, 1990 request to use morpholine. Note also ethanolamine is a by product during the decomposition of morpholine, which is currently used in the system.

The concentration of ethanolamine in the feedwater/condensate system is anticipated to normally be 3 to 5 mg/l. Conservatively, assuming a leakage rate of 50,000 gallons per day from the feedwater/condensate system to the turbine building sump at the maximum concentration of 5.0 mg/l, the concentration in the conventional waste water treatment (WC) system is anticipated to be approximately 0.5 mg/l based on 10 days influent to a settling basin.

Under abnormal plant conditions, the turbine building sumps can be contaminated with radioactivity. During these periods, they are considered a part of radwaste, treated as radwaste,a nd released through the radwaste discharge point (Discharge 004). The maximum release rate is 250 gpm. when combined with the minimum RL flow of approximately 35,000 gpm, the ethanolamine concentration to Lake Wylie is estimated to be a maximum of approximately 0.035 mg/l.

Attached is a MSDS with toxicity information for ethanolamine. As can be seen, the anticipated concentration to the lake is well below the concentration that can be expected to cause any adverse effect.

We request approval to begin using ethanolamine on or before February 1, 1992. Your prompt attention in this matter would be greatly appreciated. Should you have any questions, please contact David H. Meacham at (704) 373-2028.

Sincerely,

David H. Meacham, Supervising Scientist
Environmental Services.

DHM/SCDHEC.cns

Attachment

bc: G.S. Rice
R.R. Wylie
R.M. Propst
C.L. Therrien
G.L. Ward
J.S. Carter
P.W. Downing
J.S. Velte
Staff (Route)

1030 2/88

MATERIAL SAFETY DATA SHEET

CALGON CORPORATION
P.O. Box 1346
Pittsburgh, PA 15230-1346

24 Hour Emergency Telephone - - (412) 777-8000

SUBSIDIARY OF MERCK & CO., INC.

I. PRODUCT IDENTIFICATION

PRODUCT NAME: Pre-Tect 7000

CHEMICAL DESCRIPTION: Alkaline aqueous solution

II. HAZARDOUS INGREDIENTS AND EXPOSURE LIMITS

Chemical Name	CAS No.	% by Weight	Oral LD50 (rat)	Dermal LD50 (rabbit)	ACGIH TLV OSHA PEL
Monoethanolamine	141-43-5	40	2050 mg/kg	1000 mg/kg	TWA 3 ppm, 8 mg/m3 STEL 6 ppm, 15 mg/m3

III. TYPICAL PHYSICAL PROPERTIES

BOILING POINT: Not available

VAPOR PRESSURE: Not available

VAPOR DENSITY (air=1): Not available

% VOLATILE BY WEIGHT: 60 (water)

SOLUBILITY IN WATER: Complete

SPECIFIC GRAVITY: 1.02

pH: 12.4

APPEARANCE AND ODOR: Clear, colorless liquid with ammoniacal odor.

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: > 200°F; This product is not flammable or combustible.

EXTINGUISHING MEDIA: Water spray, dry chemical, "alcohol" foam, or carbon dioxide.

SPECIAL FIREFIGHTING PROCEDURES: Exercise caution when fighting any chemical fire. A self-contained breathing apparatus and protective clothing are essential. Use water to keep fire-exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Emits toxic gases under fire conditions.

NFPA RATINGS: Health = 3 Flammability = 0 Reactivity = 0 Special Hazard = NONE

V. REACTIVITY DATA

CHEMICAL STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: Overheating

INCOMPATIBILITY: Strong oxidizers, strong acids, aluminum, copper

HAZARDOUS DECOMPOSITION PRODUCTS: Ammonia, nitrogen oxides, carbon monoxide, and carbon dioxide

VI. HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Eye and skin contact, ingestion, inhalation, skin absorption

TARGET ORGANS: Eyes, lungs, liver, kidneys, skin, CNS, reproductive system

DANGER!
May cause severe eye damage.
May be harmful if swallowed.
May cause skin and respiratory tract irritation.

EFFECTS OF OVEREXPOSURE:

ACUTE

EYE CONTACT: This product would be expected to cause severe irritation upon contact with the eye and possibly permanent damage.

SKIN CONTACT: This product could cause skin irritation, especially upon prolonged or repeated exposure. By OSHA definition, pure monoethanolamine is toxic by skin absorption. Prolonged or widespread skin contact may result in the absorption of harmful amounts of material. There is no evidence that monoethanolamine can cause allergic contact dermatitis.

INGESTION: Based on the acute oral LD50 for ethanolamine, this product would be considered to be slightly toxic by ingestion. Swallowing the product may cause chemical burns of the mouth, throat, esophagus, and stomach. Other symptoms could include nausea, vomiting, diarrhea, dizziness and drowsiness.

INHALATION: Breathing of product vapor or mist may cause irritation with coughing and discomfort in the nose, throat and chest. In animal experiments, subacute high level exposures to ethanolamine vapor and mist produced pulmonary damage, lethargy and some nonspecific degenerative changes in the liver and kidneys. Lab tests have found ethanolamine to be a central nervous system stimulant at low doses, and a CNS depressant at lethal doses. Prolonged exposure to moderately high vapor concentrations may cause local injury to the respiratory tract. However, the sensory irritant property of ethanolamine vapors should give adequate warning of a potential acute inhalation overexposure situation.

VI. HEALTH HAZARD DATA (continued)

SUBCHRONIC, CHRONIC

No applicable information was found concerning any potential health effects resulting from subchronic or chronic exposure to the product. In spite of ethanolamine's wide use in industry, no reports of injury to workers have been found. Adverse reproductive effects have been demonstrated in rats fed 500 mg/kg of ethanolamine between day 6 and 15 of pregnancy.

CARCINOGENICITY:

NTP: No ingredients listed
IARC: No ingredients listed
OSHA: No ingredients listed

HMIS RATINGS: Health = 3* Flammability = 0 Reactivity = 0
Personal Protective Equipment = to be supplied by user depending on use conditions

*There are potential chronic health effects to consider.

VII. APPLICABLE CONTROL MEASURES

APPROPRIATE HYGIENIC PRACTICES: Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor or mist.

PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION: Chemical splash goggles

SKIN PROTECTION: Chemical resistant gloves

RESPIRATORY PROTECTION: If airborne concentrations exceed published exposure limits, use a NIOSH approved respirator in accordance with OSHA respiratory protection requirements (29 CFR 1910.134).

WORK PRACTICES: An eye wash station should be available in the immediate area of use.

HANDLING AND STORAGE PRECAUTIONS: Use with adequate ventilation.
Wash thoroughly after handling.
Keep container closed when not in use.

ENGINEERING CONTROLS: Local exhaust ventilation may be required in addition to general room ventilation.

VIII. FIRST AID

EYE CONTACT: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical aid immediately.

SKIN CONTACT: In case of contact, flush skin with plenty of water. Remove contaminated clothing. Seek medical aid if irritation persists. Wash clothing before reuse.

INGESTION: If swallowed, do NOT induce vomiting. Give large quantities of water. Seek medical aid immediately. Never give anything by mouth to an unconscious person.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical aid.

IX. SPILL OR LEAK PROCEDURES/WASTE DISPOSAL

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Wearing appropriate personal protective equipment, contain spill, collect onto inert absorbent and place into suitable container.

WASTE DISPOSAL: Dispose of in accordance with local, state and federal regulations. Avoid discharge to natural waters.

X. REGULATORY STATUS

TSCA STATUS: The ingredients of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

RCRA STATUS: This product as sold would not be considered a RCRA Hazardous Waste.

CERCLA reportable quantity of EPA hazardous substances in product: None

SARA TITLE III:

Section 302 Extremely Hazardous Substances: None

Section 311 and 312 Health and Physical Hazards:

Immediate	Delayed	Fire	Pressure	Reactivity
[yes]	[yes]	[no]	[no]	[no]

Section 313 Toxic Chemicals: None

DOT CLASSIFICATION:

Hazard Class: Corrosive material
Proper shipping name: Monoethanolamine solution
ID number: UN 2491
Label: Corrosive

PREPARED BY: P.J. Maloney

62C4/AK

ATTACHMENT II

July 1, 1992 Letter to SCDHEC Requesting a Revision of the Proposed Delta Temperature Revision from Seven (7) Degrees F to Ten (10) Degrees F for April Through August.

Duke Power Company
Wachovia Center
P.O. Box 1007
Charlotte, N.C. 28201-1007

DUKE POWER

July 1, 1992

Timothy M. Eleazer
Industrial and Agricultural Wastewater Division
South Carolina Department of
Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

SUBJECT: NPDES Permit #SC0004278
Duke Power Company
Catawba Nuclear Station
File: CN-702.13-1

Dear Mr. Eleazer:

With reference to Duke Power Company's May 28, 1992 memo to you, DPC has conducted an evaluation of the proposed delta temperature limits for Outfall 001. Duke Power Company (DPC) requests that the proposed delta T limit of 7 degrees F (April through August) be revised to 10 degrees F. The proposed delta T limit of 14 degrees F (September through March) is acceptable.

This past May and June the monthly average delta T for Outfall 001 were approximately 8.0 and 8.5 degrees F, respectively. This is higher than what has been typically seen in previous years. This increase appears related to cooler meteorological conditions than experienced in previous years. For example during the months of May and June 1992 the average ambient air temperatures at Catawba Nuclear Station were 64.9 and 72.0 degrees F, respectively. Whereas the average ambient air temperatures at Catawba Nuclear Station during May and June from 1986 through 1991 were 68.3 and 75.8 degrees F, respectively.

In order to support the request of 10 and 14 degree F delta temperature limits, DPC will submit supplemental 316 (a) information and predictive model results to assess any potential environmental impact at these proposed limits. This supplemental information and modeling will be submitted before January 31, 1993.

Please call me at (704) 373-2028 if you have any questions or need additional information.

Sincerely,

Robert R. Wylie

Robert R. Wylie
Design Engineer
Environmental Division
Generation Services Department

bc: M.S Tuckman
G.S. Rice
J.E. Reece
B.G. Felker
J.C. Knight
W.J. McCabe
T.K. Ziegler
J.C. Leathers
T.P. Harrall
C.L. Therrien
D.B. Thompson
D.J. Degan
L.L. Olmsted
R.E. Lewis
T.N. Welch
J.E. Grogan
J.S. Forbes
G.C. Parker
R.M. Glover
W.R. McCollum
J.R. Hendricks
J.S. Carter
C.E. Muse
J.E. Derwort

ATTACHMENT III

July 30, 1992 Letter to SCDHEC Providing Follow-up Release Notification of Hydrazine Release

Duke Power Company
Catawba Nuclear Station
4800 Concord Rd
York, S.C. 29745

DUKE POWER

July 30, 1992

South Carolina Emergency Response Commission
Stan M. McKinney, Chairman
Division of Public Safety Programs
Edgar A. Brown Building
1205 Pendleton Street
Columbia, South Carolina 29201

York County Emergency Preparedness Agency
Cotton Howell
155 Johnson Street
P.O. Box 11706
Rock Hill, South Carolina 29731

Subject: Catawba Nuclear Station
Superfund Amendments and Reauthorization Act (SARA)
Follow-up Release Notification - Hydrazine Release
File: CN-707.03, CN-702.26, CN-770.10

Dear Sirs:

Pursuant to 40CFR Part 355 (Emergency Planning and Notification), Duke Power Company hereby provides written follow-up emergency notice of a reportable SARA release. On July 22, 1992, an underground pipeline from a turbine building collection sump to our chemical treatment pond ruptured due to a misaligned valve which released in solution approximately 1.3 pounds of hydrazine. The master list of hazardous substances in the Chemical Release Reporting and Response Manual shows that the Reportable Quantity for hydrazine is one pound under both SARA and CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act). This release was greater than the 1 pound reportable quantity and verbal notification was provided to your offices on July 22, 1992.

Conventional waste water from the ruptured pipe percolated up through the soil near the water chemistry building, located just southeast of the power plant. The waste water then flowed into the yard drain secondary containment system which pumped the solution to the chemical treatment pond (WC) as permitted, see Permit to Operate - Construction Permit #11785 dated 12/17/86. During this process a heavy rain, greater

than .016 in/hr, occurred which caused the yard drain collection sump to overflow as designed to Lake Wylie. This overflow was tested and found to contain 10ppb hydrazine, well under the NPDES permitted discharge limit of 0.43ppm for outfall 002. However, discharging hydrazine at any level from the yard drain sump to the discharge cove on Lake Wylie is an unpermitted discharge.

The following agencies were contacted on July 22, 1992 and informed of the release:

Agency	Contact	Time
South Carolina Department of Health and Environmental Control (DHEC - Fort Lawn District)	Al Williams	1737
South Carolina Department of Health and Environmental Control	Pete Gaussy	1745
National Response Center	Petty Officer Beshoar	1750
Nuclear Regulatory Commission (via Red Phone)		1800

At the time verbal notifications were made to the National Response Center, the South Carolina Department of Health and Environmental Control, and the York County Emergency Preparedness Agency, the individual making the notifications was familiar with Catawba's NPDES permit and discharge limits. This individual conveyed in these verbal reports that no significant impact to the environment or to human health would have resulted from the release. No environmental impact was seen subsequent to the release based on inspections of the discharge area by station personnel. Additionally, Steve Spigner (DHEC-Fort Lawn) was met by site personnel at 1830 for a visual inspection of the spill area.

Presently, the ruptured pipe has been uncovered and is in the process of being repaired. The soil removed was tested for hydrazine with no detectable amounts present. According to our analytical chemists, hydrazine decomposes readily when exposed to sunlight and/or natural salts in soil. Steve Spigner was notified on July 24, 1992 that the soil was being stockpiled on site and tested with no positive results for hydrazine. Notification will be made to the Local DHEC office as to the final deposition of the soil removed

from the spill area.

An investigation has begun to determine the root cause of this incident to prevent recurrence. Appropriate personnel have been made aware of this incident and station training modules will be refined to clearly point out the significance and control of releases to the environment.

If you have any questions concerning this notification, please contact Gerry Parker at (803) 831-3049.

G. C. Parker, Associate Engineer
Catawba Nuclear Station
Environmental Management

GCP/gcp

xc: Steve Spigner, DHEC - Fort Lawn District
NRC Regional Administrator

bc: M. S. Tuckman
T. P. Harrall
C. L. Therrien
J. S. Carter
R. R. Wylie
R. M. Propst
A. P. Jackson
W. J. Davis
D. A. Bain
P. N. McNamara
G. S. Rice
M. A. Lascara

ATTACHMENT IV

NPDES General Permit for Storm Water Discharges Associated
With Industrial Activity - Effective October 1, 1992

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

NPDES GENERAL PERMIT

for

STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY
(except construction activity)

This permit authorizes storm water discharges to waters of the State of South Carolina in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I through X hereof. This permit is issued in accordance with the provisions of the Pollution Control Act (S. C. Code Sections 48-1-10 *et seq.*, 1976) and with the provisions of the Federal Clean Water Act (PL 92-500), as amended, 33 U.S.C. 1251 *et seq.*, the "CWA."

Director, Industrial and Agricultural Wastewater Division
Bureau of Water Pollution Control

Issued: SEP 1 1 1992

Effective: OCT 1 1992

Expires: SEP 30 1997

Permit No.: SCR000000

TABLE OF CONTENTS

PREFACE

The CWA provides that storm water discharges associated with industrial activity from a point source (including discharges through a municipal separate storm sewer system) to waters of the United States are unlawful, unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The terms "storm water discharge associated with industrial activity", "point source" and "waters of the United States" are critical to determining whether a facility is subject to this requirement. Complete definitions of these terms are found in the definition section (Part X) of this permit. In order to determine the applicability of the requirement to a particular facility, the facility operator must examine its activities in relationship to the eleven categories of industrial facilities described in the definition of "storm water discharge associated with industrial activity".

Category (xi) of the definition, which address facilities with activities classified under Standard Industrial Classifications (SIC) codes 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 31 (except 311), 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25, (and which are not otherwise included within categories (i)-(x)), differs from other categories listed in that it only addresses storm water discharges where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery <u>are exposed to storm water</u>[1].

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[1] On June 4, 1992, the United States Court of Appeals for the Ninth Circuit remanded the exclusion for manufacturing facilities in category (xi) which do not have materials or activities exposed to storm water to the EPA for further rulemaking. (Nos. 90-70671 and 91-70200).

Part I. COVERAGE UNDER THIS PERMIT

A. **Permit Area**. The permit covers all areas of South Carolina.

B. **Eligibility.**

1. This permit may cover all new and existing point source discharges of storm water associated with industrial activity to waters of South Carolina, except for storm water discharges identified under paragraph I.B.3.

2. This permit may authorize storm water discharges associated with industrial activity that are mixed with storm water discharges associated with industrial activity from construction activities provided that the storm water discharge from the construction activity is in compliance with the terms, including applicable NOI or application requirements, of a different NPDES general permit or individual permit authorizing such discharges.

3. **Limitations on Coverage**. The following storm water discharges associated with industrial activity are not authorized by this permit:

   a. storm water discharges associated with industrial activity that are mixed with sources of non-storm water other than non-storm water discharges that are:

   (i) in compliance with a different NPDES permit; or

   (ii) identified by and in compliance with Part III.A.2 (authorized non-storm water discharges) of this permit.

   b. storm water discharges associated with industrial activity which are subject to an existing effluent limitation guideline addressing storm water (or a combination of storm water and process water)[2];

---

[2] For the purpose of this permit, the following effluent limitation guidelines address storm water (or a combination of storm water and process water): cement manufacturing (40 CFR 411); feedlots (40 CFR 412); fertilizer manufacturing (40 CFR 418); petroleum refining (40 CFR 419); phosphate manufacturing (40 CFR 422); steam electric (40 CFR 423); coal mining (40 CFR 434); mineral mining and processing (40 CFR 436); ore mining and dressing (40 CFR 440); and asphalt emulsion (40 CFR 443 Subpart A). This permit may authorize storm water discharges associated with industrial activity which are not subject to an effluent limitation guideline even where a different storm water discharge at the

c. storm water discharges associated with industrial activity that are subject to an existing NPDES individual or general permit; are located at a facility that where an NPDES permit has been terminated or denied; or which are issued a permit in accordance with paragraph VII.M (requirements for individual or alternative general permits) of this permit. Such discharges may be authorized under this permit after an existing permit expires provided the existing permit did not establish numeric limitations for such discharges;

d. storm water discharges associated with industrial activity from construction sites, except storm water discharges from portions of a construction site that can be classified as an industrial activity under 40 CFR 122.26(b)(14)(i) through (ix) or (ix) (including storm water discharges from mobile asphalt plant, and mobile concrete plants).

e. storm water discharges associated with industrial activity that the Department has determined to be or may reasonably be expected to be contributing to a violation of a water quality standard;

f. storm water discharges associated with industrial activity that would adversely effect a listed endangered or threatened species or its critical habitat; and

g. storm water discharges associated with industrial activity from inactive mining, inactive landfills, or inactive oil and gas operations occurring on Federal lands where an operator cannot be identified.

4. Storm water discharges associated with industrial activity which are authorized by this permit may be combined with other sources of storm water which are not classified as associated with industrial activity pursuant to 40 CFR 122.26(b)(14), so long as the discharger is in compliance with this permit.

C. <u>Authorization.</u>

1. Dischargers of storm water associated with industrial activity must submit a Notice of Intent (NOI) in accordance with the requirements of Part II of this permit, using a NOI form provided by the Department (or photocopy thereof), to be authorized to discharge under this general permit.

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facility is subject to an effluent limitation guideline.

2. Unless notified by the Department to the contrary, owners or operators who submit such notification are authorized to discharge storm water associated with industrial activity under the terms and conditions of this permit 48 hours after the date that the NOI is postmarked.

3. The Department may deny coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI or other information.

Part II. NOTICE OF INTENT REQUIREMENTS

A. <u>Deadlines for Notification</u>.

1. Except as provided in paragraphs II.A.4 (rejected or denied municipal group applicants), II.A.5 (new operator) and II.A.6 (late NOIs), individuals who intend to obtain coverage for an existing storm water discharge associated with industrial activity under this general permit shall submit a Notice of Intent (NOI) in accordance with the requirements of this part on or before October 1, 1992;

2. Except as provided in paragraphs II.A.3 (oil and gas operations), II.A.4 (rejected or denied municipal group applicants), II.A.5 (new operator), and II.A.6 (late NOI) operators of facilities which begin industrial activity after October 1, 1992 shall submit a NOI in accordance with the requirements of this part at least 48 hours prior to the commencement of the industrial activity at the facility;

3. Operators of oil and gas exploration, production, processing, or treatment operations or transmission facilities, that are not required to submit a permit application as of October 1, 1992 in accordance with 40 CFR 122.26(c)(1)(iii), but that after October 1, 1992 have a discharge of a reportable quantity of oil or a hazardous substance for which notification is required pursuant to either 40 CFR 110.6, 40 CFR 117.21 or 40 CFR 302.6, must submit a NOI in accordance with the requirements of Part II.C of this permit within 14 calendar days of the first knowledge of such release.

4. Storm water discharges associated with industrial activity from a facility that is owned or operated by a municipality that has participated in a timely Part 1 group application and where either the group application is rejected or facility is denied participation in the group application by EPA, and that are seeking coverage under this general permit shall submit a NOI in accordance with the requirements of this part on or

before the 180th day following the date on which the group is rejected or the denial is made, or October 1, 1992, whichever is later.

5. Where the operator of a facility with a storm water discharge associated with industrial activity which is covered by this permit changes, the new operator of the facility must submit an NOI in accordance with the requirements of this part at least 48 hours prior to the change.

6. An operator of a storm water discharge associated with industrial activity is not precluded from submitting an NOI in accordance with the requirements of this part after the dates provided in Parts II.A.1, 2, 3, or 4 (above) of this permit. In such instances, the Department may bring an enforcement action for failure to submit an NOI in a timely manner or for any unauthorized discharges of storm water associated with industrial activity that have occurred on or after the dates specified in Part II.A.1, 2, 3 or 4 (above).

B. Contents of Notice of Intent. The Notice of Intent shall be signed in accordance with Part VII.G (signatory requirements) of this permit and shall include the following information:

1. Name, mailing address, and location of the facility for which the notification is submitted. Where a mailing address for the site is not available, the location can be described in terms of the latitude and longitude of the approximate center of the facility to the nearest 15 seconds that the facility is located in.

2. Up to four 4-digit Standard Industrial Classification (SIC) codes that best represent the principal products or activities provided by the facility; or for hazardous waste treatment, storage or disposal facilities, land disposal facilities that receive or have received any industrial waste, steam electric power generating facilities, or treatment works treating domestic sewage, a narrative identification of those activities;

3. The operator's name, address, telephone number, and status as Federal, State, private, public or other entity;

4. The permit number of additional NPDES permits for any discharges (including non-storm water discharges) from the site that are currently, or has been previously, authorized by an NPDES permit;

5. The name of the receiving water(s), or if the discharge is through a municipal separate storm sewer, the name of the

municipal operator of the storm sewer and the receiving water(s) for the discharge through the municipal separate storm sewer;

6. An indication of whether the owner or operator has existing quantitative data describing the concentration of pollutants in storm water discharges (existing data should not be included as part of the NOI);

7. An indication as to whether the facility has previously participated in the group application process. Where a facility has participated in a group application, the number EPA assigned to the group application shall be supplied; and

8. For any facility that begins to discharge storm water associated with industrial activity after October 1, 1992, a certification that a storm water pollution prevention plan has been prepared for the facility in accordance with Part IV of this permit. (A copy of the plan should not be included with the NOI submission).

C. Where to Submit. Facilities which discharge storm water associated with industrial activity must use a NOI form provided by the Department (or photocopy thereof). Forms are also available by calling (803) 734-5300. NOIs must be signed in accordance with Part VII.G (signatory requirements) of this permit. NOIs are to be submitted to the Department in care of the following address:

SC Dept. of Health and Environmental Control
NPDES/ND Permit Administration
Storm Water Notice of Intent
2600 Bull street
Columbia, SC 29201

D. Additional Notification. Facilities which discharge storm water associated with industrial activity through large or medium municipal separate storm sewer systems (systems located in an incorporated city with a population of 100,000 or more, or in a county identified as having a large or medium system (see definition in Part X of this permit) shall, in addition to filing copies of the Notice of Intent in accordance with paragraph II.D, also submit signed copies of the Notice of Intent to the operator of the municipal separate storm sewer through which they discharge in accordance with the deadlines in Part II.A (deadlines for notification) of this permit.

E. Renotification. Upon issuance of a new general permit, the permittee is required to notify the Department of their intent to be covered by the new general permit.

F. Individual/Group Applications. Any applicant that has previously filed an individual application or participated in the group application process and has not received an NPDES permit can receive coverage under this general permit. For those who submitted individual applications a letter must be sent to the Department requesting coverage in lieu of an individual permit. For those who participated in the group application process, the NOI should be submitted. In both cases, coverage under this general permit is effective 48 hours after the date the NOI or letter is postmarked.

Part III. SPECIAL CONDITIONS

A. Prohibition on non-storm water discharges.

1. Except as provided in paragraph III.A.2 (below), all discharges covered by this permit shall be composed entirely of storm water.

2. a. Except as provided in paragraph III.A.2.b (below), discharges of material other than storm water must be in compliance with a NPDES permit (other than this permit) issued for the discharge.

b. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharge is in compliance with paragraph IV.D.3.g.(2),(3) (measures and controls for non-storm water discharges): discharges from fire fighting activities; fire hydrant flushings; potable water sources including waterline flushings; irrigation drainage; lawn watering; routine external building washdown which does not use detergents or other compounds; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

B. Releases in excess of Reportable Quantities.

1. The discharge of hazardous substances or oil in the storm water discharge(s) from a facility shall be prevented or minimized in accordance with the applicable storm water pollution prevention plan for the facility. This permit does not relieve the permittee of the reporting requirements of 40 CFR part 117 and 40 CFR part 302. Except as provided in paragraph III.B.2 (multiple anticipated discharges) of this

permit, where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302, occurs during a 24 hour period:

a. The discharger is required to notify both the Department's Emergency Response Section at (803) 254-6488 and the National Response Center (NRC) (800-424-8802) in accordance with the requirements of 40 CFR 117 and 40 CFR 302 as soon as he or she has knowledge of the discharge;

b. The permittee shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and steps to be taken in accordance with paragraph III.B.1.c (below) of this permit to both the Emergency Response Section, SC Dept. of Health and Environmental Control, 2600 Bull Street, Columbia, S.C. 29201 and EPA Region IV, 345 Courtland Street, N.E., Atlanta, Ga. 30365; and

c. The storm water pollution prevention plan required under Part IV (storm water pollution prevention plans) of this permit must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

2. <u>Multiple Anticipated Discharges</u> - Facilities which have more than one anticipated discharge per year containing the same hazardous substance in an amount equal to or in excess of a reportable quantity established under either 40 CFR 117 or 40 CFR 302, which occurs during a 24 hour period, where the discharge is caused by events occurring within the scope of the relevant operating system shall:

a. submit notifications in accordance with Part III.B.1.b (above) of this permit for the first such release that occurs during a calendar year (or for the first year of this permit, after submittal of an NOI); and

b. shall provide in the storm water pollution prevention plan required under Part IV (storm water pollution prevention plan) a written description of the dates on which such releases occurred, the type and estimate of the amount of material released, and the circumstances

leading to the release. In addition, the plan must be reviewed to identify measures to prevent or minimize such releases and the plan must be modified where appropriate.

3. Spills. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

Part IV. STORM WATER POLLUTION PREVENTION PLANS

A storm water pollution prevention plan shall be developed for each facility covered by this permit. Storm water pollution prevention plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. Facilities must implement the provisions of the storm water pollution prevention plan required under this part as a condition of this permit.

A. Deadlines for Plan Preparation and Compliance.

1. Except as provided in paragraphs IV.A.3 (oil and gas operations) 4 (facilities denied or rejected from participation in a group application) and 5 (later dates) the plan for a storm water discharge associated with industrial activity that is existing on or before October 1, 1992:

   a. shall be prepared on or before April 1, 1993 (and updated as appropriate);

   b. shall provide for implementation and compliance with the terms of the plan on or before October 1, 1993;

2. a. The plan for any facility where industrial activity commences after October 1, 1992, but on or before December 31, 1992 shall be prepared, and except as provided elsewhere in this permit, shall provide for compliance with the terms of the plan and this permit on or before the date 60 calendar days after the commencement of industrial activity (and updated as appropriate);

   b. The plan for any facility where industrial activity commences on or after January 1, 1993 shall be prepared,

and except as provided elsewhere in this permit, shall provide for compliance with the terms of the plan and this permit, on or before the date of submission of a NOI to be covered under this permit (and updated as appropriate);

3. The plan for storm water discharges associated with industrial activity from an oil and gas exploration, production, processing, or treatment operation or transmission facility that is not required to submit a permit application on or before October 1, 1992 in accordance with 40 CFR 122.26(c)(1)(iii), but after October 1, 1992 has a discharge of a reportable quantity of oil or a hazardous substance for which notification is required pursuant to either 40 CFR 110.6, 40 CFR 117.21 or 40 CFR 302.6, shall be prepared and except as provided elsewhere in this permit, shall provide for compliance with the terms of the plan and this permit on or before the date 60 calendar days after the first knowledge of such release (and updated as appropriate);

4. The plan for storm water discharges associated with industrial activity from a facility that has participated in a timely group application and where either the group application is rejected or the facility is denied participation in the group application by EPA,

   a. shall be prepared on or before the 365th day following the date on which the group is rejected or the denial is made, (and updated as appropriate);

   b. except as provided elsewhere in this permit, shall provide for compliance with the terms of the plan and this permit on or before the 545th day following the date on which the group is rejected or the denial is made; and

5. Portions of the plan addressing additional requirements for storm water discharges from facilities subject to Parts IV.D.7 (EPCRA Section 313 and IV.D.8 (salt storage) shall provide for compliance with the terms of the requirements identified in Parts IV.D.7 and IV.D.8 as expeditiously as practicable, but except as provided below, not later than October 1, 1995. Facilities which are not required to report under EPCRA Section 313 prior to July 1, 1992, shall provide for compliance with the terms of the requirements identified in Part IV.D.7 and IV.D.8 as expeditiously as practicable, but not later than three years after the date on which the facility is first required to report under EPCRA Section 313.

However, plans for facilities subject to the additional requirements of Part IV.D.7 and IV.D.8, shall provide for compliance with the other terms and conditions of this permit in accordance with the appropriate dates provided in Part IV.1, 2, 3, or 5 of this permit.

6. Upon a showing of good cause, the Department may establish a later date in writing for preparing and compliance with a plan for a storm water discharge associated with industrial activity that submits a NOI in accordance with Part II.A.5 (deadlines for notification - new dischargers) of this permit (and updated as appropriate).

B. Signature and Plan Review

1. The plan shall be signed in accordance with Part VII.G (signatory requirements), and be retained on-site at the facility which generates the storm water discharge in accordance with Part VI.E (retention of records) of this permit.

2. The permittee shall make plans available upon request to the Department, or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the operator of the municipal system.

3. The Department may notify the permittee at any time that the plan does not meet one or more of the minimum requirements of this Part. Within 30 days of such notification from the Department, (or as otherwise provided by the Department), or authorized representative, the permittee shall make the required changes to the plan and shall submit to the Department a written certification that the requested changes have been made.

C. Keeping Plans Current. The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of South Carolina or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part IV.D.2 (description of potential pollutant sources) of this permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Amendments to the plan may be reviewed by the Department in the same manner as Part IV.B (above).

D. Contents of Plan. The plan shall include, at a minimum, the following items:

1. Pollution Prevention Team - Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team that are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.

2. Description of Potential Pollutant Sources. Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials which may potentially be significant pollutant sources. Each plan shall include, at a minimum:

a. Drainage.

(1) A site map indicating an outline of the portions of the drainage area of each storm water outfall that are within the facility boundaries, each existing structural control measure to reduce pol tants in storm water runoff, surface water bodies locations where significant materials are exposed precipitation, locations where major spills or leaks identified under Part IV.D.2.c (spills and leaks) of this permit have occurred, and the locations of the following activities where such activities are exposed to precipitation: fueling stations, vehicle and equipment maintenance and/or cleaning areas, loading/unloading areas, locations used for the treatment, storage or disposal of wastes, liquid storage tanks, processing areas and storage areas.

(2) For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow, and an identification of the types of pollutants which are likely to be present in storm water discharges associated with industrial activity. Factors to consider include the toxicity of chemical; quantity of chemicals used, produced or discharged; the likelihood of contact with

storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified.

b. Inventory of Exposed Materials. An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of three years prior to the date of the issuance of this permit and the present; method and location of on-site storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of three years prior to the date of the issuance of this permit and the present; the location and a description of existing structural and non-structural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.

c. Spills and Leaks. A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of three years prior to the effective date of this permit. Such list shall be updated as appropriate during the term of the permit.

d. Sampling Data. A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.

e. Risk Identification and Summary of Potential Pollutant Sources A narrative description of the potential pollutant sources at the following areas: loading and unloading operations; outdoor storage activities; outdoor manufacturing or processing activities; significant dust or particulate generating processes; and on-site waste disposal practices. The description shall specifically list any significant potential source of pollutants at the site and for each potential source, any pollutant or pollutant parameter (e.g. biochemical oxygen demand, etc.) of concerns shall be identified.

3. Measures and Controls Each facility covered by this permit shall develop a description of storm water management controls appropriate for the facility, and implement such controls.

The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:

a. Good Housekeeping - Good housekeeping requires the maintenance of areas which may contribute pollutants to storm waters discharges in a clean, orderly manner.

b. Preventive Maintenance - A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g. cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.

c. Spill Prevention and Response Procedures - Areas where potential spills which can contribute pollutants to storm water discharges can occur, and their accompanying drainage points shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a clean up should be available to personnel.

d. Inspections - In addition to or as part of the comprehensive site evaluation required under Part IV.4 (comprehensive site compliance evaluation) of this permit, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility at appropriate intervals specified in the plan. A set of tracking or followup procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained.

e. Employee Training - Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good

housekeeping and material management practices. A pollution prevention plan shall identify periodic dates for such training.

f. Record Keeping and Internal Reporting Procedures - A description of incidents such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.

g. Non-Storm Water Discharges

(1) The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the on-site drainage points that were directly observed during the test. Certifications shall be signed in accordance with Part VII.G of this permit. Such certification may not be feasible if the facility operating the storm water discharge associated with industrial activity does not have access to an outfall, manhole, or other point of access to the ultimate conduit which receives the discharge. In such cases, the source identification section of the storm water pollution plan shall indicate why the certification required by this part was not feasible, along with the identification of potential significant sources of non-storm water at the site. A discharger that is unable to provide the certification required by this paragraph must notify the Department in accordance with Part VI.A (failure to certify) of this permit.

(2) Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2 (authorized non-storm water discharges) of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

(3) For fire hydrant and waterline flushings, both, periodical and new construction occurrences, the following guidelines apply:

(i) Detergents and other chemical compounds can not be discharged.
(ii) Average chlorine concentrations at the outfall must be below detection limits.
(iii) Occasional peak chlorine concentrations should never exceed a maximum of 0.5 mg/l.

h. Sediment and Erosion Control - The plan shall identify areas which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

i. Management of Runoff - The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures determined to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity (see Parts IV.D.2. (description of potential pollutant sources) of this permit) shall be considered when determining reasonable and appropriate measures. Appropriate measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, and wet detention/retention devices.

4. Comprehensive Site Compliance Evaluation. Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but, except as provided in paragraph IV.D.4.d (below), in no case less than once a year. Such evaluations shall provide:

a. Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the

terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.

b. Based on the results of the inspection, the description of potential pollutant sources identified in the plan in accordance with Part IV.D.2 (description of potential pollutant sources) of this permit and pollution prevention measures and controls identified in the plan in accordance with paragraph IV.D.3 (measures and controls) of this permit shall be revised as appropriate within two weeks of such inspection and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than twelve weeks after the inspection.

c. A report summarizing the scope of the inspection, personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph IV.D.4.b (above) of the permit shall be made and retained as part of the storm water pollution prevention plan for at least one year after coverage under this permit terminates. The report shall be signed in accordance with Part VII.G (signatory requirements) of this permit.

d. Where annual site inspections are shown in the plan to be impractical for inactive mining sites due to the remote location and inaccessibility of the site, site inspections required under this part shall be conducted at appropriate intervals specified in the plan, but, in no case less than once in three years.

5. <u>Additional requirements for storm water discharges associated with industrial activity through municipal separate storm sewer systems serving a population of 100,000 or more</u>

N/A

a. In addition to the applicable requirements of this permit, facilities covered by this permit must comply with applicable requirements in municipal storm water management programs developed under NPDES permits issued for the discharge of the municipal separate storm sewer system that receives the facility's discharge, provided the discharger has been notified of such conditions.

b. Permittees which discharge storm water associated with industrial activity through a municipal separate storm sewer system serving a population of 100,000 or more shall make plans available to the municipal operator of the system upon request.

6. Consistency with other plans. Storm water pollution prevention plans may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans developed for the facility under section 311 of the CWA or Best Management Practices (BMP) Programs otherwise required by an NPDES permit for the facility as long as such requirement is incorporated into the storm water pollution prevention plan.

7. Additional requirements for storm water discharges associated with industrial activity from facilities subject to SARA Title III, Section 313 requirements. In addition to the requirements of Parts IV.D.1 through 4 of this permit and other applicable conditions of this permit, storm water pollution prevention plans for facilities subject to reporting requirements under SARA Title III, Section 313 for chemicals which are classified as 'Section 313 water priority chemicals' in accordance with the definition in Part X of this permit, shall describe and ensure the implementation of practices which are necessary to provide for conformance with the following guidelines:

N/A

a. In areas where Section 313 water priority chemicals are stored, processed or otherwise handled, appropriate containment, drainage control and/or diversionary structures shall be provided. At a minimum, one of the following preventive systems or its equivalent shall be used:

(1) Curbing, culverting, gutters, sewers or other forms of drainage control to prevent or minimize the potential for storm water run-on to come into contact with significant sources of pollutants; or

(2) Roofs, covers or other forms of appropriate protection to prevent storage piles from exposure to storm water, and wind.

b. In addition to the minimum standards listed under Part IV.D.7.a (above) of this permit, the storm water pollution prevention plan shall include a complete discussion of measures taken to conform with the following applicable guidelines, other effective storm water pollution prevention procedures, and applicable State rules, regulations and guidelines:

(1) Liquid storage areas where storm water comes into contact with any equipment, tank, container, or other vessel used for Section 313 water priority chemicals.

(a) No tank or container shall be used for the storage of a Section 313 water priority chemical unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

(b) Liquid storage areas for Section 313 water priority chemicals shall be operated to minimize discharges of Section 313 chemicals. Appropriate measures to minimize discharges of Section 313 chemicals may include secondary containment provided for at least the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation, a strong spill contingency and integrity testing plan, and/or other equivalent measures.

(2) Material storage areas for Section 313 water priority chemicals other than liquids. Material storage areas for Section 313 water priority chemicals other than liquids which are subject to runoff, leaching, or wind shall incorporate drainage or other control features which will minimize the discharge of Section 313 water priority chemicals by reducing storm water contact with Section 313 water priority chemicals.

(3) Truck and rail car loading and unloading areas for liquid Section 313 water priority chemicals. Truck and rail car loading and unloading areas for liquid Section 313 water priority chemicals shall be operated to minimize discharges of Section 313 water priority chemicals. Appropriate measures to minimize discharges of Section 313 chemicals may include: the placement and maintenance of drip pans (including the proper disposal of materials collected in the drip pans) where spillage may occur (such as hose connections, hose reels and filler nozzles) for use when making and breaking hose connections; a strong spill contingency and integrity testing plan; and/or other equivalent measures.

(4) Areas where Section 313 water priority chemicals are transferred, processed or otherwise handled. Processing equipment and materials handling equipment shall be operated so as to minimize discharges of Section 313 water priority chemicals. Materials used in piping and equipment shall be compatible with the substances handled. Drainage from process and materials handling

areas shall minimize storm water contact with section 313 water priority chemicals. Additional protection such as covers or guards to prevent exposure to wind, spraying or releases from pressure relief vents from causing a discharge of Section 313 water priority chemicals to the drainage system, and overhangs or door skirts to enclose trailer ends at truck loading/unloading docks shall be provided as appropriate. Visual inspections or leak tests shall be provided for overhead piping conveying Section 313 water priority chemicals without secondary containment.

(5) Discharges from areas covered by paragraphs (1), (2), (3) or (4).

(a) Drainage from areas covered by paragraphs (1), (2), (3) or (4) of this part should be restrained by valves or other positive means to prevent the discharge of a spill or other excessive leakage of Section 313 water priority chemicals. Where containment units are employed, such units may be emptied by pumps or ejectors; however, these shall be manually activated.

(b) Flapper-type drain valves shall not be used to drain containment areas. Valves used for the drainage of containment areas should, as far as is practical, be of manual, open-and-closed design.

(c) If facility drainage is not engineered as above, the final discharge of all in-facility storm sewers shall be equipped to be equivalent with a diversion system that could, in the event of an uncontrolled spill of Section 313 water priority chemicals, return the spilled material to the facility.

(d) Records shall be kept of the frequency and estimated volume (in gallons) of discharges from containment areas.

(6) Facility site runoff other than from areas covered by (1), (2), (3) or (4). Other areas of the facility (those not addressed in paragraphs (1), (2), (3) or (4)), from which runoff which may contain Section 313 water priority chemicals or spills of Section 313 water priority chemicals could cause a discharge shall incorporate the necessary drainage or other control features to prevent discharge of spilled or improperly disposed material and ensure the mitigation of pollutants in runoff or leachate.

(7) Preventive maintenance and housekeeping. All areas of the facility shall be inspected at specific intervals identified in the plan for leaks or conditions that could lead to discharges of Section 313 water priority chemicals or direct contact of storm water with raw materials, intermediate materials, waste materials or products. In particular, facility piping, pumps, storage tanks and bins, pressure vessels, process and material handling equipment, and material bulk storage areas shall be examined for any conditions or failures which could cause a discharge. Inspection shall include examination for leaks, wind blowing, corrosion, support or foundation failure, or other forms of deterioration or noncontainment. Inspection intervals shall be specified in the plan and shall be based on design and operational experience. Different areas may require different inspection intervals. Where a leak or other condition is discovered which may result in significant releases of Section 313 water priority chemicals to the drainage system, corrective action shall be immediately taken or the unit or process shut down until corrective action can be taken. When a leak or noncontainment of a Section 313 water priority chemical has occurred, contaminated soil, debris, or other material must be promptly removed and disposed in accordance with Federal, State, and local requirements and as described in the plan.

(8) Facility security. Facilities shall have the necessary security systems to prevent accidental or intentional entry which could cause a discharge. Security systems described in the plan shall address fencing, lighting, vehicular traffic control, and securing of equipment and buildings.

(9) Training. Facility employees and contractor personnel that work in areas where SARA Title III, Section 313 water priority chemicals are use or stored shall be trained in and informed of preventive measures at the facility. Employee training shall be conducted at intervals specified in the plan, but not less than once per year, in matters of pollution control laws and regulations, and in the storm water pollution prevention plan and the particular features of the facility and its operation which are designed to minimize discharges of Section 313 water priority chemicals. The plan shall designate a person who is accountable for spill prevention at the facility and who will set up the necessary spill emergency procedures and reporting requirements so that spills and emergency releases of Section 313 water priority chemicals can be isolated and

contained before a discharge of a Section 313 water priority chemical can occur. Contractor or temporary personnel shall be informed of facility operation and design features in order to prevent discharges or spills from occurring.

(10) Engineering Certification. - The storm water pollution prevention plan for a facility subject to SARA Title III, Section 313 requirements for chemicals which are classified as 'Section 313 water priority chemicals' shall be reviewed by a Registered Professional Engineer and certified to by such Professional Engineer. A Registered Professional Engineer shall recertify the plan every three years thereafter or as soon as practicable after significant modification are made to the facility. By means of these certifications the engineer, having examined the facility and being familiar with the provisions of this part, shall attest that the storm water pollution prevention plan has been prepared in accordance with good engineering practices. Such certifications shall in no way relieve the owner or operator of a facility covered by the plan of their duty to prepare and fully implement such plan.

8. Additional Requirements for Salt Storage.

Storage piles of salt used for deicing or other commercial or industrial purposes and which generate a storm water discharge associated with industrial activity which is discharged to waters of South Carolina shall be enclosed or covered to prevent exposure to precipitation, except for exposure resulting from adding or removing materials from the pile. Dischargers shall demonstrate compliance with this provision as expeditiously as practicable, but in no event later than three years after the date of issuance of this permit. Piles do not need to be enclosed or covered where storm water from the pile is not discharged to waters of South Carolina.

Part V. NUMERIC EFFLUENT LIMITATIONS

A. Coal Pile Runoff. Any discharge composed of coal pile runoff shall not exceed a maximum concentration for any time of 50 mg/l total suspended solids. Coal pile runoff shall not be diluted with storm water or other flows in order to meet this limitation. The ph of such discharges shall be within the range of 6.0-9.0. Any untreated overflow from facilities designed, constructed and operated to treat the volume of coal pile runoff which is associated with a 10 year, 24 hour rainfall event shall not be subject to the 50 mg/l limitation for total suspended solids. Failure to demonstrate compliance

with these limitations as expeditiously as practicable, but in no case later than three years after the date of issuance of this permit will constitute a violation of this permit.

Part VI. MONITORING AND REPORTING REQUIREMENTS

A. Failure to Certify. - Any facility that is unable to provide the certification required under paragraph IV.D.3.g.(1) (testing for non-storm water discharges), must notify the Department by October 1, 1993 or, for facilities which begin to discharge storm water associated with industrial activity after October 1, 1992, 180 days after submitting a NOI to be covered by this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-storm water discharges to waters of South Carolina which are not authorized by an NPDES permit are unlawful, and must be terminated or dischargers must submit appropriate NPDES permit application forms.

B. Monitoring Requirements.

1. Limitations on Monitoring Requirements.

   a. Except as required by paragraph b., only those facilities with activities specifically identified in Parts VI.B.2 (semi-annual monitoring requirements) and VI.B.3 (annual monitoring requirements) of this permit are required to conduct sampling of their storm water discharges associated with industrial activity.

   b. The Department can provide written notice to any facility otherwise exempt from the sampling requirements of Parts VI.B.2 (semi-annual monitoring requirements) or VI.B.3 (annual monitoring requirements), that it shall conduct the annual discharge sampling required by Part VI.B.3.d (additional facilities), or specify an alternative monitoring frequency or specific additional parameters to be analyzed.

2. Semi-Annual Monitoring Requirements. During the period beginning on the effective date and lasting through the expiration date of this permit, permittees with facilities identified in Parts VI.B.2.a though f must monitor those storm water discharges identified below at least semi-annually (2 times per year) except as provided in VI.B.5 (sampling

waiver), VI.B.6 (representative discharge), and VI.C.1 (toxicity testing). Permittees with facilities identified in Parts VI.B.2.a through f (below) must report in accordance with Part VI.D (reporting: where to submit). In addition to the parameters listed below, the permittee shall provide the date and duration (in hours) of the storm event(s) sampled; rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and an estimate of the total volume (in gallons) of the discharge sampled;

a. Section 313 of EPCRA Title III Facilities. In addition to any monitoring required by Parts VI.B.2.b through f. or Parts VI.B.3.a through d, facilities with storm water discharges associated with industrial activity that are subject to requirements to report releases into the environment under Section 313 of EPCRA for chemicals which are classified as 'Section 313 water priority chemicals' are required to monitor storm water that is discharged from the facility that comes into contact with any equipment, tank, container or other vessel or area used for storage of a Section 313 water priority chemical, or located at a truck or rail car loading or unloading area where a Section 313 water priority chemical is handled for: Oil and Grease (mg/L); Five Day Biochemical Oxygen Demand (B0D5) (mg/L); Chemical Oxygen Demand (COD) (mg/L); Total Suspended Solids (mg/L); Total Kjeldahl Nitrogen (TKN) (mg/L); Total Phosphorus (mg/L); pH; acute whole effluent toxicity; and any Section 313 water priority chemical for which the facility is subject to reporting requirements under section 313 of the Emergency Planning and Community Right to Know Act of 1986.

b. Primary Metal Industries. Facilities with storm water discharges associated with industrial activity classified as Standard Industrial Classification (SIC) 33 (Primary Metal Industry) are required to monitor such storm water that is discharged from the facility for: oil and grease (mg/L); five day biochemical oxygen demand (B0D5) (mg/L); chemical oxygen demand (COD) (mg/L); total suspended solids (mg/L); pH; acute whole effluent toxicity; total lead (mg/L); total cadmium (mg/L); total copper (mg/L); total arsenic (mg/L); total chromium (mg/L); and any pollutant limited in an effluent guideline to which the facility is subject. Facilities that are classified as SIC 33 only because they manufacture pure silicon and/or semiconductor grade silicon are not required to monitor for total recoverable cadmium, total recoverable copper,

total recoverable arsenic, total recoverable chromium or acute whole effluent toxicity, but must monitor for other parameters listed above.

c. Land Disposal Units/Incinerators/BIFs. Facilities with storm water discharges associated with industrial activity from any active or inactive landfill, land application sites or open dump without a stabilized final cover that has received any industrial wastes (other than wastes from a construction site); and incinerators (including Boilers and Industrial Furnaces (BIFs)) that burn hazardous waste and operate under interim status or a permit under Subtitle C of RCRA, are required to monitor such storm water that is discharged from the facility for: Ammonia (mg/L), Magnesium (total) (mg/L), Magnesium (dissolved) (mg/L) Total Kjeldahl Nitrogen (TKN) (mg/l), nitrate plus nitrite nitrogen (mg/L), Chemical Oxygen Demand (COD) (mg/L), Total Dissolved Solids (TDS) (mg/L), Total Organic Carbon (TOC) (mg/L), oil and grease (mg/L), pH, Total recoverable arsenic (mg/L), Total recoverable Barium (mg/L), Total recoverable Cadmium (mg/L), Total recoverable Chromium (mg/L), Total recoverable Cyanide (mg/L), Total recoverable Lead (mg/L), Total Mercury (mg/L), Total recoverable Selenium (mg/L), Total recoverable Silver (mg/L), and acute whole effluent toxicity.

d. Wood Treatment. Facilities with storm water discharges associated with industrial activity from areas that are used for wood treatment, wood surface application or storage of treated or surface protected wood at any wood preserving or wood surface facilities are required to monitor such storm water that is discharged from the facility for: oil and grease (mg/L), pH, COD (mg/L), and TSS (mg/L). In addition, facilities that use chlorophenolic formulations shall measure pentachlorophenol (mg/L) and acute whole effluent toxicity; facilities which use creosote formulations shall measure acute whole effluent toxicity; and facilities that use chromium-arsenic formulations shall measure total recoverable arsenic (mg/L), total recoverable chromium (mg/L), and total recoverable copper (mg/L).

e. Coal Pile Runoff. Facilities with storm water discharges associated with industrial activity from coal pile runoff are required to monitor such storm water that is discharged from the facility for: oil and grease (mg/L),

ph, TSS (mg/L), total recoverable copper (mg/l), total recoverable nickel (mg/l) and total recoverable zinc (mg/l).

f. Battery Reclaimers. Facilities with storm water discharges associated with industrial activity from areas used for storage of lead acid batteries, reclamation products, or waste products, and areas used for lead acid battery reclamation (including material handling activities) at facilities that reclaim lead acid batteries are required to monitor such storm water that is discharged from the facility for: Oil and Grease (mg/L); Chemical Oxygen Demand (COD) (mg/L); Total Suspended Solids (TSS) (mg/L); ph; total recoverable copper (mg/l); and total recoverable lead (mg/l).

3. Annual Monitoring Requirements. During the period beginning on the effective date and lasting through the expiration date of this permit, permittees with facilities identified in Parts VI.B.3.a through d. (below) must monitor those storm water discharges identified below at least annually (1 time per year) except as provided in VI.B.5 (sampling waiver), and VI.B.6 (representative discharge). Permittees with facilities identified in Parts VI.B.3.a through d. (below) are not required to submit monitoring results, unless required in writing by the Department. However, such permittees must retain monitoring results in accordance with Part VI.E (retention of records). In addition to the parameters listed below, the permittee shall provide the date and duration (in hours) of the storm event(s) sampled; rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and an estimate of the total volume (in gallons) of the discharge sampled;

a. Airports. At airports with over 50,000 flight operations per year, facilities with storm water discharges associated with industrial activity from areas where aircraft or airport deicing operations occur (including runways, taxiways, ramps, and dedicated aircraft deicing stations) are required to monitor such storm water that is discharged from the facility when deicing activities are occurring for: Oil and Grease (mg/L); Five Day Biochemical Oxygen Demand (B0D5) (mg/L); Chemical Oxygen Demand (COD) (mg/L); Total Suspended Solids (TSS) (mg/L); ph; and the primary ingredient used in the deicing materials used at the site (e.g. ethylene glycol, urea, etc.).

b. Coal-fired Steam Electric Facilities. Facilities with storm water discharges associated with industrial activity from coal handling sites at coal fired steam electric power generating facilities (other than discharges in whole or in part from coal piles subject to storm water effluent guidelines at 40 CFR 423 - which are not eligible for coverage under this permit) are required to monitor such storm water that is discharged from the facility for: Oil and grease (mg/L), pH, TSS (mg/L), total recoverable copper (mg/l), total recoverable nickel (mg/l) and total recoverable zinc (mg/l).

c. Animal Handling / Meat Packing. Facilities with storm water discharges associated with industrial activity from animal handling areas, manure management (or storage) areas, and production waste management (or storage) areas that are exposed to precipitation at meat packing plants, poultry packing plants, and facilities that manufacture animal and marine fats and oils, are required to monitor such storm water that is discharged from the facility for: Five Day Biochemical Oxygen Demand (B0D5) (mg/L); Chemical Oxygen Demand (COD) (mg/L); Total Suspended Solids (TSS) (mg/L); Total Kjeldahl Nitrogen (TKN) (mg/L); Total Phosphorus (mg/L); ph; and fecal coliform (counts per 100 ml).

d. Additional Facilities. Facilities with storm water discharges associated with industrial activity that:

(i) come in contact with storage piles for solid chemicals used as raw materials that are exposed to precipitation at facilities classified as SIC 30 (Rubber and Miscellaneous Plastics Products) or SIC 28 (Chemicals and Allied Products);
(ii) are from those areas at automobile junkyards with any of the following: (A) over 250 auto/truck bodies with drivelines (engine, transmission, axles, and wheels), 250 drivelines, or any combination thereof (in whole or in parts) are exposed to storm water; (B) over 500 auto/truck units (bodies with or without drivelines in whole or in parts) are stored exposed to storm water; or (C) over 100 units per year are dismantled and drainage or storage of automotive fluids occurs in areas exposed to storm water;
(iii) come into contact with lime storage piles that are exposed to storm water at lime manufacturing facilities;
(iv) are from oil handling sites at oil fired steam electric power generating facilities;
(v) are from cement manufacturing facilities and cement kilns (other than discharges in whole or in part from material

storage piles subject to storm water effluent guidelines at 40 CFR 411 - which are not eligible for coverage under this permit);
(vi) are from ready-mixed concrete facilities; or
(vii) are from ship building and repairing facilities;

are required to monitor such storm water discharged from the facility for: Oil and Grease (mg/L); Chemical Oxygen Demand (COD) (mg/L); Total Suspended Solids (TSS) (mg/L); pH; and any pollutant limited in an effluent guideline to which the facility is subject. Facilities classified under SIC 4493 - marinas that engage in boat maintenance, rehabilitation, repair painting, fueling, lubrication and cleaning are covered under this permit per VI.B.3.d.(vii) above. Value of receipts is a clear indication of whether a facility is engaged in these activities.

4. **Sample Type**. For discharges from holding ponds or other impoundments with a retention period greater than 24 hours, (estimated by dividing the volume of the detention pond by the estimated volume of water discharged during the 24 hours previous to the time that the sample is collected) a minimum of one grab sample may be taken. For all other discharges, data shall be reported for both a grab sample and a composite sample. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The grab sample shall be taken during the first thirty minutes of the discharge. If the collection of a grab sample during the first thirty minutes is impracticable, a grab sample can be taken during the first hour of the discharge, and the discharger shall submit with the monitoring report a description of why a grab sample during the first thirty minutes was impracticable. The composite sample shall either be flow-weighted or time-weighted. Composite samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge or for the first three hours of the discharge, with each aliquot being separated by a minimum period of fifteen minutes. Grab samples only must be collected and analyzed for the determination of pH, cyanide, whole effluent toxicity, and oil and grease.

5. **Sampling Waiver**. When a discharger is unable to collect samples due to adverse climatic conditions, the discharger must submit in lieu of sampling data a description of why samples could not be collected, including available documentation of the event. Adverse climatic conditions which may prohibit the collection of samples includes weather

conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.). Dischargers are precluded from exercising this waiver more than once during a two year period.

6. Representative Discharge. When a facility has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may test the effluent of one of such outfalls and report that the quantitative data also applies to the substantially identical outfalls. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area (e.g. low (under 40 percent), medium (40 to 65 percent) or high (above 65 percent)) shall be provided in the plan. Permittees required to submit monitoring information under Parts VI.D.1.a., b or c of this permit shall include the description of the location of the outfalls, explanation of why outfalls are expected to discharge substantially identical effluents, and estimate of the size of the drainage area and runoff coefficient with the Discharge Monitoring Report.

7. Alternative Certification. A discharger is not subject to the monitoring requirements of Parts VI.B.2 or 3 of this permit provided the discharger makes a certification for a given outfall, on an annual basis, under penalty of law, signed in accordance with Part VII.G (signatory requirements), that material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, industrial machinery or operations, significant materials from past industrial activity, or in the case of airports, deicing activities, that are located in areas of the facility that are within the drainage area of the outfall are not presently exposed to storm water and will not be exposed to storm water for the certification period. Such certification must be retained in the storm water pollution prevention plan, and submitted to the Department in accordance with Part VI.D of this permit.

8. Alternative to WET Parameter. A discharger that is subject to the monitoring requirements of Parts VI.B.2. a through d may, in lieu of monitoring for acute whole effluent toxicity, monitor for pollutants identified in Tables II and III of Appendix D of 40 CFR 122 that the discharger knows or has

reason to believe are present at the facility site. Such determinations are to be based on reasonable best efforts to identify significant quantities of materials or chemicals present at the facility. Dischargers must also monitor for any additional parameters identified in Part VI.B.2.a through d.

9. **Credit for Individual Application Sampling.** Where a permittee has previously submitted a complete individual application and then received coverage under this general permit without an individual permit being issued, the Department will give "credit" for the sampling performed as part of the individual application by allowing the permittee to skip the first monitoring period after receiving coverage under this permit.

C. **Toxicity Testing**. Permittees that are required to monitor for acute whole effluent toxicity shall initiate the series of tests described below within 180 days after the issuance of this permit or within 90 days after the commencement of a new discharge.

1. **Test Procedures**

a. The permittee shall conduct acute 24 hour static toxicity tests on both an appropriate invertebrate and an appropriate fish (vertebrate) test species (EPA/600/4-90-027 Rev. 9/91, Section 6.1.). Freshwater species must be used for discharges to freshwater waterbodies. Due to the non-saline nature of rainwater, freshwater test species should also be used for discharges to estuarine, marine or other naturally saline waterbodies.

b. All test organisms, procedures and quality assurance criteria used shall be in accordance with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90-027 (Rev. September 1991) or latest revision. EPA has proposed to establish regulations regarding these test methods (December 4, 1989, 53 FR 50216).

c. Tests shall be conducted semiannually (twice per year) on a grab sample of the discharge at 100 percent strength (no dilution) and a control consisting of synthetic dilution water. Results of all tests conducted with any species shall be reported according to EPA/600/4-90-027 (Rev. September 1991), Section 12, Report Preparation, and the report submitted to the Department with the Discharge Monitoring Reports (DMR's). On the DMR, the permittee shall report "0" if there is no statistical

difference between the control mortality and the effluent mortality. If there is statistical difference (exhibits toxicity), the permittee shall report "1" on the DMR.

2. If acute whole effluent toxicity (statistically significant difference between the 100 percent dilution and the control) is detected in storm water discharges required to conduct toxicity testing on or after October 1, 1995, the permittee shall review the storm water pollution prevention plan and make appropriate modifications to assist in identifying the source(s) of toxicity and to reduce the toxicity of their storm water discharges. A summary of the review and the resulting modifications shall be provided in the plan.

D. Reporting: Where to Submit.

1. a. Permittees which are required to conduct sampling pursuant to Parts VI.B.2.(a) (EPCRA Section 313), and (d) (Wood Treatment facilities), must submit monitoring results obtained during the reporting period running from January to December on Discharge Monitoring Report Form(s) postmarked no later than the 28th day of the following January. A separate Discharge Monitoring Report Form is required for each event monitored. The first report may include less than twelve months of information.

b. Permittees which are required to conduct sampling pursuant to Parts VI.B.2.(b) (Primary Metal facilities), (e) (Coal Pile Runoff), and (f) (Battery Reclaimers) must submit monitoring results obtained during the reporting period running from April to March on Discharge Monitoring Report Form(s) postmarked no later than the 28th day of the following April. A separate Discharge Monitoring Report Form is required for each event monitored. The first report may include less than twelve months of information.

c. Permittees which are required to conduct sampling pursuant to Parts VI.B.2.(c) (Land disposal facilities), must submit monitoring results obtained during the reporting period running from October to September on Discharge Monitoring Report Form(s) postmarked no later than the 28th day of October. A separate Discharge Monitoring Report Form is required for each event monitored. The first report may include less than twelve months of information.

d. Signed copies of discharge monitoring reports required under Parts VI.D.1.a, VI.D.1.b, and VI.D.1.c, individual

permit applications and all other reports required herein, shall be submitted to the Department at the following address:

SC Dept. of Health and Environmental Control
Bureau of Water Pollution Control
Monitoring and Enforcement Division
2600 Bull Street
Columbia, SC 29201

e. Permittees with facilities identified in Parts VI.B.3 (annual monitoring) are not required to submit monitoring results, unless required in writing by the Department.

2. Additional Notification.

a. In addition to filing copies of discharge monitoring reports in accordance with Part VI.D.1 (reporting: where to submit), facilities with at least one storm water discharge associated with industrial activity through a large or medium municipal separate storm sewer system (systems serving a population of 100,000 or more) must submit signed copies of discharge monitoring reports to the operator of the municipal separate storm sewer system in accordance with the dates provided in paragraph VI.D.1 (reporting: where to submit). Facilities not required to report monitoring data under Part VI.B.3 (annual monitoring requirements), and facilities that are not otherwise required to monitor their discharges, need not comply with this provision.

E. Retention of Records.

1. The permittee shall retain the pollution prevention plan developed in accordance with Part IV (storm water pollution prevention plans) of this permit until at least one year after coverage under this permit terminates. The permittee shall retain all records of all monitoring information, copies of all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, until at least one year after coverage under this permit terminates. This period may be explicitly modified by alternative provisions of this permit (see paragraph VI.E.2 (below) of this permit) or extended by request of the Department at any time.

2. For discharges subject to sampling requirements pursuant to Part VI.B (monitoring requirements), in addition to the requirements of paragraph VI.E.1 (above), permittees are required to retain for a six year period from the date of

sample collection or for the term of this permit, which ever is greater, records of all monitoring information collected during the term of this permit. Permittees must submit such monitoring results to the Department upon the requests of the Department, and submit a summary of such result as part of renotification requirements in accordance with Part II.F (renotification).

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply.

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of CWA and the S.C. Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. Penalties for Violations of Permit Conditions.

a. Any person who violates a term or condition contained with in this permit is subject to the actions defined by Sections 48-1-320 and 48-1-330 of the S.C. Pollution Control Act.

b. Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for non-compliance.

B. Continuation of the Expired General Permit.

This permit expires on September 30, 1997. However, an expired general permit continues in force and effect until a new general permit is issued. Permittees must submit a new NOI in accordance with the requirements of Part II of this permit, using a NOI form provided by the Department (or photocopy thereof) between August 1, 1997 and September 28, 1997 to remain covered under the continued permit after October 1, 1997. Facilities that had not obtained coverage under the permit by October 1, 1997 cannot become authorized to discharge under the continued permit.

C. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Duty to Provide Information. The permittee shall furnish to the Department, within a time specified by the Department, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department upon request copies of records required to be kept by this permit.

F. Other Information. When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Department, he or she shall promptly submit such facts or information.

G. Signatory Requirements. All Notices of Intent, Notices of Termination, storm water pollution prevention plans, reports, certifications or information either submitted to the Department (and/or the operator of a large or medium municipal separate storm sewer system), or that this permit requires be maintained by the permittee, shall be signed.

1. All Notices of Intent shall be signed as follows:

   a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

   c. For a municipality: State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

2. All reports required by the permit and other information requested by the Department shall be signed by a person

described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Department.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

c. Changes to authorization. If an authorization under paragraph VII.G.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new notice of intent satisfying the requirements of paragraph II.C must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Certification. Any person signing documents under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. False Statements, Representations or Certifications Falsifying Tampering with or Rendering Inaccurate Monitoring Devices or Methods.

Section 48-1-340 of the S.C. Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in an application, record, report, plan or other document filed or required to be maintained under this permit or who falsifies, tampers with or

knowingly renders inaccurate any monitoring device or method required to be maintained by this permit, shall be subject to the civil or criminal provisions of Sections 48-1-320 and 48-1-330 of the S.C. Pollution Control Act.

I. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the CWA, Section 106 of CERCLA, the S.C. Pollution Control Act, or applicable provisions of the S.C. Hazardous Waste Management Act and the S.C. Oil and Gas Act.

J. Property Rights. The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

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

L. Requiring an individual permit or an alternative general permit.

1. The Department may require any person authorized by this permit to apply for and/or obtain either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition the Department to take action under this paragraph. The Department may require any owner or operator authorized to discharge under this permit to apply for an individual NPDES permit only if the owner or operator has been notified in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the owner or operator to file the application, and a statement that on the effective date of the individual NPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Individual permit applications shall be submitted to the address shown in Part II.C (reporting: where to submit) of this permit. The Department may grant additional time to submit the application upon request of the applicant. If an owner or operator fails to submit in a timely manner an individual NPDES permit application as required by the Department, then the

applicability of this permit to the individual NPDES permittee is automatically terminated at the end of the day specified for application submittal.

2. Any owner or operator authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual permit. The owner or operator shall submit an individual application (Form 1 and Form 2F) with reasons supporting the request to the Department. Individual permit applications shall be submitted to the address in Part II.C of this permit. The request may be granted by the issuance of any individual permit or an alternative general permit if the reasons cited by the owner or operator are adequate to support the request.

3. When an individual NPDES permit is issued to an owner or operator otherwise subject to this permit, or the owner or operator is authorized for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to an owner or operator otherwise subject to this permit, or the owner or operator is denied for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Department.

M. State/Environmental Laws.

1. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the CWA.

2. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

N. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation

and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

O. Monitoring and records.

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. The permittee shall retain records of all monitoring information including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of the reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 6 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

3. Records Contents. Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurements;

   b. The initials or name(s) of the individual(s) who performed the sampling or measurements;

   c. The date(s) analyses were performed;

   d. The time(s) analyses were initiated;

   e. The initials or name(s) of the individual(s) who performed the analyses;

   f. References and written procedures, when available, for the analytical techniques or methods used; and

   g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

4. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 and S.C. Environmental Laboratory Certification Regulation 61-81, unless other test procedures have been specified in this permit.

P. Inspection and Entry. The permittee shall allow the Director or an authorized representative of EPA, the Department, or, in

the case of a facility which discharges through a municipal separate storm sewer, an authorized representative of the municipal operator or the separate storm sewer receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

Q. **Permit Actions**. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

R. **Areawide Water Quality Management Plan Conformance**. All associated with industrial activity storm water discharges given coverage under this permit are in compliance with the appropriate Areawide Water Quality Management Plan prepared pursuant to Section 208 of the CWA.

S. **Bypass of Treatment Facility**.

1. Notice:

   a. Anticipated bypass. If a permittee subject to the numeric effluent limitation of Part V.A. of this permit shall submit notice of an unanticipated bypass. Any information regarding the unanticipated bypass shall be provided orally within 24 hours from the time the permittee became aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee became aware of the circumstances. The written submission shall contain a description of the bypass and its cause; the period of the bypass; including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

2. Prohibition of bypass:

a. Bypass is prohibited and the Department may take enforcement action against a permittee for a bypass. Unless:

(1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternative to the bypass, such as the use of auxiliary facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee should, in the exercise of reasonable engineering judgement, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices of the bypass.

b. The Department may approve an anticipated bypass after considering its adverse effects, if the Director determines that it will meet the three conditions listed in Part VII.S.2.a.

T. Upset Conditions.

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based numeric effluent limitations in Part V.A of this permit if the requirements of paragraph 2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, if final administrative action subject to judicial review.

2. A permittee who wishes to establish the affirmative defense of an upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that:

a. An upset occurred and that the permittee can identify the specific cause(s) of the upset:

b. The permitted facility was at the time being properly operated; and

c. The permittee provided oral notice of the upset to the Department within 24 hours from the time the permittee became aware of the circumstances. A written submission shall also be provided within 5

days of the time the permittee became aware of the circumstances. The written submission shall contain a description of the upset and its cause; the period of the upset; including exact dates and times, and if the upset has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the upset.

3. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

Part VIII. REOPENER CLAUSE

A. If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with industrial activity covered by this permit, the owner or operator of such discharge may be required to obtain individual permit or an alternative general permit in accordance with Part VII.L (requiring an individual permit or alternative general permit) of this permit or the permit may be modified to include different limitations and/or requirements.

B. Permit modification or revocation will be conducted according to S.C. Pollution Control Act and S.C. Regulation 61-9.

Part IX. TERMINATION OF COVERAGE

A. Notice of Termination. Where all storm water discharges associated with industrial activity that are authorized by this permit are eliminated, the operator of the facility may submit a Notice of Termination that is signed in accordance with Part VII.G (signatory requirements) of this permit. The Notice of Termination shall include the following information:

1. Name, mailing address, and location of the facility for which the notification is submitted. Where a mailing address for the site is not available, the location can be described in terms of the latitude and longitude of the facility to the nearest 15 seconds that the facility is located in;

2. Up to four 4-digit SIC codes that best represent the principal products or activities provided by the facility;

3. The operator's name, address, telephone number, ownership status and status as Federal, State, private, public or other entity;

4. The NPDES permit for the storm water discharge associated with industrial activity identified by the Notice of Termination; and

5. The following certification signed in accordance with Part VII.G (signatory requirements) of this permit:

> "I certify under penalty of law that all storm water discharges associated with industrial activity from the identified facility that are authorized by a NPDES general permit have been eliminated. I understand that by submitting this notice of termination, that I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit."

B. Addresses. All Notices of Termination are to be sent, using the form provided by the Department (or a photocopy thereof), to the following address:

SC Dept. of Health and Environmental Control
NPDES/ND Permit Administration
Storm Water Notice of Termination
2600 Bull Street
Columbia, SC 29201

Part X. DEFINITIONS

"Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Coal pile runoff" means the rainfall runoff from or through any coal storage pile

"CWA" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.

"Department" means the South Carolina Department of Health and Environmental Control or an authorized representative.

"Director" means the EPA Regional Administrator or an authorized representative.

"EPA" means the Environmental Protection Agency.

"Flow-weighted composite sample" means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

"Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

"Land application unit" means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

"Large and Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either:
(i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or
(ii) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or
(iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Department as part of the large or medium municipal separate storm sewer system (a portion of the City of Charleston has been designated).

"NOI" means notice of intent to be covered by this permit (see Part II of this permit.)

"NOT" means notice of termination (see Part II of this permit.)

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

"Section 313 water priority chemical" means a chemical or chemical categories which are: 1) are listed at 40 CFR 372.65 pursuant to Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986; 2) are present at or above threshold levels at a facility subject to EPCRA, Section 313 reporting requirements; and 3) that meet at least one of the following criteria: (i) are listed in Appendix D of 40 CFR 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table V (certain toxic pollutants and hazardous substances); (ii) are listed as a hazardous substance pursuant to section 311(b)(2)(A) of the CWA at 40 CFR 116.4; or (iii) are pollutants for which EPA has published acute or chronic water quality criteria.

"Significant materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of EPCRA: fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

"Significant spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under section 311 of the Clean Water Act (see 40 CFR 110.10 and CFR 117.21) or section 102 of CERCLA (see 40 CFR 302.4).

"Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Storm Water Associated with Industrial Activity" means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program. For the categories of industries identified in subparagraphs (i) through (x) of this subsection, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR 401); sites used for the storage and maintenance of material handling equipment; sites used for residual

treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in subparagraph (xi), the term includes only storm water discharges from all areas listed in the previous sentence (except access roads) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally or municipally owned or operated that meet the description of the facilities listed in this paragraph (i)-(xi)) include those facilities designated under 122.26(a)(1)(v). The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

(i) Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (xi) of this paragraph);

(ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 311, 32 (except 323), 33, 3441, 373;

(iii) Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(l)) because the performance bond issued to the facility the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990 and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining

operations are mining sites that are not being actively mined, but which have an identifiable owner/operator;
(iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;
(v) Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under Subtitle D of RCRA;
(vi) Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;
(vii) Steam electric power generating facilities, including coal handling sites;
(viii) Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45 and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under paragraphs (i)-(vii) or (ix)-(xi) of this subsection are associated with industrial activity;
(ix) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with 40 CFR 503;
(x) Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale;
(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except

311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25, (and which are not otherwise included within categories (i)-(x))[3].

"Time-weighted composite" means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with the numeric effluent limitations of Part V of this permit because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent cause by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

"Waste pile" means any noncontainerized accumulation of solid, nonflowing waste that is used for treatment or storage.

"Waters of South Carolina" means all waters of the United States within the political boundaries of the State of South Carolina.

"Waters of the United States" means:
(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate "wetlands";
(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, wet meadows, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

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[3] On June 4, 1992, the United States Court of Appeals for the Ninth Circuit remanded the exclusion for manufacturing facilities in category (xi) which do not have materials or activities exposed to storm water to the EPA for further rulemaking. (Nos. 90-70671 and 91-70200).

(d) All impoundments of waters otherwise defined as waters of South Carolina under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.
Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA are not waters of the South Carolina. This exclusion applies only to manmade bodies of water which neither were originally created in waters of South Carolina (such as disposal areas in wetlands) nor resulted from the impoundment of waters of South Carolina.

"10-year, 24-hour precipitation event" means the maximum 24-hour precipitation event with a probable reoccurrence interval of once in 10 years.

ATTACHMENT V

SCDHEC Wate: Pollution Control Permit # SC0004278 - Effective October 1, 1992

South Carolina Department of Health and Environmental Control

Water Pollution Control

PERMIT

TO DISCHARGE WASTEWATER IN ACCORDANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

THIS CERTIFIES THAT

Duke Power Company
Catawba Nuclear Station

has been granted permission to discharge wastewater from a facility located at

Newport, York County,
South Carolina

to receiving waters named

Lake Wylie

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof. This permit is issued in accordance with the provisions of the Pollution Control Act of South Carolina (S.C. Code Sections 48-1-10 *et seq.*, 1976) and with the provisions of the Federal Clean Water Act (PL 92-500), as amended, 33 U.S.C. 1251 *et seq.*, the "Act."

Marion F. Sadler, Jr.

DIRECTOR, DIVISION OF INDUSTRIAL & AGRICULTURAL WASTEWATER
BUREAU OF WATER POLLUTION CONTROL

Issued: SEP 15 1992

Effective: OCT 1 1992

Expires: SEP 30 1997

Permit No.: SC0004278

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Phase I

1. During the period beginning on the effective date of this permit and lasting through April 30, 1994, the Permittee is authorized to discharge from outfall(s) serial number(s) 001: once through cooling water, nuclear service water, cooling tower blowdown (discharged via internal Outfall 005) and liquid radiological wastes (treated and discharged via internal Outfall 004) to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Max.	Monthly Average	Daily Max.	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	Daily	Continuous**
Total Residual Chlorine	-	-	MR	MR	1/week	Multiple Grabs*
Intake Temperature	-	-	-	-	Daily	Continuous
Discharge Temperature	-	-	-	-	Daily	Continuous
Temperature rise (April-September)	-	-	5.6°C(10.0°F)	-	Daily	Calculation
Temperature rise (October-March)	-	-	7.8°C(14.0°F)	-	Daily	Calculation

*See Part III, Special Condition #16
**See Part III, Special Condition #17
MR = Monitor and Report
Based on a flow of 82.5 MGD

No chromium and zinc based maintenance chemicals will be allowed in the cooling tower.

2. The pH shall be monitored and reported once per week by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): The intake temperature shall be monitored at or near the plant intake. All other parameters shall be monitored at or near the point of discharge from Outfall 001 prior to mixing with the receiving waters, unless otherwise specified above.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Phase II

1. During the period beginning on May 1, 1994 and lasting through the expiration date, the Permittee is authorized to discharge from outfall(s) serial number(s) 001: once through cooling water, nuclear service water, cooling tower blowdown (discharged via internal Outfall 005) and liquid radiological wastes (treated and discharged via internal Outfall 004) to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Max.	Monthly Average	Daily Max.	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	Daily	Continuous**
***Total Residual Chlorine	-	-	less than 0.10 mg/l		1/week	Multiple Grabs*
Intake Temperature	-	-	-	-	Daily	Continuous
Discharge Temperature	-	-	-	-	Daily	Continuous
Temperature rise (April-September)	-	-	5.6°C(10.0°F)	-	Daily	Calculation
Temperature rise (October-March)	-	-	7.8°C(14.0°F)	-	Daily	Calculation

*See Part III, Special Condition #16
**See Part III, Special Condition #17
***See Part III, Special Condition #18

MR = Monitor and Report
Based on a flow of 82.5 MGD

No chromium and zinc based maintenance chemicals will be allowed in the cooling tower.

2. The pH shall be monitored and reported once per week by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): The intake temperature shall be monitored at or near the plant intake. All other parameters shall be monitored at or near the point of discharge from Outfall 001 prior to mixing with the receiving waters, unless otherwise specified above.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this Permit and lasting through (See Part III, Special Condition #14) the Permittee is authorized to discharge from outfall(s) serial number(s) 001: once through cooling water, nuclear service water, cooling tower blowdown (discharged via internal Outfall 005) and liquid radiological wastes (treated and discharged via internal Outfall 004) to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	MR[1]	1/month[1]	[1]

(1) See Part III, Special Condition #13 a,b,c,d,e

MR = Monitor and Report

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from Outfall 001 prior to mixing with the receiving waters, unless otherwise specified above.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on(See Part III, Special Condition #14) of this Permit and lasting through the expiration date, the Permittee is authorized to discharge from outfall(s) serial number(s) 001: once through cooling water, nuclear service water, cooling tower blowdown (discharged via internal Outfall 005) and liquid radiological wastes (treated and discharged via internal Outfall 004) to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	0[1]	1/month[1]	[1]

(1) See Part III, Special Condition #13 a,b,d,e

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from Outfall 001 prior to mixing with the receiving waters, unless otherwise specified above.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Phase I

1. During the period beginning on the effective date of this permit and lasting through April 30, 1994, the Permittee is authorized to discharge from outfall(s) serial number(s) 002: low volume wastes, miscellaneous dilute wastewater, and metal cleaning wastes to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	1/week	Instantaneous
*Total Residual Chlorine (TRC)	-	-	less than 0.10 mg/l		1/(3)	Grab
Biochemical Oxygen Demand(5-day)	-	-	MR	MR	1/month	Grab
Oil and Grease	-	-	15 mg/l	20 mg/l	2/month	Grab
Total Suspended Solids	-	-	30 mg/l	100 mg/l	2/month	Grab
Copper, total	-	-	1.0 mg/l	1.0 mg/l	1/(2)	Grab
Iron, total	-	-	1.0 mg/l	1.0 mg/l	1/(2)	Grab
Ethylene Glycol	-	-	11.9 mg/l	23.8 mg/l	1/(1)	Grab
Hydrazine	-	-	-	0.43 mg/l	1/(1)	Grab

(1) Sampling shall be conducted once per occurrence of discharge of these substances through Outfall 002 but need not be more than twice per month.

(2) Sampling shall be conducted once per chemical metal cleaning occurrence of discharge of these substances through Outfall 002 but need not be more than twice per month.

(3) After treatment with hypochlorite has occurred in a WC pond, sampling for TRC shall be conducted once per day over a two day period during discharge from the WC pond.

*See Part III, Special Condition #i8

Based on a flow of 0.76 MGD
MR = Monitor and Report

2. The pH shall not be less than 6.0 s.u. nor greater than 9.0 s.u. and shall be monitored once per week by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the conventional waste treatment (WC) system but prior to mixing with the receiving waters.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Phase II

1. During the period beginning on May 1, 1994 of this permit and lasting through the expiration date, the Permittee is authorized to discharge from outfall(s) serial number(s) 002: low volume wastes, miscellaneous dilute wastewater, and metal cleaning wastes to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	1/week	Instantaneous
*Total Residual Chlorine (TRC)	-	-	less than 0.10 mg/l		1/(3)	Grab
Biochemical Oxygen Demand(5-day)	-	-	MR	MR	1/month	Grab
Oil and Grease	-	-	15 mg/l	20 mg/l	2/month	Grab
Total Suspended Solids	-	-	30 mg/l	100 mg/l	2/month	Grab
Copper, total	-	-	0.0125 mg/l	0.0125 mg/l	1/(2)	Grab
Iron, total	-	-	0.645 mg/l	0.645 mg/l	1/(2)	Grab
Ethylene Glycol	-	-	11.9 mg/l	23.8 mg/l	1/(1)	Grab
Hydrazine	-	-	-	0.43 mg/l	1/(1)	Grab

(1) Sampling shall be conducted once per occurrence of discharge of these substances through Outfall 002 but need not be more than twice per month.

(2) Sampling shall be conducted once per chemical metal cleaning occurrence of discharge of these substances through Outfall 002 but need not be more than twice per month.

(3) After treatment with hypochlorite has occurred in a WC pond, sampling for TRC shall be conducted once per day over a two day period during discharge from the WC pond.

*See Part III, Special Condition #18

Based on a flow of 0.76 MGD
MR = Monitor and Report

2. The pH shall not be less than 6.0 s.u. nor greater than 9.0 s.u. and shall be monitored once per week by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the conventional waste treatment (WC) system but prior to mixing with the receiving waters.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this Permit and lasting through (See Part III, Special Condition #14), the Permittee is authorized to discharge from outfall(s) serial number(s) 002: low volume wastes, miscellaneous dilute wastewater, and metal cleaning wastes to Lake Wylie.

   Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	MR[1]	1/month[1]	[1]

(1) See Part III, Special Condition #13 a,b,c,d,e

MR = Monitor and Report

2. Due to the intermittent and variable duration of the batch discharges for Outfall 002, the sampling protocol for chronic testing is modified to allow Duke Power Company to conduct the chronic testing with only one or two samples in instances when flow is not available.

3. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the conventional waste treatment (WC) system but prior to mixing with the receiving waters.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on (See Part III, Special Condition #14)of this Permit and lasting through the expiration date the Permittee is authorized to discharge from outfall(s) serial number(s) 002: low volume wastes, miscellaneous dilute wastewater, and metal cleaning wastes to Lake Wylie.

   Such discharge shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	0[1]	1/month[1]	[1]

(1) See Part III, Special Condition #13 a,b,d,e

2. Due to the intermittent and variable duration of the batch discharges for Outfall 002, the sampling protocol for chronic testing is modified to allow Duke Power Company to conduct the chronic testing with only one or two samples in instances when flow is not available.

3. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the conventional waste treatment (WC) system but prior to mixing with the receiving waters.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Phase I

1. During the period beginning on the effective date of this permit and lasting through April 30, 1994, the Permittee is authorized to discharge from outfall(s) serial number(s) 003: treated sanitary sewerage to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	1/month	Instantaneous*
Total Residual Chlorine	-	-	MR	MR	1/week	Grab
Total Suspended Solids	-	-	90 mg/l	135 mg/l	1/month	24Hr. Composite
Biochemical Oxygen Demand (5-day)	-	-	30 mg/l	60 mg/l	1/month	24Hr. Composite
Fecal Coliform	-	-	200/100 ml	400/100ml	1/month	Grab
Dissolved Oxygen	-	-	MR	MR	1/week	Grab

*See Part III, Special Condition #17

MR = Monitor and Report
Based on a flow of 0.038 MGD

2. The pH shall not be less than 6.0 s.u. nor greater than 9.0 s.u. and shall be monitored once per week by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the sewage treatment plant prior to mixing with the receiving waters.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Phase II

1. During the period beginning on May 1, 1994 of this permit and lasting through the expiration date, the Permittee is authorized to discharge from outfall(s) serial number(s) 003: treated sanitary sewerage to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	1/month	Instantaneous*
Total Residual Chlorine	-	-	0.5 mg/l	1.0 mg/l	1/week	Grab
Total Suspended Solids	-	-	90 mg/l	135 mg/l	1/month	24Hr. Composite
Biochemical Oxygen Demand (5-day)	-	-	30 mg/l	60 mg/l	1/month	24Hr. Composite
Fecal Coliform	-	-	200/100 ml	400/100ml	1/month	Grab
Dissolved Oxygen	-	-	at a minimum of 1.0 mg/l		1/week	Grab

*See Part III, Special Condition #17

MR = Monitor and Report
Based on a flow of 0.038 MGD

2. The pH shall not be less than 6.0 s.u. nor greater than 9.0 s.u. and shall be monitored once per week by grab sample.

3. There shall be no discharge of floating solids or visible foam in other than trace amounts; nor, shall the effluent cause a visible sheen on the receiving waters.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the sewage treatment plant prior to mixing with the receiving waters.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date, the Permittee is authorized to discharge from outfall(s) serial number(s) 004: liquid radiological wastes via Outfall 001 to Lake Wylie.

   Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	1/(1)	Estimate*
Copper, total	-	-	1.0 mg/l	1.0 mg/l	1/(1)	Grab
Iron, total	-	-	1.0 mg/l	1.0 mg/l	1/(1)	Grab
Hydrazine	-	-	-	46.8 mg/l	1/(1)	Grab

*See Part III, Special Condition #17 MR = Monitor and Report

Based on a flow of 0.007 MGD

(1) Sampling shall be conducted once per occurrence of discharge of this substances through Outfall 004.

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the liquid radiological waste treatment plant but prior to mixing with other wastewaters at Outfall 001.

   This discharge is regulated by the Nuclear Regulatory Commission (NRC) and is monitored per their specifications and the results are reported to NRC.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date, the Permittee is authorized to discharge from outfall(s) serial number(s)005: cooling tower blowdown via Outfall 001 to Lake Wylie.

Such discharge shall be limited and monitored by the Permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	kg/day (lbs/day)		Other Units (Specify)			
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m3/day (MGD)	-	-	MR	MR	Weekly	Estimate**
Free Available Chlorine	-	-	0.2 mg/l	0.5 mg/l	1/week	Multiple Grabs*

*See Part III, Special Condition #16
**See Part III, Special Condition #17
MR = Monitor and Report

No chromium and zinc based maintenance chemicals will be allowed in the cooling tower.

2. The Permittee shall annually, through monitoring or engineering calculations, certify that the other 124 priority pollutants (besides chromium and zinc) are present at no detectable amount in the cooling tower blowdown discharge as a result of the addition of cooling tower maintenance chemicals.

3. The pH shall not be less than 6.0 s.u. nor greater than 9.0 s.u. and shall be monitored once per week by grab sample.

4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at the point of discharge from the cooling towers prior to mixing with wastewaters at Outfall 001.

B. SCHEDULE OF COMPLIANCE

1. The Permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

(A) On or before January 1, 1993, the permittee shall submit a Preliminary Engineering Report (PER) for review and approval which addresses the treatment facilities limitations on Page 3, 7, and 11 of this permit.

(B) On or before January 31, 1993, the permittee shall submit supplemental 316(a) information and predictive model results.

(C) On or before May 1, 1993, the permittee shall submit a Final Engineering Report (final plans, specifications and a construction application) for the treatment facilities proposed in the PER for review and approval.

(D) On or before May 1, 1994, the treatment facilities construction shall be completed and the effluent shall be in compliance with the limitations on pages 3, 7, and 11 of this permit.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the Permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or non compliance. In the latter case, the notice shall include the cause of non compliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be present and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than $\pm 10\%$ from the true discharge rates throughout the range of expected discharge volumes. The primary flow device must be accessible to the use of a continuous flow recorder. Where a flume is present, a separate stilling well for Department/EPA use must be provided if required by the Department.

3. Reporting Monitoring Results

Monitoring results obtained each month shall be reported monthly on a Discharge Monitoring Report Form (EPA Form 3320-1). The first report is due postmarked no later than the 28th day of the month following the month this permit becomes effective. Two copies of these, and all other reports required herein, shall be submitted to the Department:

S.C. Department of Health and Environmental Control
ATTN: BWPC/Enforcement Section
2600 Bull Street
Columbia, South Carolina 29201

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to State Environmental Laboratory Certification Regulation 61-81 and Section 304(h) of the Act, as amended. (Federal Register, October 16, 1973; Title 40, Chapter I, Sub-chapter D, Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants." Amended by Federal Register, December 1, 1976, and any other amendments that may be promulgated).

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. the exact place, date and time of sampling;

b. the dates and times the analyses were performed;

c. the person(s) who performed the analyses and the laboratory certification number where applicable;

d. the analytical techniques or methods used; and

e. the results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified herein, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA-3320-1). Such increased frequency shall also be indicated. Additional or accelerated monitoring may be required to determine the nature and impact of a non-complying discharge on the environment or to determine if a single non-complying sample is representative of the long term condition (monthly average).

7. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analysis performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Department. The permittee shall furnish to the Department upon request, copies of records required to be kept by this permit.

8. Definitions

a. The "monthly average", other than for fecal coliform, is the arithmetic mean of all samples collected in a calendar month period. The monthly average for fecal coliform bacteria is the geometric mean of all samples collected in a calendar month period. The monthly average loading is the arithmetic average of all individual loading determinations made during the month.

b. The "weekly average" is the arithmetic mean of all the samples collected during a one-week period. For self-monitoring purposes, weekly periods in a calendar month are defined as three consecutive seven day intervals starting with the first day of the calendar month and a fourth interval containing seven days plus those days beyond the 28th day in a calendar month. The value to be reported is the single highest of the four weekly

averages computed during a calendar month. The weekly average loading is the arithmetic average of all individual loading determinations made during the week.

c. The "daily maximum" is the highest average value recorded of samples collected on any single day during the calendar month.

d. The "instantaneous maximum" is the highest value recorded of any sample collected during the calendar month.

e. Arithmetic Mean: The arithmetic mean of any set of values is the summation of the individual values divided by the number of individual values.

f. Geometric Mean: The geometric mean of any set of values is the Nth root of the product of the individual values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

g. Department: The South Carolina Department of Health and Environmental Control.

h. Act: The Clean Water Act (Formerly referred to as the Federal Water Pollution Control Act) Public Law 92-500, as amended.

i. Grab Sample: An individual discrete or single influent or effluent portion of at least 100 milliliters collected at a time representative of the discharge and over a period not exceeding 15 minutes and retained separately for analysis. Instantaneous flow measured at the time of grab sample collection shall be used to calculate quantity.

j. Composite Sample: One of the following four types of composite samples as defined is specified within this permit:

(1) An influent or effluent portion collected continuously over a specified period of time at a rate proportional to the flow.

(2) A combination of not less than 8 influent or effluent grab samples collected at regular (equal) intervals over a specified period of time, properly preserved, (See part I.C.4.) and composited by increasing the volume of each aliquot in proportion to flow. If continuous flow measurement is not used to composite in proportion to flow, the following method will be used: Take an instantaneous flow measurement each time a grab sample is collected. At the end of the sampling period, sum the instantaneous flow measurements to obtain a total flow to determine the partial amount (percentage) of each grab sample to be combined to obtain the composite sample.

(3) A combination of not less than 8 influent or effluent grab samples of equal volume but at variable time intervals that are inversely proportional to the volume of the flow. That is, the time interval between aliquots is reduced as the volume of flow increases.

(4) A combination of not less than 8 influent or effluent grab samples of constant (equal) volume collected at regular (equal) time intervals over a specified period of time, while being properly preserved.

Continuous flow or the sum of instantaneous flows measured and averaged for the specified compositing time period shall be used with composite sample results to calculate quantity.

9. Right of Entry

The permittee shall allow the Commissioner of the Department of Health and Environmental Control, the Regional Administrator of EPA, and/or their authorized representatives:

a. To enter upon the permittee's premises where a regulated facility or activity and effluent source is located in which any records are required to be kept under the terms and conditions of this permit, and,

b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit and sample or monitor any substances or parameters at any location for the purposes of assuring permit compliance.

A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit non-compliance constitutes a violation of the Act and the S.C. Pollution Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for the denial of a permit renewal application.

2. Civil and Criminal Liability

a. Any person who violates a term, condition or schedule of compliance contained within this permit is subject to the actions defined by Sections 48-1-320 and 48-1-330 of the S.C. Pollution Control Act.

b. Except as provided in permit conditions on "Bypassing" (Part II, C.2.), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for non-compliance.

c. It shall not be an acceptable defense of the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

d. It is the responsibility of the permittee to have a treatment facility that will meet the final effluent limitations of this permit. The approval of plans and specifications by the Department does not relieve the permittee of responsibility for compliance.

3. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Act, the S.C. Pollution Control Act or applicable provisions of the S.C. Hazardous Waste Management Act and the S.C. Oil and Gas Act.

4. Permit Modification

a. The permittee shall furnish to the Department within a reasonable time any relevant information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit.

b. Upon sufficient cause, this permit may be modified, revoked, reissued, or terminated during its term, after public notice and opportunity for a hearing. Modifications deemed to be minor will not require public notice.

c. The filing of a request by the permittee for a permit modification, or a notification of planned changes or anticipated non-compliance, does not stay any permit condition.

5. Toxic Pollutants

Notwithstanding Part II.A.4. above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitations for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

6. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

7. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

8. Severability

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

9. Onshore and Offshore Construction

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

B. REPORTING REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any planned facility expansions, production increases, or process modifications which will result in a new or different discharge of pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Department of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. Twenty-Four Hour Non-Compliance Reporting

a. The permittee shall report any non-compliance with provisions specified in this permit which may endanger public health or the environment. The permittee shall notify the Department orally within 24 hours of becoming aware of such conditions. During normal working hours call 803/734-5300. After hour reporting should be made to the 24 hour Emergency Response telephone number 803/253-6488. The permittee shall provide the following information to the Department in writing, within five (5) days of becoming aware of such conditions:

1. A description of the discharge and cause of non-compliance; and,

2. The period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

b. The following violations shall be included in a 24 hour report when they might endanger health or the environment:

1. An unanticipated bypass which exceeds any effluent limitation in this permit;

2. Any upset which exceeds any effluent limitation in the permit.

c. As soon as the permittee has knowledge of or anticipates the need for a bypass, but not later than 10 days before the date of the bypass, it shall notify the Department and provide a determination of the need for bypass as well as the anticipated quality, quantity, time of duration, and effect of the bypass.

3. Other Non-Compliance

The permittee shall report in narrative form, all instances of non-compliance not previously reported under Section B, Paragraph B.2., at the time Discharge Monitoring Reports are submitted. The reports shall contain the information listed in Paragraph B.2.a.

4. Transfer of Ownership or Control

A permit may be transferred to another party under the following conditions:

a. The permittee notifies the Department of the proposed transfer at least thirty (30) days in advance of the proposed transfer date;

b. A written agreement is submitted to the Department between the existing and new permittee containing a specific date for the transfer of permit responsibility, coverage, and liability for violations up to that date and thereafter.

Transfers are not effective if, within 30 days of receipt of proposal, the Department disagrees and notifies the current permittee and the new permittee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed.

5. Expiration of Permit

The permittee is not authorized to discharge after the expiration date of this permit, unless a completed application for reissuance is submitted no later than 180 days prior to the expiration date. Permission may be granted to submit an application later than this, but not later than the expiration date of the permit. In accordance with Section 1-23-370 of the code of laws of South Carolina, if a timely and sufficient application is made for any activity of a continuing nature, the existing permit does not expire until a final determination is made to renew or deny renewal of the existing permit.

6. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified.

a. All permit applications shall be signed as follows:

1. For a corporation: by a principal executive officer of at least the level of vice-president or by a duly authorized representative;

2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or,

3. For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official.

b. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by duly authorized representation only if:

1. The authorization is made in writing by a person described above and submitted to the Department;

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

7. Availability of Reports

Except for data determined to be confidential under Section 48-1-270 of the S.C. Pollution Control Act, all reports prepared in accordance with the terms and conditions of this permit shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 48-1-340 of the S.C. Pollution Control Act.

8. Changes in Discharges of Toxic Pollutants or Hazardous Substances

a. The permittee shall notify the Department as soon as it knows or has reason to believe that any activity has occurred or will occur which would result in the discharge in any outfall of:

1. Any toxic pollutant(s) identified under Section 307(a) of the Act which exceed the highest of the following concentrations and are not limited in the permit.

- 1 mg/l for antimony (Sb);

- 0.500 mg/l for 2,4-dinitrophenol or 2-methyl, -4,6-dinitrophenol;

- 0.200 mg/l for acrolein or acrylonitrile;

- 0.100 mg/l for any other toxic pollutant; or,

- Ten (10) times the maximum concentration value reported in the permit application.

2. Any hazardous substance(s) identified under Section 311 of the Act as determined by Federal Regulation 40 CFR 117.

b. The permittee must notify the Department as soon as it knows or has reason to believe that it has begun or expects to begin to use or manufacture as an intermediate or final product or by-product any toxic pollutant or hazardous substance which was not reported in the permit application.

C. OPERATION AND MAINTENANCE

1. Facilities Operation

a. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance based on design facility removals, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls as determined by the laboratory certification program of the Department. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. Maintenance of facilities, which necessitates unavoidable interruption of operation and degradation of effluent quality shall be scheduled during non-critical water quality periods and carried out in a manner approved by the Department.

b. The permittee shall provide for an operator, as certified by the South Carolina Board of Certification for Environmental Systems Operators, with a grade equal to or higher than the classification designated in Part IIIA3. The name and grade of the operator of record shall be submitted to the Department prior to placing the facility into operation. A roster of operators associated with the facility's operation and their certification grades shall also be submitted with the name of the "operator-in-charge". Any changes in operator or operators shall be submitted to the Department as they occur.

2. Bypassing

Any intentional diversion from or bypass of waste streams from any portion of wastewater collection and treatment facilities which is not a designed or established operating mode for the facility is prohibited except (a) where unavoidable to prevent loss of life, personal injury or severe property damage, or (b) where excessive storm drainage or run-off would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit and there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or retention of untreated wastes. "Severe property damage" does not mean economic loss caused by delays in production.

3. Duty to Mitigate, Halt or Reduce Activity

The permittee shall take all reasonable steps to prevent, minimize or correct any adverse impact on public health or the environment resulting from non-compliance with this permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with this permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided.

4. Power Failures

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. In accordance with the Schedule of Compliance contained in Part I.B., provide an alternative power source sufficient to operate the wastewater control facilities;

or, if such alternative power source is not in existence, and no date for its implementation appears in Part I.B., have a plan of operation which will:

b. Halt, reduce, or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

5. Removed Substances

Solids, sludges, filter backwash or other residuals removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent such materials from entering State waters and in accordance with guidelines issued pursuant to Section 405 of the Act, and the terms of a construction or NPDES and/or solid or hazardous waste permit issued by the Department.

PART III

A. OTHER REQUIREMENTS

1. The Permittee shall maintain at the permitted facility a complete Operations and Maintenance (O & M) Manual for the waste treatment plant. The manual shall be made available for on-site review during normal working hours. The manual shall contain operation and maintenance instructions for all equipment and appurtenances associated with the waste treatment plant. The manual shall contain a general description of the treatment process(es), operating characteristics that will produce maximum treatment efficiency, and corrective action to be taken should operating difficulties be encountered.

2. The Permittee shall provide for the performance of routine daily treatment plant inspections by a certified operator of the appropriate grade as defined in Part II.C.1. The inspection shall include, but is not limited to, areas which require a visual observation to determine efficient operations and for which immediate corrective measures can be taken using the O & M manual as a guide. All inspections shall be recorded and shall include the date, time and name of the person making the inspection, corrective measures taken, and routine equipment maintenance, repair, or replacement performed. The Permittee shall maintain all records of inspections at the permitted facility as required by Part I.C.7., and the records shall be made available for on-site review during normal working hours.

3. The wastewater treatment plant has been assigned a classification of Group III-B in the Permits to Construct which are issued by the Department. This classification corresponds to an operator with a Grade of B-B or higher.

4. The Permittee shall maintain an all weather access road to the wastewater treatment plant and appurtenances at all times.

5. The Permittee shall continue to maintain a Best Management Practices (BMP) plan to identify and control the discharge of significant amounts of oils and the hazardous and toxic substances listed in 40 CFR Part 117 and Tables II and III of Appendix D to 40 CFR Part 122. The p[illegible] shall include a listing of all potential sources of spills or leaks of these materials, a method for containment, a description of training, inspection and security procedures, and emergency response measures to be taken in the event of a discharge to surface waters or plans and/or procedures which constitute an equivalent BMP. Sources of such discharges may include materials storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas. The BMP plan shall be developed in accordance with good engineering practices, shall be documented in narrative form, and shall include any necessary plot plans, drawings, or maps. The BMP plan shall be maintained at the plant site and shall be available for inspection by EPA and Department personnel.

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

7. The permittee shall monitor all parameters consistent with conditions established by this permit on the 1st Tuesday of every calendar month, unless otherwise approved by this Department. Additional monitoring, as necessary to meet the frequency requirements of this permit (Part I.A. Effluent Limitations and Monitoring Requirements) shall be performed by the permittee. The permittee shall notify the Department two (2) weeks prior to any changes in the monitoring schedule

8. Unless authorized elsewhere in this permit, the permittee shall meet the following requirements concerning maintenance chemicals for the following waste streams: once-through non-contact cooling water, recirculated cooling water, boiler blowdown, cooling tower blowdown, and air washer water. Maintenance chemicals shall be defined as any man-induced additives to the above-referenced waste streams. This includes materials added for corrosion inhibition including zinc, chromium, and phosphorus.

   a. The discharge, in detectable amounts, of any of the one hundred and twenty-six priority pollutants is prohibited, if the pollutants are present due to the use of maintenance chemicals.

   b. Slimicides, algicides and biocides shall be used in accordance with registration requirements of the Federal Insecticide, Fungicide and Rodenticide Act.

   c. The use of maintenance chemicals containing bis(tributyltin) oxide is prohibited unless written approval is obtained from SCDHEC.

   d. Any maintenance chemicals added to the above referenced waste streams must degrade rapidly, either due to hydrolytic decomposition or biodegradation.

   e. The discharge of maintenance chemicals added to waste streams must be limited to concentrations which protect indigenous aquatic populations in the receiving stream and shall not exceed the "no observed effect level (NOEL)".

   The permittee shall keep sufficient documentation on-site which support that the above requirements are being met. The information shall be made available for on-site review by Department personnel during normal working hours. The occurrence of in-stream problems may necessitate the submittal of chemical additive data and may require a permit modification to include additional monitoring and limitations. The permittee may demonstrate compliance with these limitations to the South Carolina Department of Health and Environmental Control by either sampling and analyzing for the pollutants in the discharge or providing mass balance calculations to demonstrate that use of particular maintenance chemicals will not result in detectable amounts of the toxic pollutants in the discharge.

9. The company shall notify the South Carolina Department of Health and Environmental Control in writing no later than sixty (60) days prior to instituting use of any additional maintenance chemicals in the cooling water system. Such notification shall include:

   - Name and general composition of the maintenance chemical
   - Quantities to be used
   - Frequency of use
   - Proposed discharge concentration
   - EPA registration number, if applicable
   - Aquatic toxicity information

10. All sludges, waste oil and solid and hazardous waste shall be properly disposed of in accordance with the rules and regulations of the Bureau of Solid and Hazardous Waste Management. Within ninety (90) days of the permit effective date, the Permittee shall submit a plan which details the sludge and solids management and disposal practices including the chemical metal cleaning sludge at this facility for review and approval.

11. The South Carolina Department of Health and Environmental Control has tentatively determined that pursuant to Section 316(a) of the Act that the thermal component of the discharge controlled by the temperature criteria on page 2 & 3 of this permit assures the protection and propagation of a balanced, indigenous population of fish, shellfish, and wildlife. Results of the 316(a) demonstration shall be submitted and shall support that less stringent thermal effluent limitations will assure the protection and propagation of a balanced, indigenous population of fish, shellfish and wildlife in and on the receiving stream.

12. Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day, and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the Permittee can demonstrate to SCDHEC that the units in a particular location cannot operate at or below this level of chlorination.

13. (a) On a monthly basis, a three-brood chronic toxicity test shall be conducted using a control and the instream waste concentration (IWC) of 100 % at Outfalls 001 and 002. The test shall be conducted using Ceriodaphnia dubia as the test organism and in accordance with the most recent "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (EPA/600/5-89/01) and "South Carolina Procedures for Pass/Fail Modifications of the Ceriodaphnia 48 hour Acute Toxicity Test and Ceriodaphnia Survival and Reproduction Test" (SCDHEC, May 1989). The raw data and results shall be submitted in accordance with Part I.(C)(3) of the permit for each monthly test. The test must be performed by a SCDHEC certified laboratory.

(b) Test results shall be analyzed according to statistical methods in Section 12.13 in USEPA (1989) or the most recent edition of this document. The toxicity test shall be deemed a failure if survival and/or reproduction of the test group is lower than that of the control group and this difference is significant at the $\alpha = 0.05$ level.

(c) If a test fails, a toxicity evaluation plan shall be submitted to the Enforcement Section of the Bureau of Water Pollution Control within sixty (60) days of notification to the Department of test results.

(d) The permittee must indicate on the discharge monitoring report forms whether the test passes or fails. If the test fails, the number "1" shall be placed on the form, if the test passes, the number "0" shall be placed on the form.

(e) Twelve consecutive acceptable months of toxicity testing results may result in quarterly testing in lieu of monthly tests at the Department's discretion.

14. After twelve consecutive months of "passed" toxicity testing results, the Department may terminate the screening process and impose a limitation. Page 5 & 9 of the permit shall become effective and 4 & 8 shall expire on the first day of the month after the Department informs the permittee in writing.

15. The permittee shall commence all toxicity testing consistent with conditions established by this permit during the first two (2) weeks of every calendar month, unless otherwise approved by this Department.

16. Multiple grabs shall consist of grab samples collected at the approximate beginning of the period of Total Residual Chlorine and/or Free Available Chlorine discharge and once every twenty (20) minutes until TRC or FAC is no longer present.

17. The permittee shall maintain at the permitted facility a record of the method(s) used in measuring the discharge flow:

a) Estimate - Pump Curve
Production Chart
Water Use Records
Valve Opening
Tank Volume

b) Instantaneous - Bucket and Watch
Weir and Gauge
Parshall Flume

c) Continuous - Totalizer
Continuous Chart
Recorder

Records of any necessary calibrations must also be kept. This information shall be made available for on-site review by Department personnel during normal working hours.

18. The applicable effluent limitation derived for total residual chlorine (TRC) based on EPA Water Quality Criteria is 11.0 ppb average and 19.0 ppb maximum. The State's current lower limit of detection for TRC is 0.10 ppm. The permittee must analyze to the lowest detectable limit of a South Carolina certified laboratory. If analytical capabilities improve, the new detection limit must be met down to the water quality limits of 11.0 ppb average and 19.0 ppb maximum.

19. Intake screen wash water, pump strainer backwash water, fire protection water, and potable water systems may be discharged without limitations or monitoring requirements. Appropriate measures shall be taken to minimize any impact to the environmental.

20. The permittee shall not store coal, soil nor other similar erodible materials in a manner in which runoff is uncontrolled, nor conduct construction activities in a manner which produces uncontrolled runoff unless such uncontrolled runoff has been specifically approved by SCDHEC. "Uncontrolled" shall mean without sedimentation basin or other controls approved by SCDHEC.

21. Upset - (1) Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

22. The once through noncontact cooling water system may be drained without limitations or monitoring requirements for maintenance activities provided that the Catawba Nuclear Station takes proper measures to minimize environmental impact from this activity.

23. The permittee shall develop and submit to our Office for approval a groundwater monitoring plan within ninety (90) days of the effective date of this permit. The groundwater monitoring plan shall be prepared in accordance with South Carolina Well Standards & Regulations (Reg.61-71).

Rationale TME/9/92
NPDES Permit No. SC0004278
Duke Power Company, Catawba Nuclear Station
York County

This is a renewal of the above referenced NPDES permit.

I. Project Description:
The Duke Power Company, Catawba Nuclear Station (hereinafter referred to as the Permittee) operates a nuclear powered steam electric generating facility with two nuclear units. The plant has a total rated electric generating capacity of 1129 megawatts (MW) per day. The facility is located on SC Highway 274 in Newport, South Carolina. The effluent discharge from this facility is subject to the Steam Electric Power Generating Point Source Category (40 CFR Part 423). The facility discharges effluent through the following outfalls and corresponding locations:

Outfall	Latitude	Longitude
001	35° 03′ 05"	81° 04′ 10"
002	35° 03′ 05"	81° 04′ 10"
003	35° 03′ 05"	81° 04′ 10"
004	35° 03′ 05"	81° 04′ 10"
005	35° 03′ 05"	81° 04′ 10"

The receiving water is Lake Wylie which is a Freshwater water body by (Regulation 61-69). A Freshwater is designated as freshwater suitable for primary contact recreation, secondary contact recreation, and as a source for drinking water after conventional treatment. The waters are suitable for fishing, and the survival and propagation of a balanced aquatic community, of fauna and flora, and for industrial and agricultural uses.

II. General Information:

A. The facility contact and mailing address follow:

M. S. Tuckman, Vice President
Catawba Nuclear Station
4800 Concord Road
York, South Carolina 29745

B. Categorical Guidelines:
1) The Steam Electric Effluent Guidelines 40 CFR Part 423
2) State Water Quality Criteria set forth in The South Carolina Department of Health and Environmental Control (SCDHEC) Toxic Control Strategy for Wastewater Discharges
3) The Water Classification and Standards (Regulation 61-68); Classified Waters (Regulations 61-69), State of South Carolina, (4/24/92)
4) S.C. Drinking Water Standards

C. Discharge:
To Lake Wylie
1) 7Q10 Flow = 0 cfs; 0 MGD
2) Annual Average Flow = 0 cfs; 0 MGD
3) Lake Wylie is a Freshwater (Reg.61-69)
4) Dilution factor (DF) = $\frac{\text{Stream flow + Plant Discharge}}{\text{Plant Discharge}}$ =

WQ Aquatic Life $DF_1 = 1.0$
WQ Human Health $DF_2 = 1.0$
5) Instream Waste Concentration (IWC) = 100%

D. Flows:
Total flow from the facility is 83.3 MGD, which is the sum of the following:

1) 001 (Low pressure service water (49.72 MGD), nuclear service water (25.58 MGD), cooling tower blowdown (7.2 MGD of wastewater discharged via internal Outfall 005) and liquid radiological waste (0.002 MGD of wastewater treated and discharged via internal Outfall 004)) = 82.502 MGD

2) 002 (0.46 MGD of wasiewaters from the service building sump, turbine building sumps, diesel generator catchment sump, sulfuric acid tank containment drainage sump, yard drain secondary containment sumps, motor pool car wash water, rainwater from valve pit sumps, and transformer sumps. 0.3 MGD of metal cleaning wastewaters are also treated at this outfall. Liquid radiological wastes (0.002 MGD of wastewaters treated and discharged via internal Outfall 004) also may be discharged through Outfall 002 but typically this discharge is via Outfall 001. The Permittee also included cooling tower blowdown (currently discharged via Outfall 001) in it's description of Outfall 002. However, during discussions with the Permittee during permit development it was revealed that cooling tower blowdown is not currently and has never been discharged via Outfall 002, but the Permittee would like to reserve the right to discharge in such a manner, should the need arise) = 0.76 MGD

3) 003 (Sanitary sewerage) = 0.038 MGD

4) 004 (Internal) Liquid Radiological Waste through Outfall 001 =0.002 MGD

5) 005 (Internal) Cooling Tower Blowdown through Outfall 001 = 7.2 MGD

III. Proposed Effluent Limitations

Outfall 001

Description of Discharge: Outfall 001 consists of low pressure service water (49.72 MGD), nuclear service water (25.58 MGD), cooling tower blowdown (7.2 MGD discharged via in ernal Outfall 005) and liquid radiological waste (0.002 MGD of wastewaters treated and discharged via internal Outfall 004). The sum of these wastestreams, 82.502 MGD, is discharged to the receiving stream with no treatment. A description of these discharges follow:

Cooling Tower Blowdown: See Outfall 005 for a description.

Low Pressure Service Water: The low pressure service water is once-through, non-contact cooling water.

Nuclear Service Water: The nuclear service water is once-through non-contact cooling water.

Liquid Radiological waste: Liquid radiological wastes are treated at internal Outfall 004. See Outfall 004 for a description.

RN pump bearing cleaning wastes: The nuclear service water pumps are cleaned annually to remove silt and deposits that restrict water flow. The monitoring and reporting of pH for Outfall 001 satisfies the concerns for this wastestream.

Applicable effluent guidelines for this facility are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. There shall be no discharge of PCBs.

2. Once-through cooling water shall have the following limitations:

Parameter	Maximum concentration (mg/l)
Total residual chlorine	0.20

3. Neither free available nor total residual chlorine may be discharged from any single generating unit for more than two hours per day and not more than one unit in any plant may discharge free available or total residual chlorine simultaneously unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control.

A. Flow
   1. Form 2C Value: 82.5 MGD long term average
   2. Previous Permit: Monitor and Report
   3. Past DMR Data[1] (9/89-8/90): 114.5 MGD daily average
      138.5 MGD daily maximum
   4. Effluent Guidelines: Not applicable
   5. Water Quality Criteria: Not applicable
   6. Human Health Consideration: Not applicable
   7. Detection Limit: Not applicable
   8. Conclusion: Monitoring requirements of continuously by recorder, as in the previous permit, are adopted.

B. Total Residual Chlorine (TRC)
   1. Form 2C Value: <0.1 mg/l maximum daily
   2. Previous Permit: Not specifically regulated
   3. Past DMR Data (9/89-8/90): 0.0 mg/l daily avg.; 0.0 mg/l daily maximum

[1] The DMR data provided is the maximum value reported during the DMR summary period.

4. Effluent Guidelines: (0.2 mg/l)(75.3 MGD)/(82.502 MGD) = 0.18 mg/l
5. Water Quality Criteria: 0.011 mg/l in the receiving stream
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.1 mg/l
8. Conclusion: Since there is no dilution provided by the receiving water body, the effluent limit for Outfall 001 based on water quality criteria is 0.011 mg/l, which is more stringent than the limit based on effluent guidelines. Therefore, a limit of 0.011 mg/l is adopted at the discharge point from Outfall 001. However, due to the State of S.C. lower limit of detection, Total Residual Chlorine (TRC) will be limited to less than 0.1 mg/l. Since TRC is a new parameter for this outfall the permit shall have a compliance schedule and be two phased as follows:

Phase I	Monitor and Report
Phase II	less than 0.1 mg/l

C. pH
1. Form 2C Value: 6.7 minimum, 7.5 maximum 30 day maximum values
2. Previous Permit: 6.0 minimum, 9.0 maximum
3. Past DMR Data (9/89-8/90): 6.7 minimum, 8.7 maximum
4. Water Classifications and Standards (Reg.61-68): The pH of the receiving waters shall be maintained between 6.0 standard units standard units and 8.5 standard units.
5. Human Health Consideration: Not applicable
6. Detection Limit: Not applicable
7. Conclusion: The permittee shall monitor and report pH once per week by grab sample.

D. Temperature
1. Form 2C Value: 5°C long term average temperature rise
2. Previous Permit: 7.3°C (Apr-Sep) daily average temperature rise, 20.1°C (Oct-Mar) daily average temperature rise
3. Past DMR Data (9/89-8/90): 6.8°C (Apr-Sep) daily average temp. rise, 19.9°C (Oct-Mar) daily average temp. rise
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: The receiving water temperature may not be increased by more than 2.8°C or exceed a maximum of 32.2°C, unless a Section 316(a) determination has been completed.
6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: On September 15, 1988, a Section 316(a) report was submitted in support of a 316(a) thermal variance request. Subsequently, correspondence dated July 1, 1992, from the permittee to SCDHEC proposed a delta T of 10°F from April through August, and a delta T of 14°F from September through March. After a review of this request, our Office agreed with the following limits:

	Monthly Average
Temperature Rise above ambient (April - September)	5.6°C(10.0°F)
Temperature Rise above ambient (October - March)	7.8°C(14.0°F)

Required monitoring shall be continuous by recorder, as in the previous permit.

E. Total Cadmium
1. Form 2C value: <0.004 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data: Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria:
Allowable Effluent Concentration
Monthly Average = 0.66 ug/l X DF_1 = 0.66 ug/l
Daily Maximum = 1.32 ug/l X DF_1 = 1.32 ug/l
6. Human Health Consideration: 0.01 mg/l X DF_2 = 0.01 ug/l
7. Detection Limit: 10.0 ug/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Cadmium as in the previous permit.

F. Total Chromium
1. Form 2C Value: <0.03 mg/l maximum daily
2. Previous Permit: Not specifically regulated
3. Past DMR Data (9/89-8/90): No data reported
4. Effluent Guidelines: 0.2 mg/l monthly average; 0.2 mg/l daily max.
5. Water Quality Criteria: Allowable Effluent Concentration
Monthly Average = 11.0 ug/l X DF_1 = 11.0 ug/l
Daily Maximum = 16.0 ug/l X DF_1 = 16.0 ug/l
6. Human Health Consideration: 50 ug/l X DF_2 = 50 ug/l
7. Detection Limit: 0.01 mg/l
8. Conclusion: As in the previous permit, a statement prohibiting the use of chromium based maintenance chemicals in the cooling towers has been placed in the permit.

G. Total Copper
1. Form 2C value: <0.03 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data (9/89 - 7/90): Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria:
Allowable Effluent Concentration
Monthly Average = 6.5 ug/l X DF_1 = 6.5 ug/l
Daily Maximum = 9.2 ug/l X DF_1 = 9.2 ug/l
6. Human Health Consideration: Not applicable
7. Detection Limit: 10.0 ug/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Copper as in the previous permit.

H. Total Lead
1. Form 2C value: <0.08 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data: Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria:
Allowable Effluent Concentration
Monthly Average = 1.3 ug/l X DF_1 = 1.3 ug/l
Daily Maximum = 2.6 ug/l X DF_1 = 2.6 ug/l
6. Human Health Consideration: 50 ug/l X DF_2 = 50.0 ug/l
7. Detection Limit: 50.0 ug/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Lead as in the previous permit.

I. Total Nickel
1. Form 2C value: <0.04 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data: Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria:
Allowable Effluent Concentration
Monthly Average = 88.0 ug/l X DF_1 = 88.0 ug/l
Daily Average = 176.0 ug/l X DF_1 = 176.0 ug/l
6. Human Health Consideration: 4584 ug/l X DF_2 = 4584 ug/l
7. Detection Limit: 20.0 ug/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Nickel as in the previous permit.

J. Total Selenium
1. Form 2C value: <0.002 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data (9/89 - 7/90): Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: 10.0 ug/l X DF_2 = 10.0 ug/l
7. Detection Limit: 0.005 mg/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Selenium as in the previous permit.

K. Total Zinc
1. Form 2C Value: 0.02 mg/l maximum daily
2. Previous Permit: Not specifically regulated
3. Past DMR Data (9/89-8/90): No data reported
4. Effluent Guidelines: 1.0 mg/l monthly average, 1.0 mg/l daily max.
5. Water Quality Criteria:
Allowable Effluent Concentration
Monthly Average = 59 ug/l X DF_1 = 59.0 ug/l
Daily Maximum = 65 ug/l X DF_1 = 65.0 ug/l
6. Human Health Consideration: 5.0 mg/l maximum human health standard instream waste concentration
7. Detection Limit: 0.01 mg/l
8. Conclusion: As in the previous permit, a statement prohibiting the use of zinc based maintenance chemicals in the cooling towers has been placed in the permit.

L. Hydrazine
1. Form 2C Value: Not a Form 2C application parameter
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.005 mg/l
8. Conclusion: Since the Permittee may discharge liquid radiological wastes via Outfall 001 or 002, limitations for hydrazine were considered for both these Outfalls. In the past permit, a limitation of 0.43 mg/l daily maximum was imposed at Outfall 002. A 0.43 mg/l daily maximum is equivalent to 2.73 lbs/day (which is calculated from (0.34)(0.76 MGD)(0.43 mg/l)). Thus, to meet the

State's antidegradation polic , the maximum load of hydrazine which can be discharged is 2.73 lbs/day. Since hydrazine may be discharged via Outfall 001, the corresponding limit at Outfall 001 for hydrazine would be:

(2.73 lbs/day)/((82.5 MGD)(8.34)) = 0.004 mg/l

Due to the large amount of dilution at Outfall 001, hydrazine will not be limited at Outfall 001, but will be addressed at the internal liquid radiological waste Outfall 004.

M. Ethylene Glycol

1. Form 2C Value: Not a Form 2C application parameter
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.005 mg/l
8. Conclusion: Since the Permittee may discharge radiological wastes via Outfall 001 or 002, ethylene glycol limitations were considered for both these Outfalls. In the past permit, limitations of 11.9 mg/l daily average and 23.8 mg/l daily maximum were imposed at Outfall 002. A 11.9 mg/l daily average is equivalent to 75.4 lbs/day (which is calculated from (8.34)(0.76 MGD)(11.9 mg/l)). A 23.8 mg/l daily maximum is equivalent to 150 lbs/day (which is calculated from (8.34)(0.76 MGD)(23.8 mg/l)). Thus, to meet State's antidegradation policy, the maximum load of ethylene glycol which can be discharged is 75.4 lbs/day daily average and 150 lbs/day daily maximum. Since ethylene glycol may be discharged via Outfall 001, the corresponding daily average and maximum limit at Outfall 001 for ethylene glycol would be:

(75.4 lbs/day)/((82.5 MGD)(8.34)) = 0.11 mg/l
(150 lbs/day)/((82.5 MGD)(8.34)) = 0.22 mg/l

Due to the large amount of dilution at Outfall 001, ethylene glycol will not be limited at Outfall 001, but will be evaluated at the liquid radiological waste internal Outfall 004.

N. Boron

1. Form 2C Value: 0.11 mg/l maximum daily
2. Previous Permit: Not regulated
3. Past DMR Data (8/84-8/90): = <0.2 mg/l Avg.; 0.58 mg/l Daily Max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.02 mg/l
8. Conclusion: Since the past sampling data for Boron indicates there has been no significant impact to the water quality, there will be no limit for Boron.

Outfall 002

Description of Discharge: Outfall 002 consists of wastewater from sources including the service building sump, turbine building sumps, diesel generator catchment sump, sulfuric acid tank containment drainage sump, yard drain secondary containment sumps, motor pool car wash water, rainwater from valve pit sumps, transformer sumps, and metal cleaning wastes (0.3 MGD/occurrence). The sum of these wastestreams, 0.76 MGD, is discharged to the receiving water after treatment in the conventional wastewater treatment system, which incorporates sedimentation, skimming, precipitation, co-precipitation, neutralization, chemical oxidation, and mixing.

Liquid radiological wastes (0.007 MGD of wastewaters treated and discharged via internal Outfall 004) also may be potentially discharged through Outfall 002 but typically discharges via Outfall 001.

The Permittee also included cooling tower blowdown (currently discharged via Outfall 001) in its description of Outfall 002. However, during discussions with the Permittee during the permit development process it was revealed that cooling tower blowdown is not currently discharged via Outfall 002, but the Permittee would like to reserve the right to discharge in such a manner, should the need arise (i.e., chlorine from the cooling tower at high levels). Therefore, two sets of limitations are derived based on the current and the possible situations.

Applicable effluent guidelines for this facility are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water shall be within the range of 6.0 standard units to 9.0 standard units.

2. There shall be no discharge of PCBs.

3. Low volume wastes shall have the following limitations:

Parameter	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS	100.0	30.0
Oil and Grease	20.0	15.0

4. Metal cleaning wastes shall have the following limitations:

Parameter	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS	100.0	30.0
Oil and Grease	20.0	15.0
Copper, total	1.0	1.0
Iron, total	1.0	1.0

A. Flow
1. Form 2C Value: 0.76 MGD long term average (based on the sum of the low volume wastes and the metal cleaning wastes)
2. Previous Permit: Monitor and Report
3. Past DMR Data (9/89-8/90): 1.36 MGD daily avg., 2.13 MGD daily max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: Monitoring requirements of once per week by flow indicator, as in the previous permit, are adopted.

B. Total Residual Chlorine
1. Form 2C Value: <0.1 mg/l daily maximum
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: 0.011 mg/l in the receiving stream
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.1 mg/l
8. Conclusion: Chlorine is present at this outfall through its use as hypochlorite during treatment and by its presence in chemicals contained in the low volume wastes. Since the receiving water body provides no dilution of the discharge, a limit of 0.011 mg/l equivalent to water quality criteria is adopted. Monitoring shall be conducted once per day over a two day period after treatment by grab sample based on the possibility of exceedance of this limitation. However, due to the State of S.C. lower limit of detection, Total Residual Chlorine will be limited to less than 0.1 mg/l.

C. 5-day Biochemical Oxygen Demand (BOD_5)
1. Form 2C Value: 5 mg/l Maximum Daily value
2. Previous Permit: not regulated
3. Past DMR Data (9/89-8/90): not applicable
4. Effluent Guidelines: Not applicable
5. Wasteload Allocation: 10 mg/l Daily Avg.; 15 mg/l Daily Max.
6. Water Quality Criteria: Not applicable
7. Human Health Consideration: Not applicable
8. Detection Limit: <2 mg/l
9. Conclusion: Due to the possibility that the expected differing physical characteristics of the two water bodies may inhibit mixing, thus trapping pollutants in the small cove, The permittee will be required monitor and report for BOD_5 once per month rather than establishing a limit at this time. The sample type has been lessened from a 20 hour composite to a grab sample to be consistent with other parameters at this outfall.

D. pH
1. Form 2C Value: 6.7 minimum, 7.5 maximum 30 day maximum
2. Previous Permit: 6.0 minimum, 9.0 maximum
3. Past DMR Data (9/89-8/90): 6.3 minimum, 8.9 maximum
4. Effluent Guidelines: 6.0 minimum, 9.0 maximum
5. Water Classifications and Standards (Reg.61-68): The pH of the receiving waters shall be maintained between 6.0 standard units standard units and 8.5 standard units.

6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: As in the previous permit, limits of 6.0 standard units minimum and 9.0 standards units maximum are adopted. Monitoring requirements of once per week by grab sample, as in the previous permit, are adopted.

E. Oil and Grease

1. Form 2C Value: 0.3 mg/l long term average
2. Previous Permit: 15 mg/l daily average, 20 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 2.2 mg/l daily avg., 3.9 mg/l daily max.
4. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily maximum with adjustments for dilution
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: <5 mg/l
8. Conclusion: With the exception of motor pool car wash water, all discharges from Outfall 002 have oil and grease limitations of 15 mg/l daily average and 20 mg/l daily maximum (i.e., low volume and metal cleaning wastes) as per the Steam Electric Effluent Guidelines. Since the motor pool car wash water provides dilution, it must be accounted for via the following[2]:

	Flow	30 day Average	Daily Maximum
Total low volume and metal cleaning wastes process flows	0.7592 MGD	15 mg/l	20 mg/l
Total non-contaminated flows			
- cooling tower blowdown	0.0 MGD	0 mg/l	3 mg/l
- car wash water	0.0008 MGD	15 mg/l	20 mg/l
Total flows	0.76 MGD		

Using this data, the limitations at Outfall 001 are calculated as follows:

Oil and Grease Monthly Average Limit

$$\frac{0.7592\ (15) + 0.0\ (0) + 0.0008\ (15)}{0.76} = 15 \text{ mg/l}$$

Oil and Grease Daily Maximum Limit

$$\frac{0.7592\ (20) + 0.0\ (3) + 0.0008\ (20)}{0.76} = 20 \text{ mg/l}$$

Monitoring requirements of twice per month by grab sample, as in the previous permit, are adopted.

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[2] The procedures and limitations for flow weighted averaging calculations when regulated wastestreams are commingled are taken from the August 22, 1985, memo entitled "Guidance for NPDES Permits Issued to Steam Electric Power Plants."

F. Total Suspended Solids (TSS)

1. Form 2C Value: 10 mg/l long term average
2. Previous Permit: 30 mg/l daily average, 100 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 13.7 daily average, 16.9 daily maximum
4. Effluent Guidelines: 30 mg/l monthly average and 100 mg/l daily maximum with adjustments for dilution
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: <1 mg/l
8. Conclusion: With the exception of motor pool car wash water, all discharges from Outfall 002 have TSS limitations of 30 mg/l daily average and 100 mg/l daily maximum (i.e., low volume and metal cleaning wastes) as per the Steam Electric Effluent Guidelines. Since the motor pool car wash water provides dilution, it must be accounted for via the following:

	Flow	30 day Average	Daily Maximum
Total low volume and metal cleaning waste process flows	0.7592 MGD	30 mg/l	100 mg/l
Total non-contaminated flows			
- cooling tower blowdown	0.0 MGD	30 mg/l	60 mg/l
- car wash water	0.0008 MGD	30 mg/l	100 mg/l
Total flows	0.76 MGD		

Using this data, the limitations at Outfall 001 are calculated as follows:
TSS Monthly Average Limit

$$\frac{0.7592\ (30) + 0.0\ (30) + 0.0008\ (30)}{0.76} = 30 \text{ mg/l}$$

TSS Daily Maximum Limit

$$\frac{0.7592\ (100) + 0.0\ (60) + 0.0008\ (100)}{0.76} = 100 \text{ mg/l}$$

Monitoring requirements of twice per month by grab sample, as in the previous permit, are adopted.

G. Total Cadmium

1. Form 2C value: <0.004 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data: Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria:
   Allowable Effluent Concentration
   Monthly Average = 0.66 ug/l X DF_1 = 0.66 ug/l
   Daily Maximum = 1.32 ug/l X DF_1 = 1.32 ug/l
6. Human Health Consideration: 0.01 mg/l X DF_2 = 0.01 ug/l
7. Detection Limit: 10.0 ug/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Cadmium as in the previous permit.

H. Total Copper

1. Form 2C Value: <0.03 mg/l daily maximum
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: 1.0 mg/l monthly average, 1.0 mg/l daily max.
5. Intake Background Levels (10-1-91): 0.006 mg/l
6. Water Quality Criteria:
   Allowable Effluent Concentration
   Monthly Average = 6.5 ug/l X DF_1 = 6.5 ug/l
   Daily Maximum = 9.2 ug/l X DF_1 = 9.2 ug/l
7. Human Health Consideration: 1.0 mg/l maximum human health standard instream waste concentration
8. Detection Limit: 0.01 mg/l
9. Conclusion: With the exception of metal cleaning wastes, the sources of discharge at this outfall (0.7592 MGD of low volume wastes and 0.0008 MGD of car pool wash water) are not regulated for copper. Therefore, at the point of discharge from Outfall 002, the copper limit (both monthly average and daily maximum), after flow weighted averaging to account for dilution, would be:

   (1.0 mg/l)(0.3 MGD)/(0.76 MGD) = 0.395 mg/l

   Due to no dilution being provided by the receiving waters, the effluent limit for Outfall 002 based on water quality criteria is 0.0065 mg/l maximum, which is more stringent than the limit based on effluent guidelines. Therefore, the water quality based limit of 0.0065 mg/l daily maximum is adopted. A monthly average limitation is not adopted since the daily maximum is more stringent than what the monthly average would be. With the addition of the intake background level of 0.006 mg/l a limit of 0.0125 mg/l is established. Monitoring requirements of once per metal cleaning occurrence are adopted. Monitoring requirements are based on both the possibility of exceedance of these limitations (the application indicates <0.03 mg/l at the discharge from Outfall 002) and the potential that the highest concentrations of copper will be evident during metal cleaning waste treatment.

I. Total Chromium

1. Form 2C Value: <0.03 mg/l maximum daily
2. Previous Permit: Not specifically regulated
3. Past DMR Data (9/89-8/90): No data reported
4. Effluent Guidelines: 0.2 mg/l monthly average; 0.2 mg/l daily max.
5. Water Quality Criteria: 0.117 mg/l maximum chronic freshwater
   Allowable Effluent Concentration
   Monthly Average = 11.0 ug/l X DF_1 = 11.0 ug/l
   Daily Maximum = 16.0 ug/l X DF_1 = 16.0 ug/l
6. Human Health Consideration: 50 ug/l X DF_2 = 50 ug/l
7. Detection Limit: 0.01 mg/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Chromium as in the previous permit.

J. Total Iron

1. Form 2C Value: 0.15 mg/l daily maximum
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable

4. Effluent Guidelines: 1.0 mg/l monthly average, 1.0 mg/l daily max.
5. Intake Background levels (10-1-91): 0.25 mg/l
6. Water Quality Criteria: Not applicable
7. Human Health Consideration: Not applicable
8. Detection Limit: 0.001 mg/l
9. Conclusion: With the exception of metal cleaning wastes, the sources of discharge at this outfall (0.7592 MGD of low volume wastes and 0.0008 MGD of car pool wash water) are not regulated for iron. Therefore, at the point of discharge from Outfall 002, the iron limit (both monthly average and daily maximum), after flow weighted averaging to account for dilution, would be:

   (1.0 mg/l)(0.3 MGD)/(0.76 MGD) = 0.395 mg/l

   Therefore, with the addition of the intake background level of 0.25 mg/l, a limit of 0.645 mg/l daily maximum and monthly average are adopted at the discharge point from Outfall 002. Monitoring requirements of once per metal cleaning occurrence by grab sample are adopted based on the previous monitoring requirements at Outfall 005.

K. Total Lead
1. Form 2C value: <0.08 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data: Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria:
   Allowable Effluent Concentration
   Monthly Average = 1.3 ug/l X DF_1 = 1.3 ug/l
   Daily Maximum = 2.6 ug/l X DF_1 = 2.6 ug/l
6. Human Health Consideration: 50 ug/l X DF_2 = 50.0 ug/l
7. Detection Limit: 50.0 ug/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Lead as in the previous permit.

L. Total Nickel
1. Form 2C value: <0.04 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data: Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria:
   Allowable Effluent Concentration
   Monthly Average = 88.0 ug/l X DF_1 = 88.0 ug/l
   Daily Average = 176.0 ug/l X DF_1 = 176.0 ug/l
6. Human Health Consideration: 4584 ug/l X DF_2 = 4584 ug/l
7. Detection Limit: 20.0 ug/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Nickel as in the previous permit.

M. Total Selenium
1. Form 2C value: <0.002 mg/l
2. Previous Permit: Not regulated
3. Past DMR Data (9/89 - 7/90): Not applicable
4. Effluent guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: 10.0 ug/l X DF_2 = 10.0 ug/l

7. Detection Limit: 0.005 mg/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Selenium as in the previous permit.

N. Total Zinc
1. Form 2C Value: 0.03 mg/l maximum daily
2. Previous Permit: Not specifically regulated
3. Past DMR Data (9/89-8/90): No data reported
4. Effluent Guidelines: 1.0 mg/l monthly average, 1.0 mg/l daily max.
5. Water Quality Criteria:
   Allowable Effluent Concentration
   Monthly Average = 59 ug/l X DF_1 = 59.0 ug/l
   Daily Maximum = 65 ug/l X DF_1 = 65.0 ug/l
6. Human Health Consideration: 5.0 mg/l maximum human health standard instream waste concentration
7. Detection Limit: 0.01 mg/l
8. Conclusion: Due to the levels indicated on the 2C Form, there will be no limit for Zinc as in the previous permit.

O. Hydrazine
1. Form 2C Value: Not a Form 2C application parameter
2. Previous Permit: 0.43 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 0.2 daily maximum
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.005 mg/l
8. Conclusion: Hydrazine originates from both low volume wastes and from internal Outfall 004 and is therefore limited at this outfall. 96LC50 concentrations for effects on warm water fish populations (for both bluegill and catfish) have been reported at 1.0 mg/l. Based on State's antidegradation policy, however, the previous monitoring requirements and the permit limit of 0.43 mg/l daily maximum are adopted. Monitoring requirements of once per occurrence by grab sample, as in the previous permit, are adopted.

P. Ethylene Glycol
1. Form 2C Value: Not a Form 2C application parameter
2. Previous Permit: 11.9 mg/l daily average, 23.8 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 4.5 mg/l daily avg., 10 mg/l daily max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: <0.001 mg/l
8. Conclusion: Ethylene glycol originates from both low volume wastes and from internal Outfall 004 and is therefore limited at this outfall. Since 96LC50 concentrations for effects on warm water fish populations (fathead minnow) have been reported greater than the previous permit limits, based on EPA's antidegradation policy, the previous monitoring requirements and the permit limit of 11.9 mg/l daily average and 23.8 mg/l daily maximum are adopted. Monitoring requirements of once per occurrence by grab sample, as in the previous permit, are adopted.

Outfall 003

Description of Discharge: Outfall 003 consists of 0.038 MGD of sanitary sewerage treated via grit removal, screening, comminution, aerated lagoons, stabilization and sedimentation, and chlorination.

A. Flow
1. Form 2C Value: 0.038 MGD long term average
2. Previous Permit: Monitor and report
3. Past DMR Data (9/89-8/90): 0.04 MGD daily avg., 0.08 MGD daily max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: Monitoring requirements of once per month by flow indicator, as in the previous permit, are adopted.

B. Total Residual Chlorine
1. Form 2C Value: >3.5 mg/l daily maximum
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: 0.011 mg/l in the receiving stream
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.1 mg/l
8. Conclusion: Due to the large amount of mixing with the non-contact cooling water from Outfall 001, the permit will be limited to a monthly average of 0.5 mg/l and a daily maximum of 1.0 mg/l for Total Residual Chlorine. Monitoring shall be conducted once per week by grab sample. However, since TRC is a new parameter for this outfall the permit shall have a compliance schedule and be two phased as follows:

	Monthly Average	Daily Maximum
Phase I	Monitor and Report	Monitor and Report
Phase II	0.5 mg/l	1.0 mg/l

C. pH
1. Form 2C Value: 6.0 minimum, 8.4 maximum 30 day maximum
2. Previous Permit: 6.0 minimum, 9.0 maximum
3. Past DMR Data (9/89-8/90): 6.1 minimum, 8.3 maximum
4. Effluent Guidelines: Not applicable
5. Water Classifications and Standards (Reg.61-68): The pH of the receiving waters shall be maintained between 6.0 standard units standard units and 8.5 standard units.
6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: As in the previous permit, limits of 6.0 standard units minimum and 9.0 standards units maximum are adopted. Monitoring requirements shall be once per week by grab sample

D. 5-day Biochemical Oxygen Demand (BOD_5)
1. Form 2C Value: 14.2 mg/l long term average
2. Previous Permit: 30 mg/l daily average, 60 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 11.9 mg/l daily avg., 15.5 mg/l daily max.

4. Effluent Guidelines: Not applicable
5. Wasteload Allocation: A water quality limit with a daily average of 30.0 mg/l and daily maximum of 60.0 mg/l for this type discharge (secondary limits).
6. Water Quality Criteria: Not applicable
7. Human Health Consideration: Not applicable
8. Detection Limit: <2 mg/l
9. Conclusion: Using the wasteload allocation, the limits for the five (5) day Biochemical Oxygen Demand will be a monthly average of 30.0 mg/l and a daily maximum of 60.0 mg/l the same as the previous permit. The sample type has been changed from a 20 hour composite to a 24 hour composite sample.

E. Total Suspended Solids (TSS)
1. Form 2C Value: 20 mg/l long term average
2. Previous Permit: 90 mg/l daily average, 135 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 47.1 mg/l daily avg., 51.0 mg/l daily max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: <1 mg/l
8. Conclusion: As in the previous permit, Total Suspended Solids shall be limited to a monthly average of 90 mg/l and a daily maximum of 135 mg/l. Monitoring requirements of once per month, are adopted. The sample type has been changed from a 20 hour composite to a 24 hour composite sample.

F. Fecal Coliform
1. Form 2C Value: 2.6/100 ml long term average
2. Previous Permit: 200/100 ml daily average, 400/100 ml daily maximum
3. Past DMR Data (9/89-8/90): <2/100 ml daily avg., <2/100 ml daily max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: 200/100 ml five consecutive day average, 400/100 ml maximum for 10% of samples collected over a month in the receiving waters.
6. Human Health Consideration: Not applicable
7. Detection Limit: <2/100 ml
8. Conclusion: Based on the State's policy for antidegradation, the previous permit limits of 200/100 ml daily average and 400/100 ml daily maximum are adopted. Monitoring requirements of once per month by grab sample, as in the previous permit, are adopted.

G. Dissolved Oxygen
1. Form 2C Value: Not a Form 2C application parameter
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: Not applicable
5. Wasteload Allocation: A minimum of 1.0 mg/l
6. Water Quality Criteria: Not applicable
7. Human Health Consideration: Not applicable
8. Detection Limit: Not available
9. Conclusion: Using the Wasteload Allocation, the limit for Dissolved Oxygen shall be a minimum of 1.0 mg/l.

Outfall 004

Description of Discharge: Outfall 004 consists of 0.007 MGD of liquid radiological waste treated via filtration, demineralization, mixing, oxidation, coagulation and chemical metal cleaning waste. Outfall 004 is ultimately discharged via either Outfall 001 or Outfall 002. Applicable effluent guidelines for this facility are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. Chemical Metal cleaning wastes shall have the following limitations:

Parameter	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
Copper, total	1.0	1.0
Iron, total	1.0	1.0

A. Flow
1. Form 2C Value: 0.002 MGD average flow
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: Monitoring requirements of once per quarter by flow estimate are adopted based on the need for historical data for permit writing purposes.

B. Oil and Grease
1. Form 2C Value: 15 mg/l maximum daily
2. Previous Permit: 15 mg/l daily average, 20 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 0.6 mg/l daily avg., 0.6 mg/l daily max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: <5 mg/l
8. Conclusion: Due to the Part III Special Condition Item V. of the previous permit and the levels detected in the past sampling, there will be no limit for Oil and Grease.

C. Total Suspended Solids (TSS)
1. Form 2C Value: 4 mg/l maximum daily
2. Previous Permit: 30 mg/l daily average, 100 mg/l daily maximum
3. Past DMR Data (9/89-8/90): 11.5 daily average, 11.5 daily maximum
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: <1 mg/l
8. Conclusion: Due to the Part III Special Condition Item V. of the previous permit and the levels detected in the past sampling, there will be no limit for Total Suspended Solids.

D. Total Copper
1. Form 2C Value: <0.02 mg/l daily maximum
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: 1.0 mg/l monthly average, 1.0 mg/l daily max.
5. Intake Background Levels (10-1-91): 0.006 mg/l
6. Water Quality Criteria:
   Allowable Effluent Concentration
   Monthly Average = 6.5 ug/l X DF_1 = 6.5 ug/l
   Daily Maximum = 9.2 ug/l X DF_1 = 9.2 ug/l
7. Human Health Consideration: 1.0 mg/l maximum human health standard instream waste concentration
8. Detection Limit: 0.01 mg/l
9. Conclusion: Due to the effluent guidelines, Copper will be limited to a monthly average and a daily maximum of 1.0 mg/l. Since this is a internal outfall, there will be no water quality based limit.

E. Total Iron
1. Form 2C Value: 0.23 mg/l daily maximum
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: 1.0 mg/l monthly average, 1.0 mg/l daily max.
5. Intake Background levels (10-1-91): 0.25 mg/l
6. Water Quality Criteria: Not applicable
7. Human Health Consideration: Not applicable
8. Detection Limit: 0.001 mg/l
9. Conclusion: Due to the effluent guidelines, Iron will be limited to a monthly average and a daily maximum of 1.0 mg/l. Since this is a internal outfall, there will be no water quality based limit.

F. Hydrazine
1. Form 2C Value: Not a Form 2C application parameter
2. Previous Permit: Monitor and Report
3. Past DMR Data (9/89-8/90): No value reported
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.005 mg/l
8. Conclusion: Since the Permittee may discharge liquid radiological wastes via Outfall 001 or 002, hydrazine limitations were considered for both these Outfalls. In the previous permit, a limitation of 0.43 mg/l daily maximum was imposed at Outfall 002. A 0.43 mg/l daily maximum limit is equivalent to 2.73 lbs/day (which is calculated from (8.34)(0.76 MGD)(0.43 mg/l)). Thus, to meet the State's antidegradation policy, the maximum load of hydrazine to be discharged is 2.73 lbs/day. Since hydrazine may be discharged via Outfall 001, the corresponding limit at Outfall 001 for hydrazine would be:

   (2.73 lbs/day)/((82.5 MGD)(8.34)) = 0.004 mg/l

   Where as a limitation at internal Outfall 004 as calculated by flow weighted averaging would be:

   (2.73 lbs/day)/((0.007 MGD)(8.34)) = 46.8 mg/l

To avoid approaching lower detection levels and due to the difficulties of estimating when hydrazine would be present in a large discharge such as Outfall 001, a limitation of 46.8 mg/l hydrazine is imposed at internal Outfall 004. Monitoring requirements of once per occurrence by grab sample, as in the previous permit, are imposed.

G. Ethylene Glycol

1. Form 2C Value: Not a Form 2C application parameter
2. Previous Permit: Monitor and Report
3. Past DMR Data (9/89-8/90): 210 mg/l daily avg., 210 mg/l daily max.
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: <0.001 mg/l
8. Conclusion: Since the Permittee may discharge liquid radiological wastes via Outfall 001 or 002, ethylene glycol limitations were considered for both these Outfalls. In the previous permit, limitations of 11.9 mg/l daily average and 23.8 mg/l daily maximum were imposed at Outfall 002. A 11.9 mg/l daily average limit is equivalent to 75.4 lbs/day (which is calculated from (8.34)(0.76 MGD)(11.9 mg/l)). A 23.8 mg/l daily maximum limit is equivalent to 150 lbs/day (which is calculated from (8.34)(0.76 MGD)(23.8 mg/l)). Thus, to meet EPA's antidegradation policy, the maximum load of ethylene glycol to be discharged 75.4 lbs/day daily average and 150 lbs/day daily maximum.

   Since ethylene glycol may be discharged via Outfall 001, the corresponding daily average and maximum limit at Outfall 001 for ethylene glycol would be:

   (75.4 lbs/day)/((82.5 MGD)(8.34)) = 0.11 mg/l

   (150 lbs/day)/((82.5 MGD)(8.34)) = 0.22 mg/l

   Whereas limitations at Outfall 004 as calculated by flow weighted averaging would be:

   (75.4 lbs/day)/((0.007 MGD)(8.34)) = 1291.54 mg/l
   (150 lbs/day)/((0.007 MGD)(8.34)) = 2569.37 mg/l

   Since the facility discharges far below these levels, ethylene glycol is not limited at this outfall at this time.

H. Boron

1. Form 2C Value: 378 mg/l
2. Previous Permit: Monitor and Report
3. Past DMR Data (9/89-8/90): 0.6 mg/l daily maximum
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.02 mg/l
8. Conclusion: Due to the Part III Special Conditions Item U. of the previous permit and the levels detected in the past sampling, there will be no limit for Boron.

Outfall 005

In the previous permit, Outfall 005 consists of 0.3 MGD of metal cleaning wastes treated in conjunction with low volume wastes at the conventional wastewater treatment facility. Since there is no separate treatment for Outfall 005 (or since co-treatment is taking place), it is not appropriate to establish separate limitations for this outfall. Therefore, Outfall 005 of the previous permit will be eliminated.

A new internal outfall designated Outfall 005 by the permit writer is establish to regulate the cooling tower blowdown.

Cooling Tower Blowdown: There are a total of 6 cooling towers employed at the facility (3 cooling towers per nuclear unit). Cooling water in a closed cycle mechanical draft system cools the condensers to condense turbine exhaust-gas steam. Additives to the cooling tower include sulfuric acid, polyacrylate dispersant to enhance solids deposition, sodium hypochlorite, and biocides. Applicable effluent guidelines for this facility are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water shall be within the range of 6.0 standard units to 9.0 standard units.

2. Cooling tower blowdown shall have the following limitations:

Parameter	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine	0.5	0.2

3. Cooling tower blowdown shall have the following limitations.

Parameter	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days[3] shall not exceed (mg/l)
The 126 priority pollutants, except:	no detectable amount	no detectable amount
Chromium, total	0.2	0.2
Zinc, total	1.0	1.0

A. Flow
   1. Form 2C Value: Not provided
   2. Previous Permit: Not regulated
   3. Past DMR Data (9/89-8/90): Not applicable
   4. Effluent Guidelines: Not applicable

[3] For purposes of this permit, 30 day average and monthly average shall be deemed as equivalent.

5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: Monitoring requirements of continuously by recorder, are adopted.

B. pH
1. Form 2C Value: Not provided
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: 6.0 minimum, 9.0 maximum
5. Water Classifications and Standards (Reg.61-68): The pH of the receiving waters shall be maintained between 6.0 standard units standard units and 8.5 standard units.
6. Human Health Consideration: Not applicable
7. Detection Limit: Not applicable
8. Conclusion: Since this is an internal outfall, pH limitations are not adopted.

C. Free Available Chlorine (FAC)
1. Form 2C Value: Not provided
2. Previous Permit: Regulated in Outfall 001
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: 0.2 mg/l monthly avg.; 0.5 mg/l daily max.
5. Water Quality Criteria: Not applicable
6. Human Health Consideration: Not applicable
7. Detection Limit: 0.1 mg/l
8. Conclusion: The effluent guideline permit limits of 0.2 mg/l monthly average and 0.5 mg/l daily maximum are adopted. Monitoring requirements of once per week by multiple grab samples are adopted.

D. Total Chromium
1. Form 2C Value: Not provided
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: 0.2 mg/l monthly avg.; 0.2 mg/l daily max.
5. Water Quality Criteria: Allowable Effluent Concentration
   Monthly Average = 11.0 ug/l X DF_1 = 11.0 ug/l
   Daily Maximum = 16.0 ug/l X DF_1 = 16.0 ug/l
6. Human Health Consideration: 50 ug/l X DF_2 = 50 ug/l
7. Detection Limit: 0.01 mg/l
8. Conclusion: As in the previous permit, a statement prohibiting the use of chromium based maintenance chemicals in the cooling towers has been placed in the permit.

E. Total Zinc
1. Form 2C Value: Not provided
2. Previous Permit: Not regulated
3. Past DMR Data (9/89-8/90): Not applicable
4. Effluent Guidelines: 1.0 mg/l daily average, 1.0 mg/l daily maximum
5. Water Quality Criteria:
   Allowable Effluent Concentration
   Monthly Average = 59 ug/l X DF_1 = 59.0 ug/l
   Daily Maximum = 65 ug/l X DF_1 = 65.0 ug/l

6. Human Health Consideration: 5.0 mg/l maximum human health standard instream waste concentration
7. Detection Limit: 0.01 mg/l
8. Conclusion: As in the previous permit, a statement prohibiting the use of zinc based maintenance chemicals in the cooling towers has been placed in the permit.

F. Other Priority Pollutants
1. Form 2C Value: Not detected
2. Previous Permit: No detectable amount
3. Past DMR Data (9/89-8/90): No data reported
4. Effluent Guidelines: No detectable amount monthly average, no detectable amount daily maximum as a result of cooling tower maintenance chemicals.
5. Water Quality Criteria: Varies
6. Human Health Consideration: Varies
7. Detection Limit: Varies
8. Conclusion: Previous permit limitations provided the Permittee with the option to either annually monitor for the remaining priority pollutants or provide mass balance calculations to demonstrate that use of particular maintenance chemicals (as provided for in the permit application) will not result in detectable amounts of the toxic pollutants in the discharge. The previous permit limitations and monitoring requirements are adopted.

IV. Chemical Additives
1. Cooling Water Additives (Outfall 001 and Outfall 002, in some instances)

Chlorine additives -- To be regulated via Total Residual and Free Available Chlorine limits

Biocides -- Previously reported biocides are limited to the No Observable Effect Limitation (NOEL) concentration for general fish populations as a daily maximum. In the case of Clam Trol CT-1, the concentration is limited to 1.2 mg/l daily maximum.

Dispersants -- Previously reported dispersants are limited to the NOEL concentration for general fish populations as a daily maximum.

Corrosion Inhibitors -- Where not already limited in the permit, previously reported corrosion inhibitors are limited to the NOEL concentration for general fish populations as a daily maximum.

2. Hazardous Materials (Outfalls 001, 002, and 004)

Hydrazine, Ethylene Glycol, and Boron
The limitations for these parameters are addressed in the permit derivation section.

Acidic and Basic Substances
Since discharge outfalls have pH limitations, discharges of acids and bases previously reported will be regulated via the pH limitations.

Chlorine Containing Substances
Outfalls 001, 002, and 003 have chlorine containing substances that are either used during treatment or contained in the sources of the wastewater. Limitations for chlorine have been imposed at these Outfalls.

V. Sludge Disposal
The permittee will be required to obtain prior written approval for any sludge disposal activities at this facility. Within ninety (90) days of the permit effective date, the permittee will be required to submit a sludge management and disposal plan. The sludge management and disposal plan, once submitted, will become a special implementation condition of the permit.

VI. Operator
The Permittee's present treatment system consists of grit removal, screening, comminution, aerated lagoons, stabilization and sedimentation, and chlorination. The highest classification of the operation of all treatment equipment is usually used to determine the operator requirement. Based on the sanitary treatment system classification, an operator with a Grade B-B or higher certification is required to accept the responsibility of inspections made by lower grade operators.

VII. Groundwater Monitoring
The Permittee must develop and submit, within sixty (60) days of the permit effective date, a groundwater monitoring program for all treatment impoundments located on the facility grounds. The groundwater monitoring program shall at a minimum contain:

- The number of impoundments for which groundwater monitoring is to be conducted
- The number and location of the groundwater monitoring wells by description and by designation on a facility site diagram
- Facility site description of the groundwater leachate flow direction
- The parameters to be monitored
- The frequency of monitoring.

VIII. Previous Biological Studies

1. 316(a)
Studies of the thermal effects of the discharge were provided in support of the 316(a) variance request. Additionally, the Permittee has also conducted dye studies to determine the dispersion characteristics of Outfall 001 and its dilution with the receiving water.

2. 316(b)
In a March 17, 1987 letter, Duke Power Company provided information concerning the intake structures found in Lake Wylie and the Station's Standby Nuclear Service Water Pond. In a March 23, 1987 memorandum, it was determined that provided the screens are kept clean, the intake should not pose a significant threat to the biological integrity of

Lake Wylie or the Standby Nuclear Service Water Pond because of low water velocities. As a result, a 316(b) study was not required to be performed.

IX. Co-Treatment

Commingling and co-treatment of discharges were taken into account at Outfall 001 which combines cooling tower blowdown, once-through cooling water, liquid radiological wastes, and metal cleaning wastes. Commingling and co-treatment of discharges were taken into account at Outfall 002 which combines low volume wastewater, miscellaneous dilution water, and metal cleaning wastes.

Where various wastes are combined for treatment and discharge, 40 CFR 423.15(n) requires that the quantity of each pollutant or pollutant property not exceed the specified limitation for that waste source. Applicable guideline concentrations were flow weighted in calculating final effluent concentrations.

X. Toxicity Testing

Since the chemical specific approach does not address all specific chemicals and their interactions with other components in the wastestream, a more comprehensive testing requirement is needed. To ensure that water quality is not deteriorated, whole effluent toxicity testing is being required at Outfalls 001 and 002. Testing will not be required for internal Outfalls or for the sanitary discharge Outfall 003.

In accordance with policies set out in The South Carolina Department of Health and Environmental Control Toxic Control Strategy for Wastewater Discharges, South Carolina Department of Health and Environmental Control, October 1990. These policies require either acute or chronic toxicity testing based on both whether a diffuser is used and the Instream Waste Concentration (IWC), which is calculated as follows:

IWC = (Effluent flow/(7Q10 flow + Effluent flow)) X 100
= (83.3/(0 + 83.3)) X 100
= 100%

Based on State procedure, if a diffuser is not installed and the IWC is between 80-100%, then chronic toxicity testing is required. Additionally, State procedure requires that toxicity testing be conducted at a frequency of once per month for at least a duration of one year.

Therefore, based on State procedure, chronic toxicity testing is required once per month for at least one year. The specific chronic toxicity language is included in Part III of the permit.

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
2600 Bull Street
Columbia, South Carolina 29201

FACT SHEET

APPLICATION FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE TREATED WASTEWATER
TO STATE WATERS

Application No. SC 0004278 Date: 6/21/91

1. SYNOPSIS OF APPLICATION

   a. Name and Address of Applicant

      Duke Power Company/Catawba
      P.O. Box 33189
      Charlotte, N.C. 28242

   b. Description of Applicant's Operation

      Nuclear Fuel Steam Electric Generation

   c. Production Capacity of Facility

      1129 megawatts

   d. Applicant's Receiving Waters

      Lake Wylie

      For a sketch showing the location of the discharge(s), see Attachment A.

   e. Description of Existing Pollution Abatement Facilities

      A conventional wastewater treatment system consisting of sedimentation, skimming, precipitation, co-precipitation, neutralization and chemical oxidation. A sanitary treatment system consisting of grit removal, screening, grinding, aerated lagoon, stabilization pond, and chlorination. A Liquid Radwaste treatment system consisting of filtration, demineralization, mixing, oxidation and coagulation/flocculation. A metal cleaning waste treatment system consisting of neutralization, precipitation, demineralization, oxidation and mixing.

f. Description of Discharges (as reported by applicant)

Serial 001 - 004, 006 (See attached rationale)

Average Flow -
Average Winter Temperature -
Average Summer Temperature -
pH Range (std. units) -

Pollutants which are present in significant quantities or which are subject to effluent limitations are as follows:

Effluent Characteristics	Reported Load

2. PROPOSED EFFLUENT LIMITATIONS

Serial 001 - 004, 006 (See attached limitation pages)

Permitted Maximum Temperature -
Permitted pH Range (std. units) -

Effluent Characteristic	Discharge Limitation

3. MONITORING REQUIREMENTS

The applicant will be required to monitor regularly for flow and those parameters limited in Section 2 above with sufficient frequency to ensure compliance with the permit conditions. Frequency, methods of sampling, and reporting dates will be specified in the final permit.

4. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS

N/A

5. PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE

(See attached special conditions)

6. WATER QUALITY STANDARDS AND EFFLUENT STANDARDS APPLIED TO THE DISCHARGE

(See attached rationale)

7. PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

a. Comment Period

The Department of Health and Environmental Control proposes to issue an NPDES permit to this applicant subject to the effluent limitations and special conditions outlined above. These determinations are tentative.

Interested persons are invited to submit written comments on the permit application or on DHEC's proposed determinations to the following address:

South Carolina Department of Health and Environmental Control
NPDES Administration
2600 Bull Street
Columbia, South Carolina 29201

All comments received prior to
will be considered in the formulation of final determinations with regard to this application.

b. Public Hearing

The Department of Health and Environmental Control Commissioner may hold a public hearing if there is a significant degree of public interest in a proposed permit or group of permits. Public notice of such a hearing will be circulated in newspapers in the geographical area of the discharge and to those on the DHEC mailing list at least thirty days prior to the hearing.

Following the public hearing, the Commissioner may make such modifications in the terms and conditions of the proposed permit as may be appropriate and shall issue or deny the permit. Notice of issuance or denial will be circulated to those who participated in the hearing and to appropriate persons on the DHEC mailing list.

If the permit is issued, it will become effective the first of the month following date of issuance and will be the final action of DHEC unless an adjudicatory hearing is granted.

c. Adjudicatory Hearings

Any person may submit a request for an administrative adjudicatory hearing to consider the final permit and its conditions. If you wish to request an administrative adjudicatory hearing, such request

must be made in accordance with Regulation 61-79, Volume 25, S.C. Code of Laws, 1976, as amended. As required by this regulation, two (2) copies of the request must be served on the South Carolina Board of Health and Environmental Control, 2600 Bull Street, South Carolina 29201, within fifteen (15) days following issuance of the permit. Service may be effected by personal delivery or by first class mail.

The following elements must, at a minimum, be included within the request:

1. A title indicating the nature of the proceeding and the parties involved;

2. The complete name and address of the party filing the pleading and, if applicable, the organization(s) or interests which he represents;

3. If the requesting party is to be represented by counsel, the name and address of the attorney;

4. A clear and concise statement of the requesting party's affected interest;

5. A clear and concise statement of the issues upon which the request is based and, where applicable, the contested sections of the permit. (It should be noted that any uncontested portions of the permit will become effective according to its terms on the effective date specified in the permit).

6. A statement of the relief sought by the requesting party.

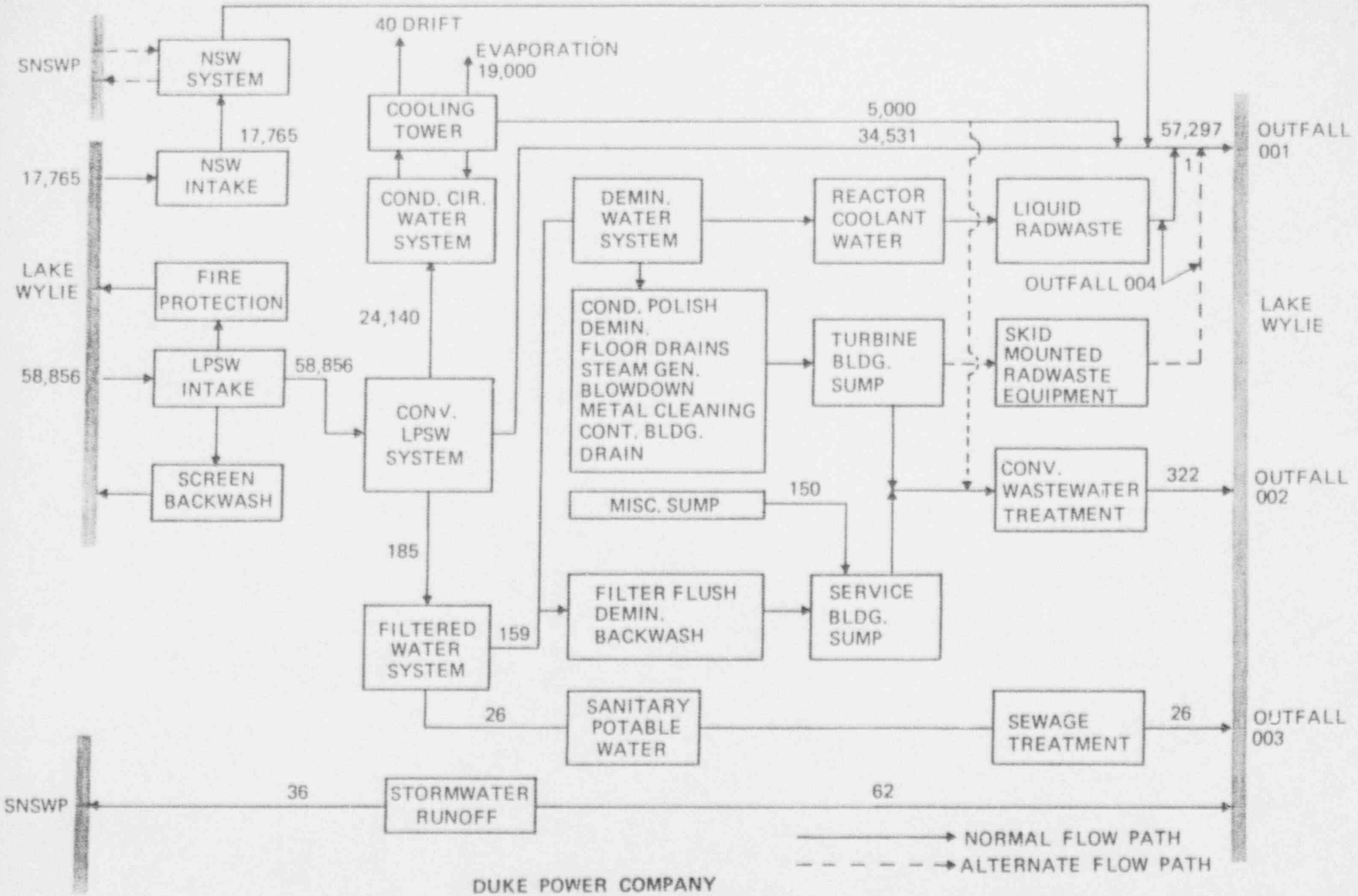
In the event that such a request is filed, the contested provisions of the permit will be stayed and will not become effective until the administrative review process is complete. All uncontested provisions of the permit will be considered issued and effective on the effective date set out in the permit and must be complied with by the facility. Final determination of permit conditions following an adjudicatory hearing will be in accordance with Regulation 61-72.

Information pertaining to adjudicatory matters may be obtained by contacting the Legal Office of the Department of Health and Environmental Control, 2600 Bull Street, Columbia, South Carolina or by calling 803/734-4910.

d. Issuance of the Permit when no Hearings are Held

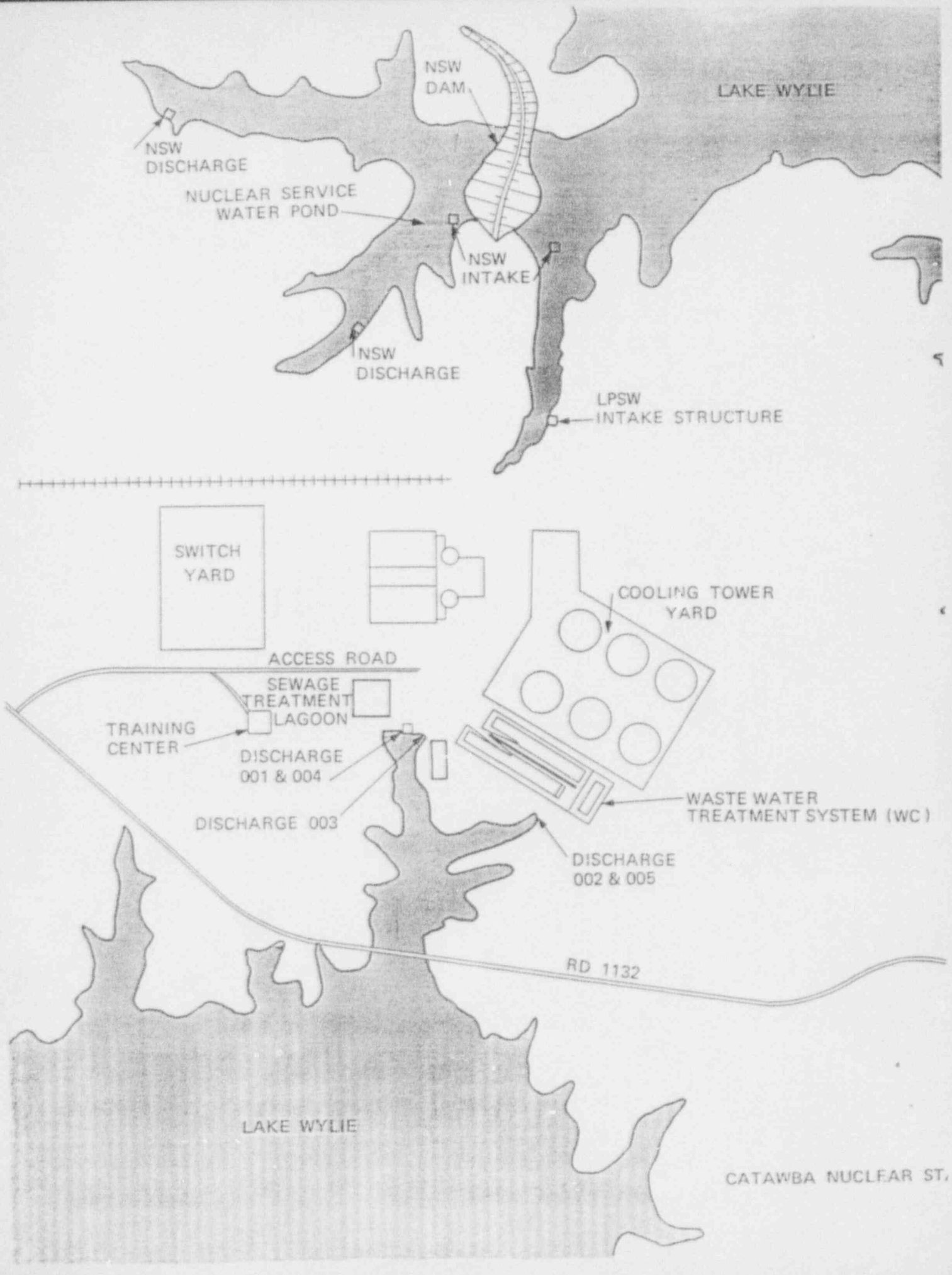
If no public hearing or adjudicatory hearing is held, and, after review of the comments received, DHEC's determinations are substantially unchanged, the permit will issue and become effective the first of the month following date of issue. This will be the final action of the Department of Health and Environmental Control.

If no hearings are held, but there have been substantial changes, public notice of DHEC's revised determination will be made. Following termination of the 15-day comment period and will be the final action of Department of Health and Environmental Control, unless a public or adjudicatory hearing is granted.



DUKE POWER COMPANY
WATER FLOW SCHEMATIC
CATAWBA NUCLEAR STATION
YORK COUNTY, SOUTH CAROLINA

NOTE: ALL FLOWS ARE IN GPM FOR AVERAGED CONDITIONS


NSW
DAM
LAKE WYLIE
NSW
DISCHARGE
NUCLEAR SERVICE
WATER POND
NSW
INTAKE
NSW
DISCHARGE
LPSW
INTAKE STRUCTURE
SWITCH
YARD
COOLING TOWER
YARD
ACCESS ROAD
SEWAGE
TREATMENT
LAGOON
TRAINING
CENTER
DISCHARGE
001 & 004
DISCHARGE 003
WASTE WATER
TREATMENT SYSTEM (WC)
DISCHARGE
002 & 005
RD 1132
LAKE WYLIE
CATAWBA NUCLEAR ST.

ATTACHMENT VI

October 13, 1992 Letter to SCDHEC Requesting Adjudicatory Hearing
for NPDES Permit # SC0004278

Duke Power Company
Legal Department - PBOSE
422 South Church Street
Charlotte, NC 28242-0001

DUKE POWER

(704) 382-8131

(704) 382-8137 Fax

October 13, 1992

Ms. Betsy Rogers, Clerk of the Board
South Carolina Department of
Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Attn: Jacquelyn Dickman, Esq.

Re: NPDES Permit No. SC0004278,
Duke Power Company,
Catawba Nuclear Generating Station
REQUEST FOR ADJUDICATORY HEARING

Dear Ladies:

Pursuant to Regulation 61-72, Volume 25, S.C. Code Code of Laws 1976, as amended "Procedures for Contested Cases", Duke Power Company ("Duke") hereby requests that the South Carolina Department of Health and Environmental Control ("SCDHEC") hold an adjudicatory hearing on certain issues raised by NPDES Permit No. SC0004278, reissued by SCDHEC effective October 1, 1992, for Duke's Catawba Nuclear Generating Station.

Interest of Requesting Party; Reasons for Request

Duke's Catawba Nuclear Station (the "Catawba Station" or the "Station") is an essential component of Duke's power generation system, supplying approximately 14 percent of the system's total capacity. The provisions of the NPDES permit cited herein will have a direct, adverse impact on the Station. Duke believes that the permit requirements at issue are either not achievable or would require Duke to incur costs in order to achieve requirements which are unnecessary to meet the goals and provisions of the South Carolina Pollution Control Act, Ch. 48.1, S.C. Code of Laws, 1976, as amended, as properly interpreted and applied.

Permit Requirements at Issue/Relief Requested

Duke notes that the two permit requirements proposed herein to be contested are the same as or very similar to requirements set forth in NPDES Permit No. SC0000515 for Duke's Oconee Nuclear Station, which requirements are currently being contested pursuant to an adjudication request previously filed by Duke.

1. Part III, Item 2, Page 27 of 31: This provision states in part that Duke "shall provide for the performance of routine daily treatment plant inspections by a certified operator of the appropriate grade as defined in Part II.C.1.." Pursuant to Part II.C.1 and Part III.A.3, that grade is B-B or higher. Duke contends that this requirement is inconsistent with applicable law, unsupported by substantial evidence, arbitrary, capricious, and an abuse of discretion. Duke requests that this provision be clarified so that it does not require that daily compliance inspections be conducted by the certified operator, but only requires that a certified operator of proper grade be in charge of the operation, and exercising a pattern of supervisory control over other plant employees and reviewing their reports, pursuant to §48-1-110(c).

2. Part III, Item 18, Page 31 of 31: This provision states in part that Duke must analyze total residual chlorine (TRC) to the "lowest detectable limit of a South Carolina certified laboratory", and that "[i]f analytical capabilities improve, the new detection limit must be met down to the water quality limits of 11.0 ppb average and 19.0 ppb maximum." Duke contends that DHEC's establishment of final water-quality-based limits for TRC that may change, depending on future changes in approved analytical methods, without prior notice or opportunity for comment, is inconsistent with law, arbitrary, capricious, an abuse of discretion and in violation of Duke's right to due process under the constitutions of the United States and South Carolina. Duke requests that this requirement be stricken and that a provision in lieu thereof be substituted allowing Duke to analyze "... to the lowest detectable limit allowed by its laboratory certification".

Pursuant to Regulation 61-72, Duke agrees that its employees or, if applicable, consultants shall be available for examination and cross-examination at a hearing, at Duke's expense.

We regret that we have not as yet been able to satisfactorily resolve the issues raised by this request. It has been and remains our intention to resolve these matters without actually going to hearing, but we have found it necessary to file this request in order to protect our rights in this matter, in light of an imminent filing deadline. We would, of course, be happy to discuss with you any of the issues raised. If you believe that such discussions would be helpful, please do not hesitate to call me at (704) 382-8131.

I look forward to hearing from you.

Respectfully submitted,

Jeffrey M. Trepel

Jeffrey M. Trepel
Assistant General Counsel

JMT:pe
Enclosure
cc: J. S. Carter
M. S. Tuckman
J. R. Hendricks
J. E. Hogan
C. T. Peed
G. S. Rice
R. R. Wylie

ATTACHMENT VII

December 29, 1992 Letter to SCDHEC Submitting Preliminary Engineering Report for Sanitary Waste Dechlorination

Duke Power Company
Generation Services Department
13339 Hagers Ferry Road
Huntersville, NC 28078-7929

DUKE POWER

December 29, 1992

To: Mr. Timothy Eleazer
Division of Industrial & Agricultural
Wastewater
Bureau of Water Pollution Control
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subject: Catawba Nuclear Station
NPDES Permit No. SC0004278
Preliminary Engineering Report
File: CN-702.13

Dear Mr. Eleazer:

As required by Part I Section B. 1. (A) of the subject NPDES permit, attached is the Preliminary Engineering Report (PER) which addresses the new limitations on Page 3, 7, and 11 of this permit. Your approval of the attached report is requested. Once the PER is approved, Duke Power Company will proceed with the Final Engineering Report (final plans, specifications and a construction permit application) for submittal to DHEC before May 1, 1993.

Please contact me at (704) 875-5970 if you have any questions or need additional information.

Sincerely,

Robert R. Wylie

Robert R. Wylie, Engineer
Environmental Division
Duke Power Company

cc: Robert Knauss - DHEC Columbia Office
Al Williams - DHEC Catawba District
Cheryl Peed - Catawba Nuclear Station
David Ward - Catawba Nuclear Station

CATAWBA NUCLEAR STATION
NPDES PERMIT #SC0004278
PRELIMINARY ENGINEERING REPORT
PROPOSED MODIFICATION TO THE
DOMESTIC SEWAGE TREATMENT SYSTEM
DECEMBER 1992

Signed: David Lee Ward S.C. Registration No. 10765
Registered Professional Engineer

CATAWBA NUCLEAR STATION
NPDES PERMIT #SC0004278
PRELIMINARY ENGINEERING REPORT

INTRODUCTION

NPDES permit #SC0004278 requires that a Preliminary Engineering Report (PER) be submitted that addresses the treatment facilities limitations on Page 3, 7 and 11 of the permit. In review of these limitations it is concluded that only the domestic sewage treatment system will need to be physically modified. This is needed in order to ensure compliance with the Total Residual Chlorine limits of 0.5 and 1.0 mg/l , monthly average and daily maximum , respectively. These TRC limits are on Part I Page 11 of 31 of the permit.

DOMESTIC SEWAGE TREATMENT SYSTEM MODIFICATION

In order to properly disinfect the effluent, the domestic sewage treatment system (WT System) uses calcium hypoclorite. In order to properly remove chlorine from the effluent, Duke Power Company is proposing that a dechlorination system be installed. The current model that is being evaluated is the ELTECH's Model 1000. This model uses Sodium Sulfite as the active ingredient to remove the chlorine.

Duke Power Company proposes that the dechlorination system be installed and operated per manufacturer's recommendations. Attachment 1 provides a description of the model under evaluation. Additionally in order to further minimize any immediate potential impact to the environment it is proposed that the WT System's outfall be rerouted to discharge over the outfall of the Low Pressure Service Water (RL) and Nuclear Service Water (RN) systems. The mixing ratio is routinely greater than a 2,000 to 1 for RL/RN to WT, respectively. The WT discharge will physically occur after the official NPDES sample point for the RL/RN.

Attachment 2 is a diagram of how the basic system will be designed. The dechlorination system will be installed after the chlorine contact chamber. A sample tap will be installed after the dechlorination system. The effluent pipe will be rerouted to the RL/RN discharge, with the flow occuring by gravity. Attachment 3 provides a location diagram of where this system is located at the site.

Attachment 1

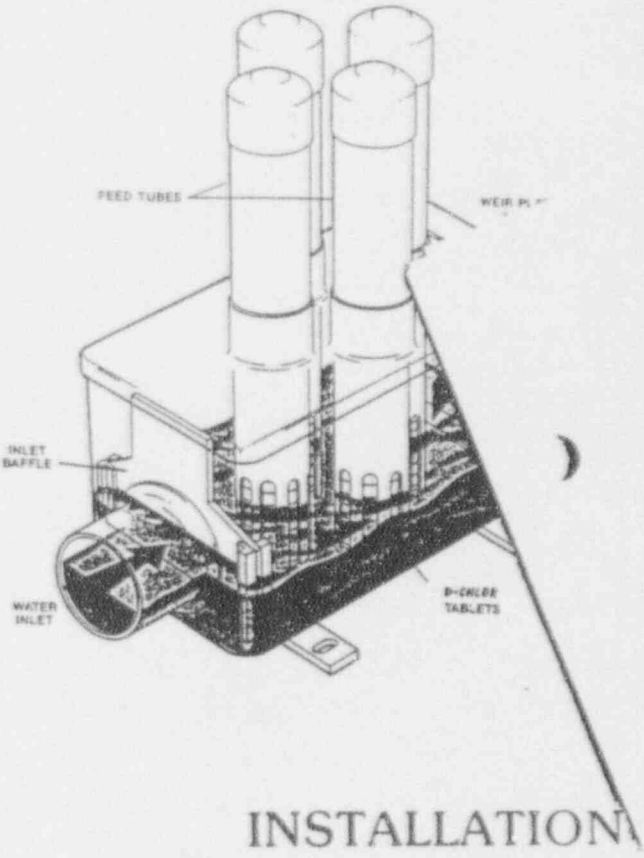
D-CHLOR™ Dechlorination Systems

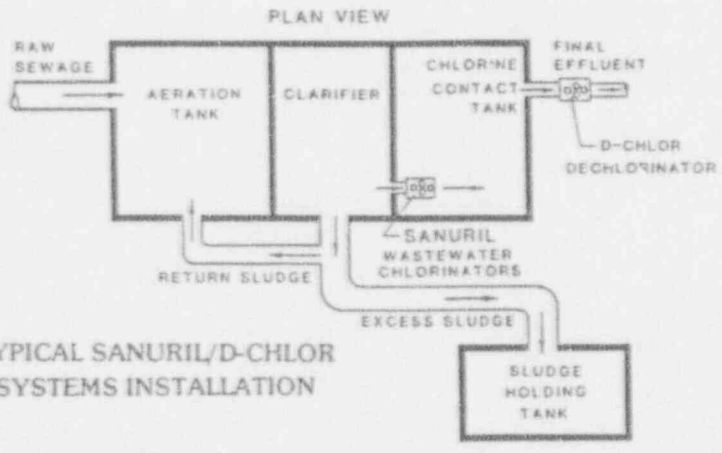
PERATION

The two key components to ELTECH's D-CHLOR™ System are the flow-through feeder and the D-CHLOR Tablets.

The tablets are placed in the feed tubes of the flow-through feeder. As water passes through the feeder, slots in the feed tubes allow contact of the tablets with the water. The tablets have been specially formulated by a proprietary process so that they dissolve at a controlled rate. Thus, a controlled amount of sulfite is added to the water as it flows through the feeder.

The feeder readily adapts to changes in flowrate. As the flowrate increases, a weir located at the outlet of the feeder causes the water level in the feeder to rise. This causes more tablets to be in contact with the water. The result is a constant sulfite concentration in the treated water in spite of fluctuations in flowrate. The sulfite concentration is set by choosing the proper number of tubes to be filled with tablets and the size of the outlet weir. All of this is accomplished without the use of complicated instruments, controls, or even electrical power.





TYPICAL SANURIL/D-CHLOR SYSTEMS INSTALLATION

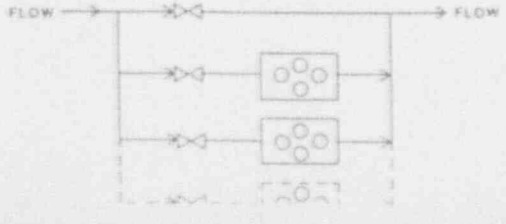
INSTALLATION

Utility hook-ups are not required for ELTECH's D-CHLOR System. Installation is very easy in gravity feed systems. The inlet of the D-CHLOR Tablet Feeder is piped directly to the outlet of the chlorine contact tank, or installed anywhere along the final discharge line. The outlet of the D-CHLOR Tablet Feeder free-falls into a ditch, trench, or alternatively, into a drop box connected to a discharge pipe.

EQUIPMENT

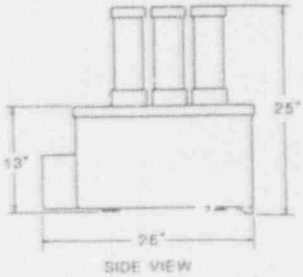
For optimum performance, D-CHLOR Tablets should only be dispensed in any of ELTECH's patented tablet feeders. A Model 1000 or 1001 tablet feeder can handle up to 50,000 gpd. Larger capacities up to 500,000 gpd can be treated by using a by-pass arrangement as shown in the sketch below. Smaller capacities can be handled with Models 100, 200, and a A-200. ELTECH's Tablet Feeders have no moving parts to wear out and no metal parts to corrode. ELTECH guarantees its tablet feeders for ten years.

INSTALLATION WITH A BY-PASS

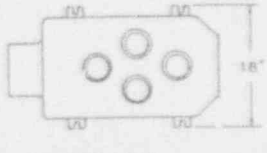


APPROXIMATE DIMENSIONS

MODELS 1000, 1001

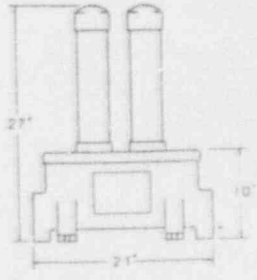


SIDE VIEW

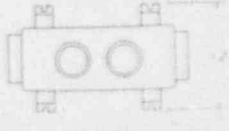


TOP VIEW

MODELS 100, 200, A-200



SIDE VIEW



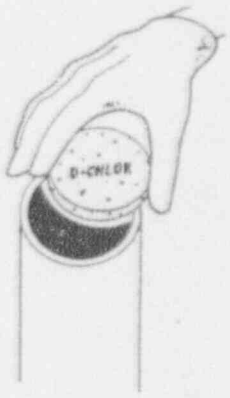
TOP VIEW

D-CHLOR Tablets

CHLOR Tablets are the safest, most convenient form of handling reducing agents. Dangers and problems with fur dioxide gas systems are avoided, as well as the mixing and handling of concentrated sulfite solutions.

Specifications

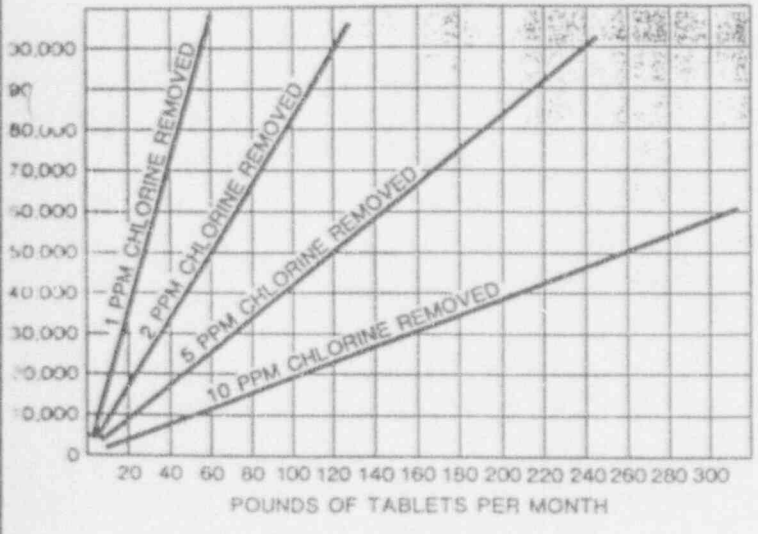
Active Ingredient	Sodium Sulfite, (Na_2SO_3) plus moisture 91.5%
Inert Ingredients	8.5%
Size	2-5/8 inch diameter x 13/16 inch thick
Color	Green/white with speckles
Fragrance	Pine
Weight	140 grams, (approximately)
Density	2.0 gms/cc, (approximately)



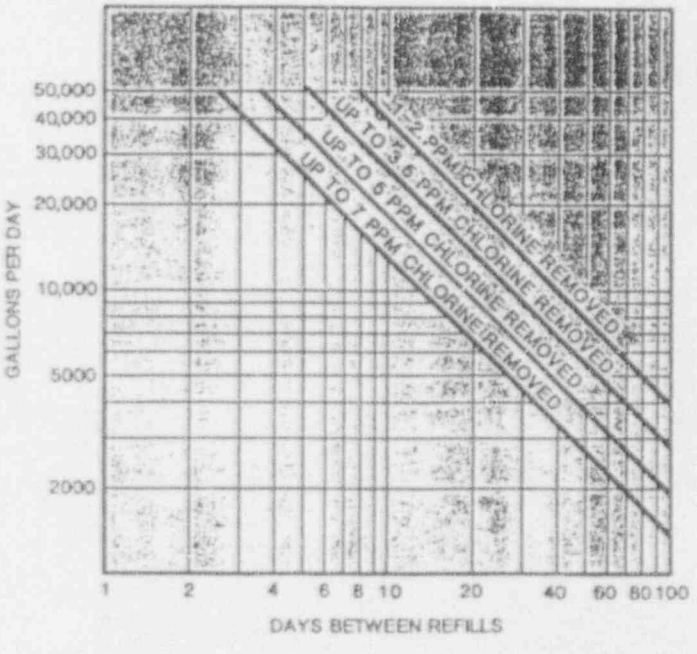
TABLET CONSUMPTION

sage rates for various plant flowrates and treatment levels are shown below, in certain applications, D-CHLOR can erate for several months unattended between refills.

D-CHLOR TABLET CONSUMPTION



TABLET REFILL RATE



APPLICATIONS

-CHLOR will remove chlorine or oxidizer originating from:
SANURIL® Tablets
AQUAWARD® Tablets
Calcium Hypochlorite Tablets
Sodium Hypochlorite
Hydrogen Peroxide
(nine dioxide
Chlorine gas
Ozone

D-CHLOR is effective in treating:

- Wastewater
- Tap water
- Cooling tower blowdown
- Any process water where the presence of chlorine or oxidizers is undesirable due to corrosion, oxidation or biological hazards.

D-CHLOR™ TABLETS

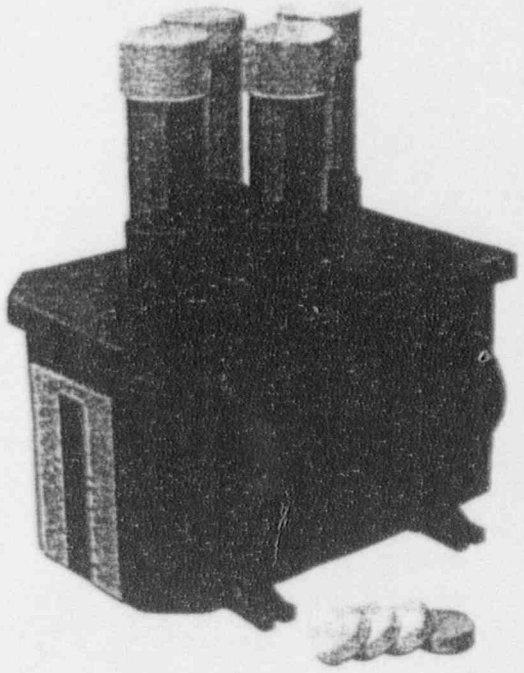
Dechlorinating Agent for Wastewate

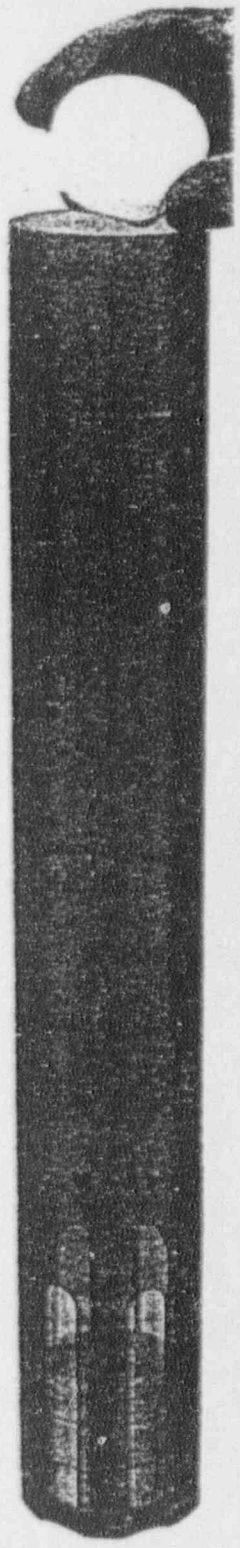
FROM THE MAKERS OF SANURIL® SYSTEMS

Data Sheet

Tablet Specifications

Active Ingredient Sodium sulfite (Na_2SO_3)
91.5% plus moisture
Inert Ingredients: 8.5%
Size: 2 5/8" diameter x 13/16" thick
Color: Pale Green
Weight: 140 grams, approximately
Density: 2.0 gms/cc, approximately





Applications

For the treatment of
- Wastewater
- Cooling tower water
- Tap water
- Pretreatment for ion exchange or reverse osmosis
- Any process water where the presence of chlorine or oxidizers is undesireable due to corrosion, oxidation or biological hazards

Removal of chlorine or oxidizer originating from:
- SANURIL® tablets
- AQUAWARD® tablets
- Sodium hypochlorite solution
- Calcium hypochlorite solution
- Chlorine gas
- Chlorine dioxide
- Hydrogen peroxide
- Ozone

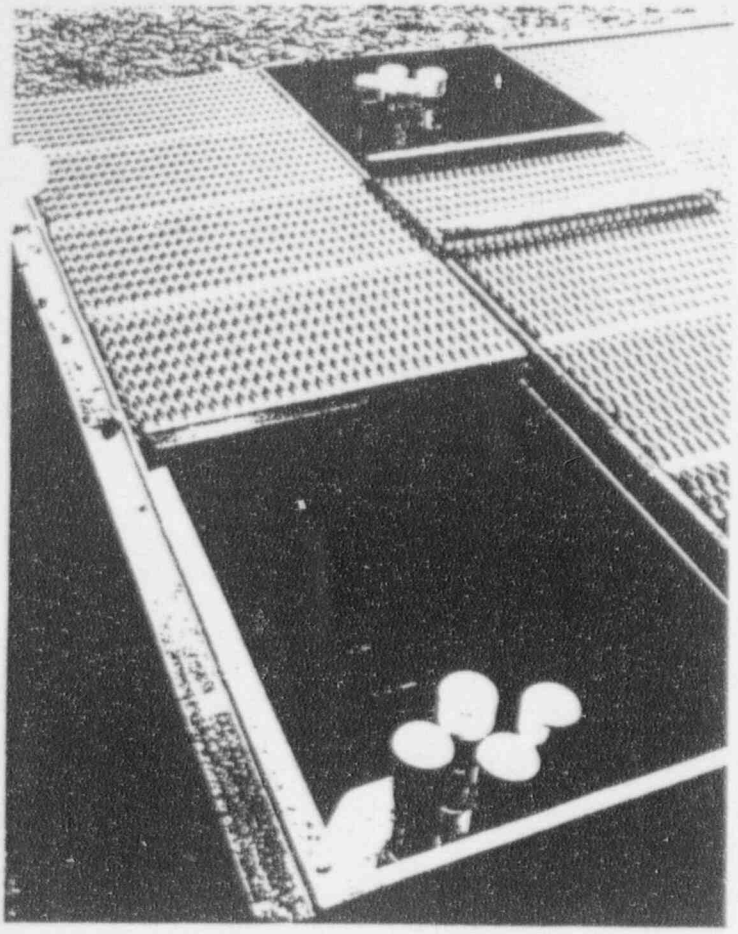
Safety and handling

- Not rated as hazardous substance by the EPA.
- Unused material not designated a hazardous waste by RCRA.
- Not rated hazardous by DOT.
- Store in a cool, dry place away from acids and oxidizers.
- Do not allow this product to come in contact with chlorination tablets, granules, or pellets.
- Wash hands after handling.

Equipment

For optimum performance, D-CHLOR tablets should only be dispensed in any of EES' patented tablet feeders. Model 1000 or 1001 tablet feeders can individually handle up to 50,000 gallons per day or 100,000 gallons per day when two are installed in parallel. Larger capacities can be treated by using a by-pass arrangement. Smaller capacities can be handled with models 100, 200, and A-200.

EES tablet feeders require no electricity, have no moving parts to wear out, and no metal parts to corrode. EES guarantees its tablet feeders for ten years.



40,000 GPD WASTEWATER TREATMENT PLANT

SANURIL® IN BACKGROUND,
D-CHLOR™ IN FOREGROUND

THE BEST OF BOTH WORLDS. . . SANURIL® and D-CHLOR™

SANURIL 115 Tablets combine two active ingredients to provide superior wastewater disinfection with less chemical.

D-CHLOR allows the use of chlorine for the benefit of disinfection while at the same time removes chlorine residuals before discharge.

Use them separately or combine them for a reliable chlorination/dechlorination system. SANURIL and D-CHLOR . . . . There has never been a safer or easier way to meet discharge standards.

ELTECH has over 15 years of experience in water treatment. The SANURIL® Wastewater Chlorinator is the industry standard for effective, low-cost, low-maintenance wastewater chlorination. EES's dechlorination system is based on the same proven concept as the SANURIL system — controlled release tablets and a flow-through weir-controlled feeder. D-CHLOR™ and SANURIL® Tablets are available in 45 lb. plastic pails.

Call or write for the name of the distributor who serves your area.

Cover background photo by Todd Williams, Todd Williams Communications

ELTECH

EES Corporation
A Subsidiary of ELTECH Systems Corporation
12850 Bournewood Drive • Sugar Land, Texas 77478
Telephone (713) 240-6770 • Telex 795459 • FAX (713) 240-6762

D-CHLOR™ TABLETS

Field Test Data

Test 1:

16,000 GPD extended aeration/sand filter wastewater treatment plant. 1 - 35 GPM range. 13 GPM average. 76 days of operation.

	Inlet	Outlet
Residual Cl_2	2.9 mg/1	0.0 mg/1
Dissolved O_2	6.6 mg/1	6.0 mg/1
BOD_5	<5.0 mg/1	<5.0 mg/1
Fecal Coli	<2.9/100 mg	<2.9/100 ml
pH	6.9	6.9

Test 2:

400,000 GPD Contact stabilization wastewater treatment plant, 38-110 GPM Range. 71 GPM average. 74 days of operation.

	Inlet	Outlet
Residual Cl_2	1.7 mg/1	0.0 mg/1
Dissolved O_2	10.6 mg/1	10.4 mg/1
BOD_5	<5 mg/1	<5 mg/1
Fecal Coli	<2.9/100 mg	<2.9/100 ml
pH	7.6	7.6

THM (Trihalomethane) Reduction

D-CHLOR controls and limits THM formation

Dechlorination following chlorine disinfection (one half hour contact time) reduces THM formation by an order of magnitude.

Data: 0.5 - 4.0 mg/1 chlorine residual

Allowed Reaction Time with Chlorine Prior to Dechlorination	Resulting TTHM* Concentration
30 minutes	9 ppb
5 hours	27 ppb
10 hours	45 ppb
20 hours	64 ppb
30 hours	82 ppb
40 hours	91 ppb
50 hours	100 ppb
60 hours	109 ppb

*TTHM = Total Trihalomethanes

SOURCE OF INFORMATION:

EPA reports 600/2-81-156 and 600/2-80-091

Reaction Chemistry

Generation of acidity (H^+) and lowering of pH can be avoided by chlorinating with calcium hypochlorite and dechlorinating with sodium sulfite. These represent the active ingredients in SANURIL tablets and D-CHLOR tablets.

SANURIL/D-CHLOR: $Ca(OCl)_2 + 2\ Na_2SO_3 \longrightarrow 2\ Na_2SO_4 + CaCl_2$

compared to

Cl_2 gas/SO_2 gas: $Cl_2 + 2\ H_2O + SO_2 \longrightarrow 4\ H^+ + 2\ CL^- + SO_4^{-2}$

Sodium sulfite reacts immediately with and eliminates free available chlorine and inorganic chloramines.

The reaction rates of sodium sulfite with certain organic chloramines are quite slow in some cases compared to those of inorganic chloramines.

In general, two parts of sodium sulfite will react completely with one part of free or combined chlorine.

Biological Considerations - Freshwater*

Acute studies - dechlorination substantially reduced, and in most cases, eliminated chlorine-induced mortality in chlorinated surface waters and secondary domestic sewage effluent.

Chronic studies - dechlorination eliminated adverse effects of chlorine on survival and growth of organisms in 100% chlorinated secondary domestic sewage.

Decreases in dissolved oxygen and pH have been reported in studies using chlorinated secondary domestic sewage after sulfur dioxide was added in excess of 4 mg/1. No changes in dissolved oxygen were reported in a similar study with had excess sulfite up to 9.5 mg/1.

Biological Considerations - Saltwater*

Acute studies - limited data indicate that dechlorination substantially reduces chlorine-induced oxident toxicity.

Chronic studies - Dechlorination substantially reduces and/or eliminates mortality in Amer...an lobster larvae (19-day exposure) and juvenile American oysters (exposures up to 32 days)

No studies showed any reduction in dissolved oxygen of pH as a result of dechlorination.

*Source of information
John Hopkins University
dechlorination study

ELTECH

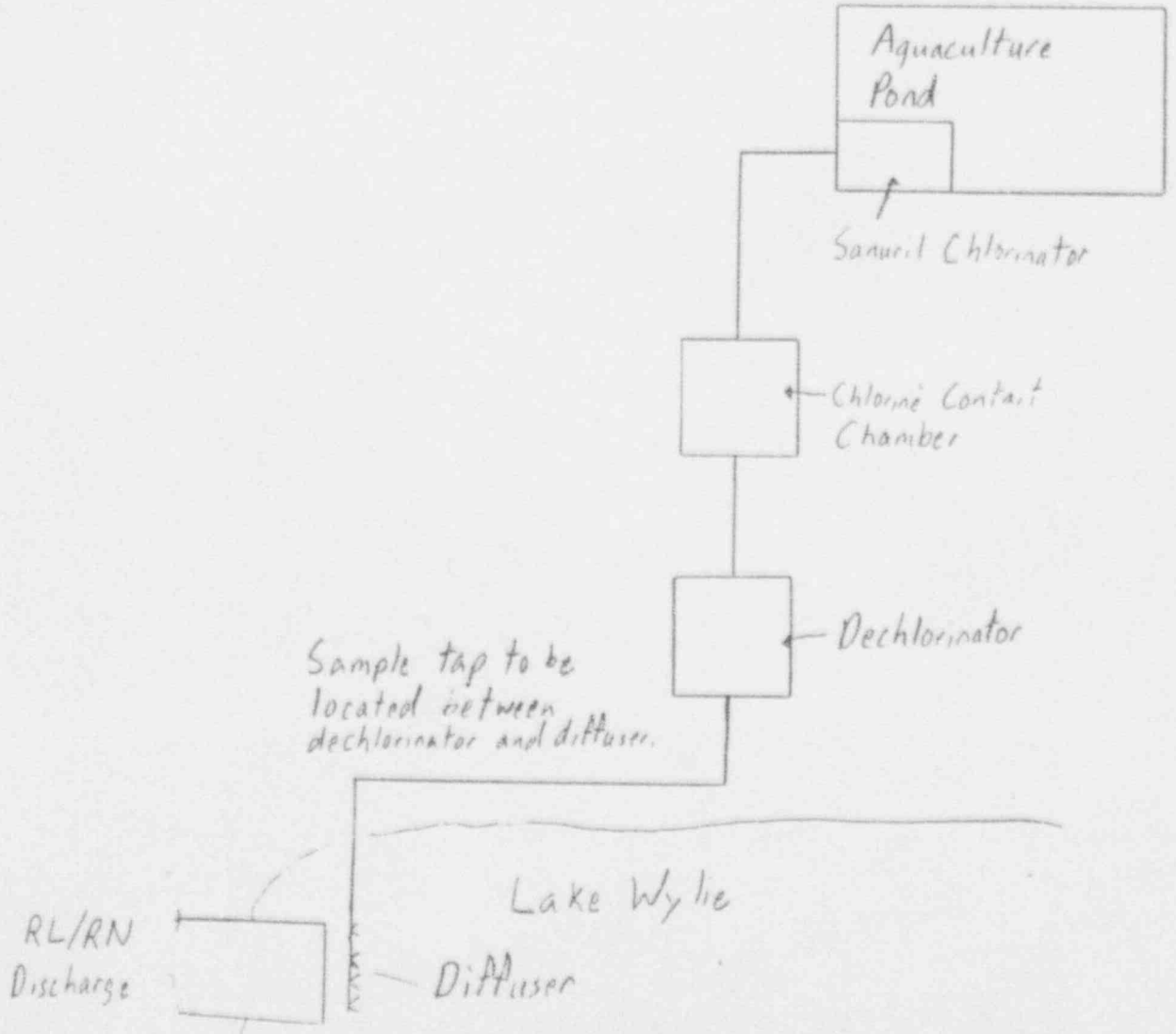
EES Corporation
A Subsidiary of ELTECH Systems Corporation
12850 Bournewood Drive • Sugar Land, Texas 77478
Telephone (713) 240-8440 • Telex 795459 • FAX (713) 240-6762

Printed in U.S.A. 5-89

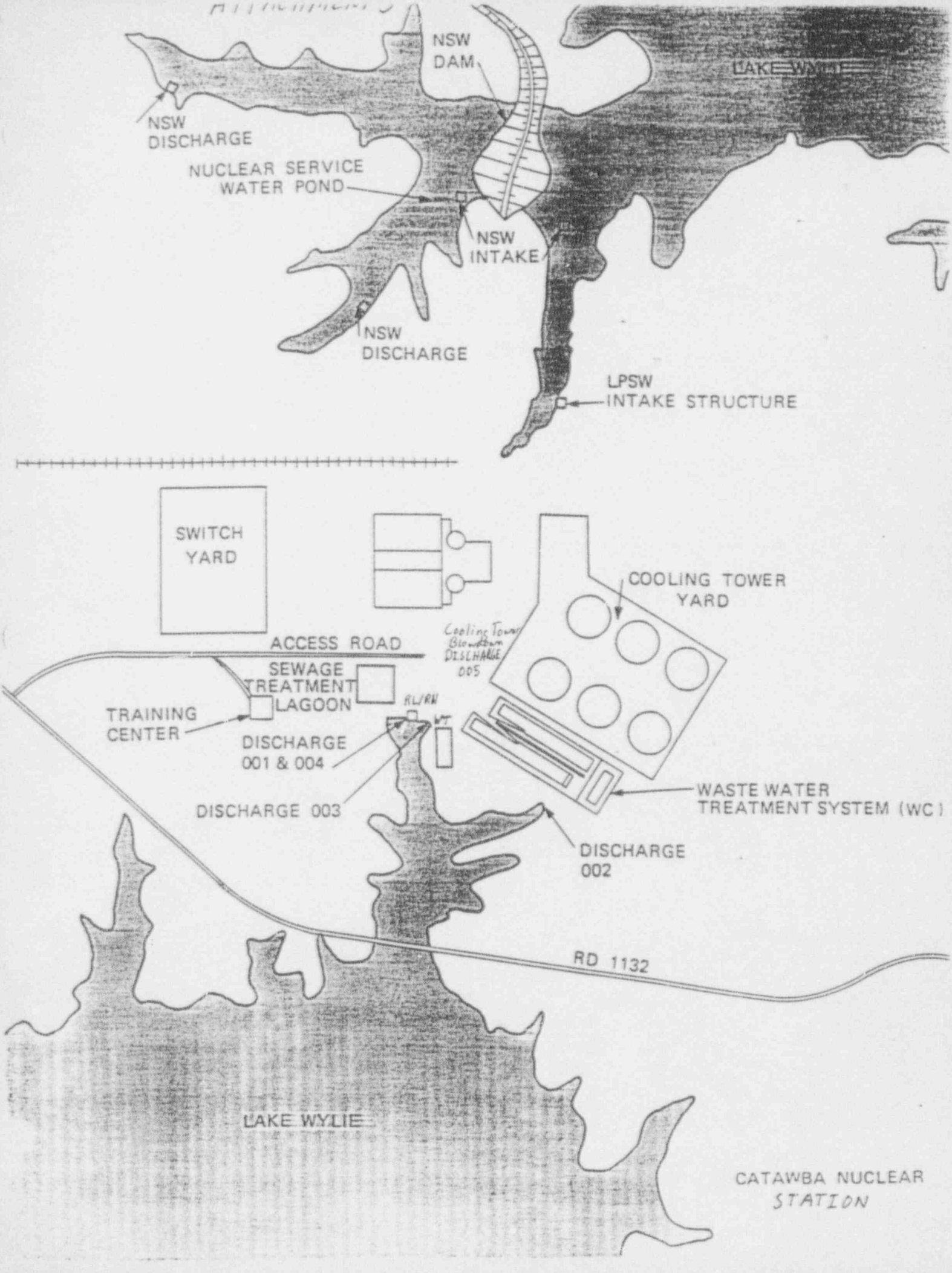
Catawba Nuclear Station
Modification Proposal to
the Domestic Sewage
Treatment System

Not to Scale

12/21/92



ATTACHMENT 2


NSW DAM
LAKE WYLIE
NSW DISCHARGE
NUCLEAR SERVICE WATER POND
NSW INTAKE
NSW DISCHARGE
LPSW INTAKE STRUCTURE
SWITCH YARD
COOLING TOWER YARD
Cooling Tower Blowdown DISCHARGE 005
ACCESS ROAD
SEWAGE TREATMENT LAGOON
TRAINING CENTER
RL/RW
WT
DISCHARGE 001 & 004
DISCHARGE 003
WASTE WATER TREATMENT SYSTEM (WC)
DISCHARGE 002
RD 1132
LAKE WYLIE
CATAWBA NUCLEAR STATION

ATTACHMENT VIII

March 4, 1993 Letter to SCDHEC Providing Notification of Maintenance Chemical Use

Duke Power Company
Generation Services Department
13339 Hagers Ferry Road
Huntersville, NC 28078-7929

DUKE POWER

March 4, 1993

To: Mr. Timothy Eleazer
Division of Industrial & Agricultural
Wastewater
Bureau of Water Pollution Control
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subject: Catawba Nuclear Station
NPDES Permit No. SC0004278
Notification of Maintenance
Chemical Use
File: CN-702.13

Dear Mr. Eleazer:

As we recently discussed, the subject NPDES permit provides in its rationale a 1.2 mg/l maximum discharge limit for the biocide clam-trol. This limit was derived from 1989 correspondence between Duke Power Company (DPC) and the South Carolina Department of Health and Environmental Control. This 1989 correspondence also restricted the discharge with clam-trol to less than fours hours per day.

Subsequent to the above correspondence the effectiveness of clam-trol has been reevaluated. This evaluation has determined that higher dosage levels and a longer contact time are needed to ensure that the biocide is effective. With this change in protocol DPC plans to implement additional measures to minimize any impact to the environment. These plans include using bentonite clay as a means to detoxify the discharge prior to Lake Wylie. The bentonite clay treatment process will be conducted by a vendor (Betz Industrial) using Betz's temporary equipment.

Based on the attached toxicity data and treatment plan DPC believes that by not exceeding a daily average limit of 0.4 mg/l clam-trol at Outfall 001, the environment will be protected. The Conventional Waste Water Treatment System has the potential to receive some clam-trol depending on whether specific systems are being flushed. Therefore a daily average limit of 0.4 mg/l at Outfall 002 is also requested per occurrence.

Due to the need to change the previous protocol, DPC is requesting your approval of the proposal as described in the attachment 1. Please advise if you have any questions or need additional information. You may call me at (704) 875-5970. Thanks in advance for your consideration of this proposal. Catawba Nuclear Station anticipates the need for this proposal to be in effect by May 3, 1993.

Sincerely,

Robert R. Wylie

Robert R. Wylie, Engineer
Water Protection
Environmental Division

bc: Jim Hendricks - ASC
John Carter - ASC
Dayna Russell - ASC
Keith Finley - ASC
Gene Vaughan - ASC
John Velte - ASC
Todd Folsom - ASC
James Hall - ASC
Tony Jackson - CNS
Russell Propst - CNS
Gerry Parker - CNS
Cheryl Peed - CNS
Willie Davis - CNS
Jimmy Cunningham - CNS
Joe McKeown - CNS
Steve Davenport - EC07D
Gary Sain - EC07D
Jeff Trepel - PB05E

ATTACHMENT 1

CATAWBA NUCLEAR STATION

PROPOSED CLAM-TROL TREATMENT PLAN

MARCH 4, 1993

SUMMARY OF PLAN

Clam-trol is a biocide that Duke Power Company purchases from Betz Industrial company. (Attachment 2 provides the MSDS for clam-trol.) In recent months Betz has recommended to Duke Power Company another approach for using clam-trol in order to more effectively control asiatic clams. It is proposed that each treatment will consist of feeding 15 ppm clam-trol into the Nuclear Service Water (RN) system for a period of 12 hours. The clam-trol that remains in the water at the downstream end of the RN system will be detoxified using bentonite clay before it discharges at Outfall 001.

FEEDING

The RN system at CNS has two trains (A and B). Clam-trol will be fed into one train for 12 hours to a concentration of approximately 15 mg/l clam-trol. Following the initial treatment to a train clam-trol will be added to the other train for 12 hours to a concentration of approximately 15 mg/l clam-trol.

DETOXIFICATION

The detoxification of clam-trol prior to discharge to Lake Wylie will be accomplished by Betz Industrial using a slurry of bentonite clay. Betz Industrial has assured DPC that bentonite clay is very effective in adsorbing clam-trol and rendering it non-toxic. The trade name of bentonite clay is BETZ DTS. DTS will be delivered in and pumped from a tank truck. A high capacity pump will be used to recirculate the DTS in order to keep it properly mixed and of uniform consistency. Feed pumps will then pump the DTS from the tanker into the cooling tower blowdown lines. The pumping skid will have two chemical feed pumps, one for pumping and one as a spare. The cooling tower blowdown will mix with the RN water prior to Lake Wylie in order to render it non-toxic.

The DTS treatment will be started at a time prior to the addition of clam-trol. Only after a stable flow is established will the clam-trol be added. A ratio of 3 to 1 DTS to clam-trol will be the target until it is determined the exact amount needed to remove toxicity. During the process if a problem is encountered the clam-trol addition can promptly be stopped. Attachment 2 is a copy of the MSDS for clam-trol.

It should be noted that the RN system is designed with the capability to swap over to the Standby Nuclear Service Water Pond. If a swap over does occur it will bypass the bentonite treatment process. Since the swap over is an automatic nuclear safety function, required by the Nuclear Regulatory Commission, it cannot be overridden. However, measures will be in place to make the likelihood of a swap over occurring during the addition of clam-trol very remote. Additionally, prompt steps to stop the addition of clam-trol will be taken if a swap over were to occur.

During the addition of clam-trol some the internal systems may be flushed, in order to optimize on the effects of this treatment. The actual flush water will be at a much less flow rate than the RN system's main header. Depending on which system is being flushed, the waste water has the potential to reach the Cooling Tower System (RC), the Conventional Waste Water Treatment System (WC) and/or the Liquid Radwaste System (WL). Both the RC and the WL Systems' discharge to Lake Wylie via Outfall 001. The WC system discharges to Lake Wylie via Outfall 002. Since these systems may actually discharge after the DTS treatment and the clam-trol addition are completed process sampling and/or an evaluation wil occur to determine if further DTS treatment is needed. If further treatment is needed to the WC System DTS will be added to the WC's Initial Holdup Pond.

DEFOAMING

The two active ingredients in clam-trol are cationic surfactants which can produce some foaming. The DTS will adsorb these actives, but there is a possibility for residual foaming. In order to address this possibility, BETZ INDUSTRIAL will have a defoamer (Foam Trol 387A) available. It is anticipated that if Foam Trol is needed the concentration will be less than 50 ppm Foam Trol. Attachment 3 is the MSDS and associated toxicity information on Foam Trol.

NPDES PERMIT SC0004278
PART III ITEM 9 REQUIREMENTS

1) NAME AND GENERAL COMPOSITION OF THE MAINTENANCE CHEMICAL

a) N-alkyl dimethyl benzyl ammonium chloride (Quat)
b) Dodecylguanidine hydrochloride (DGH)
c) Isopropyl alcohol
d) Ethyl alcohol
e) Ethylene glycol

2) QUANTITIES TO BE USED

During a 12 hour dosage period it is estimated that 150 gallons of Clam-trol will be used.

3) FREQUENCY OF USE

Clam-trol is planned initially to be used once per train on three selected occasions annually. Depending on the need this could change to a more frequent basis.

4) PROPOSED DISCHARGE CONCENTRATION

It is proposed that the discharge limit be changed to a daily average limit of 0.40 mg/l clam-trol at Outfalls 001 and 002. This is based on the toxicity information in Attachment 4.

5) EPA REGISTRATION NUMBER

The EPA Registration Number for Clam-trol is 3876-145.

6) AQUATIC TOXICITY INFORMATION

See Attachment 4.

ATTACHMENT 2

BETZ LABORATORIES,INC.
4636 SOMERTON ROAD, TREVOSE, PA. 19053
BETZ MATERIAL SAFETY DATA SHEET
EMERGENCY TELEPHONE (HEALTH/ACCIDENT) 800-877-1940

PRODUCT : CLAM-TROL CT-1

EFFECTIVE DATE 02-16
PRINTED: 1-Mar-1991
REVISIONS TO SECTIONS: -;EDIT:APPENDIX

PRODUCT APPLICATION : WATER-BASED MICROBIAL CONTROL AGENT.

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIF PRODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACU AND CHRONIC HAZARDS OF THIS FORMULATION.

ETHYLENE GLYCOL***CAS#107-21-1;LIVER, KIDNEY AND BLOOD TOXIN;CNS DEPRESSANT;ANIMAL TERATOGEN(HIGH ORAL DOSES);PEL/TLV:50PPM-C.

ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE***CAS#68424-85-1;CORROSIVE(EYES) PEL:NONE;TLV:NONE.

ISOPROPYL ALCOHOL(IPA)***CAS#67-63-0;FLAMMABLE LIQUID;CHRONIC OVEREXPOSUI MAY CAUSE LIVER AND KIDNEY TOXICITY;PEL/TLV:400PPM (500PPM-STEL).

DODECYLGUANIDINE HYDROCHLORIDE***(DGH);CAS#13590-97-1;CORROSIVE;PEL:NONE TLV:NONE.

ETHYL ALCOHOL(ETHANOL)***CAS#64-17-5;FLAMMABLE;EYE IRRITANT;MAY CAUSE DEFATTING DERMATITIS,DIZZINESS AND HEADACHE;PEL/TLV:1000PPM.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 5.3	ODOR: MILD
FL.PT.(DEG.F): 116 SETA(CC)	SP.GR.(70F)OR DENSITY: 1.022
VAPOR PRESSURE(mmHG): 23	VAPOR DENSITY(AIR=1): >1
VISC cps70F: 23	%SOLUBILITY(WATER): 100
EVAP.RATE: <1 ETHER=1	APPEARANCE: COLORLESS
PHYSICAL STATE: LIQUID	FREEZE POINT(DEG.F): <-30

-----SECTION 3----------REACTIVITY DATA----------

BLE.MAY REACT WITH STRONG OXIDIZERS.DO NOT CONTAMINATE.BETZ TANK CLEAN-OUT CATEGORY 'B'

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

PRODUCT: CLAM-TROL CT-1

---SECTION 4----------HEALTH HAZARD EFFECTS----------

UTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
CORROSIVE TO SKIN.POTENTIAL SKIN SENSITIZER

JTE EYE EFFECTS ***
CORROSIVE TO THE EYES

ACUTE RESPIRATORY EFFECTS *** PRIMARY ROUTE OF EXPOSURE
VAPORS,GASES,MISTS AND/OR AEROSOLS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

RONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED OVEREXPOSURES MAY CAUSE: TISSUE NECROSIS;BLOOD CELL DAMAGE OR IMPAIR BLOOD CELL FUNCTION; REPRODUCTIVE SYSTEM TOXICITY; SKIN SENSITIZATION.

EDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

MPTOMS OF EXPOSURE ***
INHALATION OF VAPORS/MISTS/AEROSOLS MAY CAUSE EYE,NOSE,THROAT AND LUNG IRRITATION;SKIN CONTACT MAY CAUSE SEVERE IRRITATION OR BURNS.

ECAUTIONARY STATEMENT BASED ON TESTING RESULTS ***
MAY BE TOXIC IF ORALLY INGESTED.

----SECTION 5----------FIRST AID INSTRUCTIONS----------

IN CONTACT***
REMOVE CLOTHING.WASH AREA WITH LARGE AMOUNTS OF SOAP SOLUTION OR WATER FOR 15 MIN.IMMEDIATELY CONTACT PHYSICIAN

YE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

NHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA.APPLY NECESSARY FIRST AID TREATMENT.IMMEDIATELY CONTACT A PHYSICIAN.

NGESTION***
DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
DO NOT INDUCE VOMITING.IMMED.CONTACT PHYSICIAN.DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS----------

ILL INSTRUCTIONS***
VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER.THE CONTAMINATED ABSORBENT SHOULD BE CONSIDERED A PESTICIDE AND DISPOSED OF IN AN APPROVED PESTICIDE LANDFILL.SEE PRODUCT LABEL STORAGE AND DISPOSAL INSTRUCTIONS.
REMOVE IGNITION SOURCES.FLUSH AREA WITH WATER.SPREAD SAND/GRIT.

SPOSAL INSTRUCTIONS***
WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER TREATMENT FACILITY,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A PERMITTED WASTE TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT
PRODUCT(AS IS)-
DISPOSE OF IN APPROVED PESTICIDE FACILITY OR ACCORDING TO LABEL INSTRUCTIONS

RE EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).PROPER FIRE EXTINGUISHING MEDIA: DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

PRODUCT: CLAM-TROL CT-1

----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

=E PROTECTIVE EQUIPMENT IN ACCORDANCE WITH 29CFR SECTION 1910.132-134. USE
PIRATORS WITHIN USE LIMITATIONS OR ELSE USE SUPPLIED AIR RESPIRATORS.
NTILATION PROTECTION***
ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS
ECOMMENDED RESPIRATORY PROTECTION***
IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY,
USE A RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE & DUST/MIST PREFILTER
ECOMMENDED SKIN PROTECTION***
GAUNTLET-TYPE RUBBER GLOVES,CHEMICAL RESISTANT APRON
WASH OFF AFTER EACH USE.REPLACE AS NECESSARY
COMMENDED EYE PROTECTION***
SPLASH PROOF CHEMICAL GOGGLES.FACE SHIELD

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

TORAGE INSTRUCTIONS***
KEEP DRUMS & PAILS CLOSED WHEN NOT IN USE.
STORE IN COOL VENTILATED LOCATION.STORE AWAY FROM OXIDIZERS
ANDLING INSTRUCTIONS***
COMBUSTIBLE. DO NOT USE AROUND SPARKS OR FLAMES. BOND CONTAINERS
DURING FILLING OR DISCHARGE WHEN PERFORMED AT TEMPERATURES AT OR
ABOVE THE PRODUCT FLASH POINT.

****

IS MSDS WAS WRITTEN TO COMPLY WITH THE OSHA HAZARD COMMUNICATION STANDARD

****

APPENDIX: REGULATORY INFORMATION

CONTENT OF THIS APPENDIX REPRESENTS INFORMATION KNOWN TO BETZ ON THE
ECTIVE DATE OF THIS MSDS. THIS INFORMATION IS BELIEVED TO BE ACCURATE.
NY CHANGES IN REGULATIONS WILL RESULT IN UPDATED VERSIONS OF THIS DOCUMENT.

.TSCA: THIS IS AN EPA REGISTERED BIOCIDE AND IS EXEMPT FROM TSCA INVENTORY
QUIREMENTS
..FIFRA(40CFR):EPA REG.NO. 3876- 145
.REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:
T APPLICABLE
..RCRA: IF THIS PRODUCT IS DISCARDED AS A WASTE,THE RCRA HAZARDOUS WASTE
ENTIFICATION NUMBER IS: D001=IGNITABLE;D002=CORROSIVE(SKIN)
.DOT HAZARD/UN#/ER GUIDE# IS: CORROSIVE TO SKIN.COMBUSTIBLE UN1760/#60
..CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) MATERIALS: NONE
..SARA SECTION 302 CHEMICALS: NONE
.SARA SECTION 313 CHEMICALS: ETHYLENE GLYCOL(107-21-1) , 21.0-30.0% ;
.SARA SECTION 312 HAZARD CLASS: IMMEDIATE(ACUTE),DELAYED(CHRONIC) AND FIRE
.MICHIGAN CRITICAL MATERIALS: NONE
PA/HMIS : HEALTH - 3 ; FIRE - 2 ; REACTIVITY - 0 ; SPECIAL - CORR ; PE - D

Summary of Results

Detoxified Clam-Trol CT-1 solutions were prepared by mixing 25 mg/l Clam-Trol CT-1 solutions with 250 mg/l of bentonite clay (a CT-1 to clay ratio of 1:10).

No mortality or stress was exhibited to fathead minnows that were continuously exposed for 30 days to detoxified Clam-Trol CT-1 solutions.

No mortality was exhibited to Daphnia magna that were exposed for 48 hour periods to renewed or aged detoxified Clam-Trol CT-1 solutions.

Attachment 3

BETZ LABORATORIES,INC.
4636 SOMERTON ROAD, TREVOSE, PA. 19053
BETZ MATERIAL SAFETY DATA SHEET
EMERGENCY TELEPHONE (HEALTH/ACCIDENT) 800-877-1940

PRODUCT : FOAM-TROL 387A

EFFECTIVE DATE:10-12-92
PRINTED: 10-12-92
REVISIONS TO SECTIONS: APPENDIX;EDIT:7,8

PRODUCT APPLICATION:ANTIFOAM.

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS,HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC PRODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD IS LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION.

THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY OSHA REGULATIONS.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS(APPROX.) 6.2	ODOR: SLIGHT
FL.PT.(DEG.F):> 200 P-M(CC)	SP.GR.(70F): 0.976
VAPOR PRESSURE(mmHG): ~ 18.0	VAPOR DENSITY(AIR=1): < 1.00
VISC cps70F: 1500	%SOLUBILITY(WATER): 0.0
EVAP RATE: < 1.00(ETHER=1)	APPEARANCE: WHITE
PHYSICAL STATE:DISPERSION	FREEZE POINT(DEG.F): 32.00

-----SECTION 3----------REACTIVITY DATA----------

STABLE.MAY REACT WITH STRONG OXIDIZERS.DO NOT CONTAMINATE.BETZ TANK CLEAN-OUT CATEGORY 'A'

THERMAL DECOMPOSTION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

PRODUCT : FOAM-TROL 387A

------SECTION 4---------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
MAY CAUSE SLIGHT IRRITATION TO THE SKIN

ACUTE EYE EFFECTS ***
MODERATELY IRRITATING TO THE EYES

ACUTE RESPIRATORY EFFECTS ***
MISTS/AEROSOLS MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

CHRONIC EFFECTS OF OVEREXPOSURE***
NO EVIDENCE OF POTENTIAL CHRONIC EFFECTS.

MEDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

SYMPTOMS OF EXPOSURE ***
MAY CAUSE REDNESS OR ITCHING OF SKIN.

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT ***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY

INGESTION***
DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
DILUTE CONTENTS OF STOMACH.INDUCE VOMITING BY ONE OF THE STANDARD METHODS.IMMEDIATELY CONTACT A PHYSICIAN

----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS----------

SPILL INSTRUCTIONS***
VENTILATE,AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER.THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.
FLUSH AREA WITH WATER. WET AREA MAY BE SLIPPERY. SPREAD SAND/GRIT.

DISPOSAL INSTRUCTIONS****
WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER TREATMENT FACILITY,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A PERMITTED WASTE TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT
PRODUCT(AS IS)-
INCINERATE OR BURY IN APPROVED LANDFILL

FIRE EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).PROPER FIRE EXTINGUISHING MEDIA:
DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

PRODUCT : FOAM-TROL 387A

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

USE PROTECTIVE EQUIPMENT IN ACCORDANCE WITH 29CFR SECTION 1910.132-134.USE RESPIRATORS WITHIN USE LIMITATIONS OR ELSE USE SUPPLIED AIR RESPIRATORS.

VENTILATION PROTECTION***

ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS

RECOMMENDED RESPIRATORY PROTECTION***

IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH DUST/MIST FILTERS.

RECOMMENDED SKIN PROTECTION***

RUBBER GLOVES

WASH OFF AFTER EACH USE REPLACE AS NECESSARY.

RECOMMENDED EYE PROTECTION***

SPLASH PROOF CHEMICAL GOGGLES

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***

KEEP CONTAINERS CLOSED WHEN NOT IN USE.

PROTECT FROM FREEZING

HANDLING INSTRUCTIONS***

NORMAL CHEMICAL HANDLING

****

THIS MSDS WAS WRITTEN TO COMPLY WITH THE OSHA HAZARD COMMUNICATION STANDARD

****

APPENDIX: REGULATORY INFORMATION

THE CONTENT OF THIS APPENDIX REPRESENTS INFORMATION KNOWN TO BETZ ON THE EFFECTIVE DATE OF THIS MSDS. THIS INFORMATION IS BELIEVED TO BE ACCURATE. ANY CHANGES IN REGULATIONS WILL RESULT IN UPDATED VERSIONS OF THIS DOCUMENT.

...TSCA: ALL COMPONENTS OF THIS PRODUCT ARE LISTED IN THE TSCA INVENTORY

...REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:
683 GALLONS DUE TO DIMETHYLFORMAMIDE(DMF); TREAT AS OIL SPILL

...RCRA: IF THIS PRODUCT IS DISCARDED AS A WASTE,THE RCRA HAZARDOUS WASTE IDENTIFICATION NUMBER IS:NOT APPLICABLE

...DOT HAZARD/UN#/ER GUIDE# IS : NOT APPLICABLE

...CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) MATERIALS:NONE

...SARA SECTION 302 CHEMICALS:NONE

...SARA SECTION 313 CHEMICALS:NONE

...SARA SECTION 312 HAZARD CLASS:PRODUCT IS NON-HAZARDOUS UNDER SECTION 311/312

...MICHIGAN CRITICAL MATERIALS: NONE

NFPA/HMIS : HEALTH - 1; FIRE - 1; REACTIVITY - 0; SPECIAL - NONE; PE - B

BETZ LABORATORIES,INC.
4636 SOMERTON ROAD, TREVOSE, PA. 19053
BETZ MATERIAL SAFETY DATA SHEET
EMERGENCY TELEPHONE (HEALTH/ACCIDENT) 800-877-1940

RODUCT : BETZ DTS

EFFECTIVE DATE 11-13-91
PRINTED: 13-Nov-1991
REVISIONS TO SECTIONS: 1

RODUCT APPLICATION : A DETOXIFYING AGENT.

----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC RODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD IS ISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION.

RESPIRABLE QUARTZ(CRYSTALLINE SILICA)***CAS#14808-60-7;SUSPECT HUMAN CARCINOGEN (IARC=2A);MAY CAUSE LONG TERM LUNG DISEASE(SILICOSIS); RESPIRATORY IRRITANT;PEL/TLV:0.1MG/M3.
RESPIRABLE CRISTOBALITE(CRYSTALLINE SILICA)***CAS#14464-46-1;SUSPECT HUMAN CARCINOGEN(IARC=2A);MAY CAUSE LONG TERM LUNG DISEASE (SILICOSIS); RESPIRATORY IRRITANT;PEL/TLV:0.05MG/M3.
RESPIRABLE TRIDYMITE(CRYSTALLINE SILICA)***CAS#15468-32-3;SUSPECT HUMAN CARCINOGEN(IARC=2A);MAY CAUSE LONG TERM LUNG DISEASE(SILICOSIS); RESPIRATORY IRRITANT;PEL/TLV:0.05MG/M3.
TRIETHANOLAMINE***CAS#102-71-6;IRRITANT;POTENTIAL LIVER AND KIDNEY TOXIN; PEL/TLV:NONE.

---SECTION 2----------TYPICAL PHYSICAL DATA----------

H: AS IS	(APPROX.)	5.9	ODOR: SLIGHT
L.PT.(DEG.F): >200	P-M(CC)		SP.GR.(70F)OR DENSITY: 1.142
POR PRESSURE(mmHG): 18			VAPOR DENSITY(AIR=1): <1
SC cps70F: 2,000			%SOLUBILITY(WATER): 0
VAP.RATE: ND	WATER=1		APPEARANCE: GREEN-BROWN
HYSICAL STATE: LIQUID			FREEZE POINT(DEG.F): 32

---SECTION 3----------REACTIVITY DATA----------

ABLE. BETZ TANK CLEAN-OUT CATEGORY 'B'

HERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

PRODUCT: BETZ DTS

----SECTION 4----------HEALTH HAZARD EFFECTS----------

CUTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
SLIGHTLY IRRITATING TO THE SKIN

ACUTE EYE EFFECTS ***
MODERATELY IRRITATING TO THE EYES

CUTE RESPIRATORY EFFECTS ***
MISTS/AEROSOLS MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

CHRONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED EXPOSURES MAY CAUSE LIVER AND KIDNEY TOXICITY.

..EDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

SYMPTOMS OF EXPOSURE ***
MAY CAUSE REDNESS OR ITCHING OF SKIN.

----SECTION 5----------FIRST AID INSTRUCTIONS----------

KIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

YE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

NHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY

INGESTION***
DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
DILUTE CONTENTS OF STOMACH.INDUCE VOMITING BY ONE OF THE STANDARD METHODS.IMMEDIATELY CONTACT A PHYSICIAN

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

PILL INSTRUCTIONS***
VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL, SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.
FLUSH AREA WITH WATER. WET AREA MAY BE SLIPPERY. SPREAD SAND/GRIT.

ISPOSAL INSTRUCTIONS***
WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER TREATMENT FACILITY,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A PERMITTED WASTE TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT
PRODUCT(AS IS)-
INCINERATE OR BURY IN APPROVED LANDFILL

IRE EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).PROPER FIRE EXTINGUISHING MEDIA: DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

PRODUCT: BETZ DTS

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E PROTECTIVE EQUIPMENT IN ACCORDANCE WITH 29CFR SECTION 1910.132-134. USE
RESPIRATORS WITHIN USE LIMITATIONS OR ELSE USE SUPPLIED AIR RESPIRATORS.
VENTILATION PROTECTION***
ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS
COMMENDED RESPIRATORY PROTECTION***
IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY,
USE A RESPIRATOR WITH DUST/MIST FILTERS.
COMMENDED SKIN PROTECTION***
RUBBER GLOVES
WASH OFF AFTER EACH USE.REPLACE AS NECESSARY
COMMENDED EYE PROTECTION***
SPLASH PROOF CHEMICAL GOGGLES

---SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

ORAGE INSTRUCTIONS***
KEEP DRUMS & PAILS CLOSED WHEN NOT IN USE.
DO NOT FREEZE.IF FROZEN,THAW AND MIX COMPLETELY PRIOR TO USE
NDLING INSTRUCTIONS***
NORMAL CHEMICAL HANDLING

****

THIS MSDS WAS WRITTEN TO COMPLY WITH THE OSHA HAZARD COMMUNICATION STANDARD

****

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Y CHANGES IN REGULATIONS WILL RESULT IN UPDATED VERSIONS OF THIS DOCUMENT.

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.REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:
EAT AS OIL SPILL
...RCRA: IF THIS PRODUCT IS DISCARDED AS A WASTE,THE RCRA HAZARDOUS WASTE
IDENTIFICATION NUMBER IS: NOT APPLICABLE
.DOT HAZARD/UN#/ER GUIDE# IS: NOT APPLICABLE
.CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) MATERIALS: NONE
...SARA SECTION 302 CHEMICALS: NONE
.SARA SECTION 313 CHEMICALS: NONE
.SARA SECTION 312 HAZARD CLASS: IMMEDIATE(ACUTE)
...MICHIGAN CRITICAL MATERIALS: NONE
NFPA/HMIS : HEALTH - 1 ; FIRE - 1 ; REACTIVITY - 0 ; SPECIAL - NONE ; PE - B

BETZ LABORATORIES
4636 SOMERTON ROAD , TREVOSE, PA 19053

PRODUCT: FOAM-TROL 387A

AQUATIC TOXICOLOGY

Fathead Minnow
96 Hour Static Acute Bioassay
LC50: 1255 MG/L
No effect level: 549 MG/L

Daphnia magna
48 Hour Static Acute Bioassay
LC50: 1132 MG/L
No effect level: 549 MG/L

MAMMALIAN TOXICOLOGY

ORAL LD50 : NO DATA

DERMAL LD50 : NO DATA

INHALATION : NO DATA

SKIN IRRITATION SCORE : NO DATA

EYE IRRITATION SCORE : NO DATA

ATTACHMENT 4

BETZ LABORATORIES, INC.

AQUATIC TOXICOLOGY LABORATORY

SOMERTON ROAD•TREVOSE, PA 19047•U.S.A. / TEL: 215•355-3300•TELEX: 173148•FAX # 355-2869

Chronic Toxicity of Clam-Trol CT-1 to Ceriodaphnia

A 7-day static renewal toxicity test was conducted to estimate the chronic toxicity of a 12 hour Clam-Trol CT-1 exposure to Ceriodaphnia dubia, using neonates less than 24 hours old. The endpoints of this toxicity test are based on adverse effects on survival and reproduction. This toxicity test was conducted following EPA protocol as described in "Short-Term Methods For Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms.

The lowest observed effect concentration (LOEC) for a 12 hour exposure to Clam-Trol CT-1 for both survival and reproduction was 0.80 mg/L. The no observed effect concentration (NOEC) for survival and reproduction was 0.40 mg/L Clam-Trol CT-1. The chronic value, the estimated "safe" or "no effect" concentration for Clam-Trol CT-1 is 0.56 mg/L.

Mortality and Growth of the Ceriodaphnia dubia 7-day after a 12 hour exposure to Clam-Trol CT-1.

CT-1 Concentration mg/L	Mortality %	Average # of Neonates Produced
0.0	0	25.5
0.05	0	28.7
0.10	0	23.8
0.20	0	24.6
0.40	10	22.3
0.80	90*	18 total neonates*
1.60	100	

* Significantly different from Control (a = 0.05, Dunnett's test)

BETZ LABORATORIES, INC.

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Acute Toxicity (LC_{50}'s)

Clam-Trol CT-1

Freshwater Organisms

Rainbow Trout	:	96 hr LC_{50} = 14.7 mg/L
Bluegill Sunfish	:	96 hr LC_{50} = 4.3 mg/L
Fathead Minnow	:	96 hr LC_{50} = 2.9 mg/L
Daphnia magna	:	48 hr LC_{50} = 0.4 mg/L
Ceriodaphnia dubia	:	48 hr LC_{50} = 0.45 mg/L
Chironomus riparius (Midge Larvae)	:	48 hr LC_{50} = 6.5 mg/L
Goniobasis sp (Snail)	:	96 hr LC_{50} = 11.0 mg/L

Note: The above LC_{50} values represent toxicity levels for Clam-Trol CT-1 when 100% of the "free" actives are available to the aquatic organism (that is, no suspended solids for adsorption of the actives).